

**APPENDIX I**  
**ICON EXPERT REPORT**



Environmental Services, Inc

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October 18, 2024

Mr. Matt Keating  
Mudd, Bruchhaus, & Keating, LLC  
422 E. College Street, Suite B  
Lake Charles, LA 70605

**Subject: Expert Report and Restoration Plan for the Landowners  
Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC;  
Docket C-502-20; Mermentau West Oil Field, Jefferson Davis Parish, LA**

Dear Mr. Keating,

**ICON Environmental Services, Inc. (ICON)** submits for your consideration this report of the results of environmental assessment at the subject property, and includes a restoration plan to address contaminated soil and groundwater with the following attachments.

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## **QUALIFICATIONS, AREAS OF EXPERTISE, AND COMPENSATION**

Gregory Miller obtained a bachelor of science in geology from the University of Southwestern Louisiana in 1982, and has been employed as a professional geologist since 1983. He worked in the oil and gas industry as a core and log analyst from 1983 to 1986. Since that time, he has worked in the environmental industry in the northeast United States from 1986 to 1990, and in the Gulf Coast since 1990. Mr. Miller has been recognized in State and Federal courts as an expert in the fields of geology, hydrogeology, site assessment, implementation of the Louisiana RECAP protocol, regulatory compliance, and remediation. Mr. Miller is the president and an owner of ICON, and holds the State License Board of Contractor's License #35504 for ICON with specialization in hazardous materials site remediation. Mr. Miller holds License Number 939 from the Louisiana Board of Professional Geoscientists. ICON holds License #4001 from the Louisiana Professional Engineering and Land Surveying Board to provide professional engineering services in the State of Louisiana. Mr. Miller's billing rate is \$180/hour for normal project work and \$240/hour for expert witness testimony.

Mr. Jason Sills obtained a bachelor of science in environmental engineering from Louisiana State University in 2000, and has worked as an environmental consultant since 2000. Mr. Sills is currently senior engineer at ICON and holds certification as Engineering Intern with EI No. 20568. Mr. Sills has been recognized by State court and regulatory bodies as an expert in the fields of site assessment and remediation, interpretation and application of Statewide Order 29-B, and interpretation and application of Louisiana Department of Environmental Quality RECAP. Mr Sills' billing rate is \$165/hour for normal project work and \$220/hour for expert witness testimony.

A copy of resumes and list of testimony experience is included in **Appendix D**.

## **ASSESSMENT OVERVIEW**

Assessment activities included the following tasks:

- Terrain conductivity survey was performed from June 2021 using a Geophex GEM-2 variable frequency conductivity meter. The instrument utilizes a transmitter coil and a receiver coil separated by about 5.5 feet, and contains a third "bucking coil" that removes the primary field from the receiver coil. The instrument utilizes a programmable variable frequency transmitter. In general, the instrument has a deeper effective depth of investigation at lower frequencies (1170 hz), and a relatively shallower depth of investigation at higher frequencies (13590 hz). The instrument was programmed to collect data at a time constant of approximately one second. The primary data are recorded as part per million (ppm) ratio of the secondary magnetic field to the primary magnetic field in phase and quadrature mode. Computer software is used to convert ppm



data to apparent conductivity, based on the assumption that the earth below the sensor is represented by a homogeneous and isotropic half-space. The algorithm used for conversion is based on the Hankel transformation integration of a first-order Bessel function. The resulting apparent conductivity data are in units of millisiemens/meter. The instrument concurrently logs coordinates obtained from a GPS receiver, and all data are stored into an on-board computer. Data were imported into a Surfer contouring program used to plot transects of the surveys (**Figure 30**), and contours for each frequency calculated using the kriging algorithm. Resulting maps were imported into an AutoCAD basemap of the site, and scaled to real dimensions and superimposed onto a scaled aerial photograph included as **Figure 31** for the deeper lower frequency, and **Figure 32** for the shallower high frequency. The anomalies of greatest magnitude were seen around former production pits and and tank batteries. A high anomaly is seen around the pit complex south of the J Boudreaux #1/CASTEX Systems SWD #1 (sn34959). Additional anomalies are seen at the former pit and tank battery southeast of the Johnson-Boudreaux SWD #2 well (sn971675), at Bruce #2 (sn206253) which cratered in 2014, and west of the tank battery at the R R Bruce #1 well (sn200772) likely indicating contribution to contamination from the historical E&P activities and features (pits, production equipment, and spills).

- Soil and groundwater samples were collected using hand auger equipment or a hydraulic push rig from June 2021 through June 2022, and included the following tasks:
  - Soil samples were collected using a hand auger and/or a Geoprobe hydraulic direct-push rig mounted tracked rig, advancing a Geoprobe Dual-Tube Core Sampling system with dedicated liner. The dual tube system simultaneously advances an outer casing and an inner core barrel with an acetate liner for soil sample recovery in four-foot lengths. Once the base of the cored interval is reached, the core barrel with sample and liner are withdrawn while leaving the outer casing in place. A new liner is inserted in the core barrel and lowered to the base of the outer casing, and both strings are advanced another four feet. Thus, the coring process proceeds through a cased hole, allowing soil sampling through perched groundwater or unconsolidated zones, and prevents downward cross-contamination from previously sampled intervals. Selected soil samples were submitted for laboratory analysis and the data is summarized in **Table 2**. Boring Logs are included in **Appendix A**.
  - Soil conductivity logs were obtained from borings CD-2, CD-5, CD-6, CD-7, CD-10, CD-12, CD-13, CD-14, and CD-15 using a Geoprobe® Soil Conductivity probe in March 2022 through June 2022. A SC5000 Wenner Array conductivity probe was advanced using a Geoprobe hydraulic direct push rig, and conductivity readings were logged into a field computer. The log that is generated depicts bulk conductivity in units of mS/m. The probe is calibrated at the factory to several concentrations of fluid conductivity. The probe has a vertical resolution of 0.05 ft, and a sampling rate of 20 samples per second. Prior to use, the probe calibration and continuity/isolation of the contact array was checked using a calibration block. The field computer completes the calibration check automatically, and will not allow use of a contact that does not meet minimum criteria for calibration, continuity or isolation. In native materials, clays have a

relatively high electrical conductivity (generally 200 to 450 mS/m), silts have an intermediate conductivity, and sand/gravel has a low conductivity (less than 50 mS/m). In soils impacted by salt water, the conductivity exceeds values obtained in unimpacted soils. Thus, the conductivity log is an excellent indicator of brine impact. The conductivity data are obtained at a frequency of one reading per 0.05 foot, and the depth is concurrently measured using a potentiometer (string pot) and concurrently logged onto a field computer. Conductivity logs are plotted and imported onto a soil boring log where log response can be evaluated along with lithological descriptions and laboratory data. Boring logs are presented in **Appendix A**.

- Soil hydraulic profiling logs were obtained from borings CD-1, CD-3, CD-4, CD-8, and CD-9 using a Geoprobe® Direct Image® Hydraulic Profiling Tool (HPT). The HPT probe was advanced using a Geoprobe hydraulic direct push rig, and readings were logged into a field computer. This instrument was developed by Geoprobe® to evaluate hydraulic conditions of the subsurface soils. The tool is advanced at a constant rate while water is injected through the probe. A pressure sensor in the probe measures the pressure response of the soil to the water injection. The pressure response indicates the ability of the soil to transmit water. The pressure and flow rate of water injected into the subsurface along with the electrical conductivity is logged versus depth. The log can be used to determine formation permeability and map salt contaminant plumes in the subsurface. The detailed logs are included on the soil boring logs presented in **Appendix A**.
- Groundwater samples were collected from ¾-inch diameter PVC wells with 5-foot to 15-foot long screens, installed in March 2022 through June 2024 by pushing the well within a barrel with an expendable tip to the desired interval and withdrawing the barrel while keeping the well in place. A clean commercial filter sock was placed over the screened portion of the well. Filter sand was poured into the annular space adjacent and slightly above the screened interval. In instances of flowing sand or silt, native sand/silt pack comprises the filter pack. A bentonite seal was placed in the top portion of the annulus using ¼-inch diameter bentonite pellets. Grout consisting of Portland cement with 4% bentonite powder is typically pumped through tremie pipe above the bentonite seal to ground surface to complete the installation. All monitoring wells were completed with surface completions and were surveyed to determine groundwater flow direction.
- Groundwater samples were collected using a peristaltic pump with dedicated polyethylene tubing. Wells were purged prior to sampling and the same dedicated tubing was used for purging and sampling. Field parameters were measured while purging (specific conductance, temperature, pH, dissolved oxygen, oxidation-reduction potential and turbidity). Once field parameters stabilized, the well was immediately sampled by pumping with the peristaltic pump at a low flow rate. Groundwater samples were collected in laboratory-supplied containers with appropriate preservative, and were chilled in an ice chest during storage and shipment to Element Materials Technology (LELAP accredited for all constituents), Lafayette, LA; and Pace Laboratories, Greensburg, Pennsylvania for radionuclide analysis. Groundwater analytical data is summarized in **Table 4**.

- A NORM Survey was performed at the site in June 2022 using a Ludlum Model 3 meter with 44-2 probe. Samples were collected with hand auger equipment for laboratory analysis of Radium 226 and 228. These samples were submitted to Pace Laboratories, Greensburg, Pennsylvania for analysis. The survey readings and analytical data are included in **Table 7** and **Appendix E**.

## OPINIONS RELATED TO SOURCES AND MIGRATION OF CONTAMINATION

Documents relating to environmental conditions and contamination at the property (including historical aerial images, documents provided from discovery responses and obtained from regulatory agencies and available from public sources such as the USGS, and data from nearby ICON projects of a similar nature) were evaluated and were relied on in forming the opinions that follow.

1. The subject property includes approximately 1130 acres located in Sections 13 and 39 in T10S R3W and Sections 17 and 18 in T10S2W in the West Mermentau Oil Field in Jefferson Davis Parish as shown on **Figure 1**. The site is accessed via LA Highway 1126. The CASTEX property is currently used to grow rice.
2. Surface topography ranges from a high of +16 feet NGVD along LA Highway 1126 (western property boundary) to a low of +2 NGVD along the eastern property boundary. There is a ridge along Bryce Lane and the Bruce #2 (sn206253). The stretch of property is at a higher elevation (+10 NGVD) than portions on either side (**Figure 2**). The drainage for the northern corner of the property has been designated by the Louisiana Department of Environmental Quality (LDEQ), Water Quality Regulations (LAC 33:IX.1123) as subsegment 050301, Bayou Nezpique – From headwaters to Mermentau River, with designated uses as (A) primary contact recreation, (B) secondary contact recreation, (C) propagation of fish and wildlife, and (F) agriculture. The drainage for the remaining portion of property has been designated by the Louisiana Department of Environmental Quality (LDEQ), Water Quality Regulations (LAC 33:IX.1123) as subsegment 050401, Mermentau River – From headwaters to Lake Arthur, with designated uses as (A) primary contact recreation, (B) secondary contact recreation, (C) propagation of fish and wildlife, and (F) agriculture. Numerical criteria for both designations are 90 mg/L for chlorides and 260 mg/L for total dissolved solids (TDS).
3. The U.S. Fish and Wildlife Service (USFWS) wetlands map (**Figure 5**) indicates that the portions of the property is located in wetlands. The portions of the property in wetlands are mapped as:
  - PFO1/2C: Palustrine System (P) including nontidal wetlands dominated by trees and shrubs, where salinity due to ocean derived salts is below 0.5 ppt; the class is (FO) forested characterized by (2) needle-leaved deciduous trees (bald cypress) and (1) broad leaved deciduous woody angiosperms (trees or shrubs) with relatively wide flat leaves that are shed during the cold season; and water regime (C) surface water is present for extended periods especially early in the growing season, but is absent by the end of the growing season in most years.
  - PFO2/1F: Palustrine System with forested class of (1) broadleaved deciduous trees or shrubs and (2) deciduous needle leaved trees (cypress); and water regime

(F) semipermanently flooded where surface water persists throughout the growing season in most years.

- PFO1A (along canal spoil banks): Palustrine System (P) including nontidal wetlands with (FO) forested class with (1) broadleaved deciduous woody trees or shrubs; and water regime (A) surface water is present for brief periods of time during the growing season, but the water table usually lies well below the ground surface for most of the season.

4. The NRCS maps the soils on the property (**Figure 4**), with the following soil types:

- Midland Silty Clay Loam (MdA): This poorly drained soil was formed from late Pleistocene age loamy alluvium derived from igneous, metamorphic and sedimentary rock on terraces, with rare flooding and no ponding, and is classified as prime farmland. Maximum salinity is nonsaline to very slightly saline (0 to 2 mmhos/cm).
- Mowata-Vidrine complex (MwA): This poorly drained soil was formed from late Pleistocene age loamy fluviomarine deposits on drainageways, with rare to no flooding and no ponding, and is classified as prime farmland. Maximum salinity is nonsaline to very slightly saline (0 to 2 mmhos/cm) with a maximum SAR of 2.
- Crowley-Vidrine complex (CrB): Somewhat poorly drained soil formed from Pleistocene age clayey fluviomarine deposits derived from igneous, metamorphic and sedimentary rock on terraces, with no flooding and no ponding, classified as prime farmland, and is nonsaline to very slightly saline (0 to 2.0 mmhos/cm).
- Crowley-Vidrine complex (CrA): This somewhat poorly drained soil was formed from Pleistocene age clayey fluviomarine deposits derived from igneous, metamorphic and sedimentary rock on terraces, with no flooding or ponding, and is classified as prime farmland. Maximum salinity is nonsaline to very slightly saline (0 to 2 mmhos/cm).
- Acadia Silt Loam (AcB): Somewhat poorly drained soil formed from late Pleistocene age silty and clayey fluviomarine deposits derived from igneous, metamorphic and sedimentary rock on terraces, with no flooding and no ponding, classified as prime farmland, and is nonsaline (0 to 1.0 mmhos/cm).
- Basile and Brule (BEA): Poorly drained soil formed from loamy alluvium derived from igneous, metamorphic and sedimentary rock on flood plains, with frequent to no flooding and no ponding, classified as not prime farmland, and is nonsaline to very slightly saline (0 to 2.0 mmhos/cm).

5. The United States Geological Survey (USGS) maps the surface geology of the subject property and surrounding areas as (Figure 6):

- The majority of the property is mapped as “Ppbe”, the Beaumont Alloformation, the Pleistocene stratigraphic sequence underlying the oldest and topographically highest of the Prairie surfaces west of the Mississippi alluvial valley. It exhibits the relict channels of the Red River
- Areas on the extreme southeast portion of the property is mapped as “Hua” – Holocene Undifferentiated Alluvium of small upland streams – these deposits form the modern flood plain within the valley of Mermentau River that was cut into older Pleistocene deposits.

6. Site geology was evaluated using core descriptions from onsite borings, HPT and conductivity log response, water well drillers logs, and shallow geophysical logs. This data was used to depict shallow geology along four cross sections: two (generally) north-south cross sections A-A' and B-B', and two (generally) east-west cross sections C-C' and D-D'. The locations of the cross section transects are depicted on Figure 7. Shallow geology can be summarized as follows:
- **Land surface to the top of the Chicot Aquifer:** Beds of silt and silty clays deposited in fluvial environments and relatively fewer beds in the vertical profile comprised of low-permeability clays associated with flood plain environments. Two groundwater-bearing strata were identified and are identified herein as:
    - **A Zone** that was encountered generally within 40 to 50 feet below land surface (bls) comprised of loose brown silt with some silty clay beds. Potentiometric head in the A Zone ranges from +6 to -10 feet NAVD, and exists under 3 to 10 feet of confining head (**Figures 8 and 9**). This stratum is present regionally and has been found in environmental assessments at other sites located at least 1-1/2 miles around the subject property.
    - **B Zone** that was encountered generally at 50 to 60 feet bls and is in hydraulic communication with the underlying Chicot Aquifer. Potentiometric head in the B Zone generally ranges from -10 to -50 feet NAVD. Groundwater exists under 30 feet of confining head beneath the southeastern portion of the property. **The hydraulic gradient steepens dramatically to the northwest beneath the center of the property and the B-Zone becomes dewatered towards the northwest corner of the site at CD10d, indicative of substantial downward groundwater flow into the Chicot Aquifer (Figures 8 and 9).**
  - **Chicot Aquifer** is generally encountered at a depth of 80 to 100 feet below land surface beneath most of the site, but the **top of the Chicot Aquifer becomes much shallower (48 feet bls) at the northwest corner of the site at CD10d (Figure 49).** Sands of the Chicot Aquifer extend down to a depth of 1050 feet bls (log of sn65497 for the Tidewater Acadia Development Co. #1 well located 1450 feet north of the subject property). The base of the USDW would coincide with the **depth of Chicot Aquifer sands at a depth of 1050 feet bls.**
7. Potentiometric data (depth to water measurements) from the monitoring wells were collected on three dates: June 6, 2022 (**Figures 10 and 11**), September 8, 2022 (**Figures 12 and 13**) and July 3, 2024 (**Figures 14 and 15**). Potentiometric elevation was determined by measuring depth to static groundwater level relative to the surveyed top of well casing elevation. The Langlinais & Associates survey can be found in **Appendix I**. Because of the presence of elevated concentrations of contamination by produced water in some wells, potentiometric data were corrected for density effects to properly evaluate groundwater flow. Hydraulic head is the measured depth to water in a well, and is a function of elevation head and pressure head. The pressure head of the water level in a well is a function of the density of the water and the gravitational constant. In lay terms, in an instance of two wells with the same potentiometric surface, the measured depth to water in a well with highly saline water will be greater as compared to the depth to fresh

water in the other well. In order to properly evaluate groundwater flow potential, a groundwater flow regimen of variable density can be normalized using a reference density typically called the fresh water head (the imaginary equivalent column of water of equal density for all wells). Corrections were based on methods included in the publication “Using Hydraulic Head Measurements in Variable-Density Ground Water Flow Analyses, Post, Kooi and Simmons, *GROUND WATER, Vol 45, No.6, Nov-Dec 2007, Pp 664-671*”, and corrected head is presented in units of equivalent fresh water head – EFWH). Groundwater flow patterns were relatively consistent for the A Zone and B Zone on each of the three measurement dates. Flow patterns can be summarized as follows:

- **A Zone:** Groundwater flow direction was radially inward towards the center of the assessment area of the property. The head in the A-Zone was considerably higher as compared to head in the B-Zone, indicating that the radially-inward flow pattern is indicative of downward seepage towards and into the B-Zone. Hydraulic gradient was highest on the July 2024 event, with a head difference of 14 feet over a distance of 1640 feet resulting in a hydraulic gradient of 0.0085.
  - **B Zone:** Groundwater flow direction was generally from east to west, with a localized northward component at the northern edge of the property. The hydraulic gradient increased at an anomously high rate between Monitoring Wells CD4b and CD5b, changing 20.67 feet in elevation over a distance of 370 feet, or at a gradient of 0.0558 (Figure 15). Both wells are screened in the same sand (Figure 9). Groundwater flow in this area is to the west-northwest, and the B-Zone aquifer was dewatered at the location of CD10d at the northwest corner of the assessment area of the property (Figure 15). This flow pattern is indicative of vertically downward groundwater flow from the B Zone via direct hydraulic communication with the underlying Chicot Aquifer in an area roughly between Monitoring Well CD9 and CD10. Using the hydraulic conductivity (k) of 0.9734 ft/day at CD9b, the gradient (i) of 0.0558, a cumulative sand thickness of 24 feet, and the 1404-ft width of the 1000-mg/L chloride plume in the B-Zone (Figure 37, for an area “a” of 33,696 ft<sup>2</sup>), Darcy’s Law ( $Q=k*i*a$ ) suggests a discharge of 13,690 gallons per day of chloride-contaminated groundwater is discharging into the underlying Chicot Aquifer.
8. Aquifer tests (falling head slug tests) were performed on A-Zone aquifer in Monitoring Wells CD2a, CD3A, CD4A and CD10A; and on B-Zone aquifer Monitoring Wells CD1C and CD2B. Slug tests were performed by pouring a known volume of water into the well that induced an (approximate) instantaneous change in head, and using a data logger to measure the rate of equilibration to original head level. Data were analyzed using the Hvorslev and Bouwer and Rice Methods (Table 6). Aquifer testing was also performed using the constant discharge pumping method in B-Zone wells CD2B, CD6B and CD9B. Pumping was continued until drawdown equilibrated during constant discharge pumping, which occurred after pumping each of the three wells for a period ranging from 42 to 65 minutes. Hydraulic conductivity was calculated using the Half Ellipsoid/Radial Flow equations as described in “Determining Hydraulic Conductivity Using Pumping Data from Low-Flow Sampling, Robbins, Aragon-Jose, Romero, *Ground Water, Vol 47, No.2,*

**March-April 2009". Aquifer testing using both the slug test method and constant discharge pumping method was performed on monitoring well CD2B, and the calculated hydraulic conductivity value using the pumping method was 0.348 ft/day as compared to the slug test result of 0.2023 ft/day.** This is likely attributed to the fact that the constant discharge pumping method tested a larger volume of the aquifer (due to the longer pumping period) that likely included portions of the aquifer outside of the compacted zone caused by the direct-push equipment used to install the wells.

9. History of Exploration & Production and Aerial Image Reviews are summarized by well as follows:

- The **Johnson Boudreaux #1 (sn17888)** was drilled in Section 39 in June 1935 by H. M. Hayler. The well was plugged and abandoned as a dry hole.
- The **Johnson Boudreaux #1 (sn28396)** was drilled in Section 39 in April 1943 by Continental Oil Company, and was plugged and abandoned as a dry hole in July 1945. The well was re-entered and converted to Salt Water Disposal (SWD) by Delta Drilling Company in June 1963. The well is abandoned and is now orphaned. The 1962 image (Figure 18) shows a pit feature south of the well location.
- The **Johnson Boudreaux #1(sn34959)** was drilled just east of sn28396 by Roeser & Pendleton in 1948. Marshall R Young became operator of record in January 1953. A well test in September 1954 indicated production of 2.7 bopd (barrels oil per day), 233 mcf/d (thousand cubic feet of gas per day), 99.5% bsw (basic sediment and water), with 51.9 API gravity oil. Delta Drilling Company became operator of record in April 1958. The well was reworked with a test in April 1959 indicating production of 83 bopd, 1071 mcf/d, 0.1% bsw, with 55.6 API gravity oil. The well was plugged and abandoned (P&A'd) by Delta in March 1966. The well was re-entered by Castex Systems Inc in September 1982 for use as a SWD well (Castex Systems SWD #1). The well was worked over in 1984 and 1985, and is currently abandoned and in the Orphan Well program. Historical aerial images show:
  - 1952 Image (Figure 17) shows a production pit south of the well pad.
  - 1962 Image (Figure 18) shows a secondary impoundment levee has been constructed around the original production pit, and new wellpad area east of the production pit. These modifications are likely associated with the conversion of sn28396 to SWD by Delta Drilling Company who operated both wells at that time. These features remain visible in the 1968 image (Figure 19), 1970 image (Figure 20), 1971 image (Figure 21), and 1981 image (Figure 22).
  - The 1990 (Figure 23), 1995 (Figure 24) and 1998 (Figure 25) images show the original production pit has been backfilled, with a new pit feature east of the original pit, and several rectangular pit features north and east of the well pad. These features likely are associated with operations of Castex Systems Inc.
  - The 2004 image (Figure 26) shows the rectangular pit features are no longer visible, and a new pit feature is located west of the original

production pit. This pit feature was never backfilled and is currently filled with brush vegetation.

- The **Johnson Boudreaux #1 (sn76164)** was drilled near the center of the property in Section 39 by General Crude Oil Company in August 1959. The initial completion test indicated production of 96 bopd, 1553 mcf/d, no bsw, with 52.2 API gravity oil. Midwest Oil Corporation became operator of record in March 1961 and the well name was changed to the Johnson Boudreaux #3. The well was converted to SWD in February 1965. Subsequent operators included Amoco Production Company in August 1976, Petroleum Well Services Inc in July 1984, and The Stone Petroleum Corporation in February 1986. The Stone Petroleum Corporation plugged and abandoned the well in January 1986. In February 1986, The Stone Petroleum Corporation drilled the **Johnson Boudreaux SWD#2 (sn971675)**, just east of sn76164. Subsequent operators of this SWD well included Torch Operating Company in November 1994, Occidental Energy Company in January 1997, and Enco Resources Inc in August 2000. Enco found a hole in the 5-1/2” casing at a depth of 270 feet in March 2003. Enco P&A’d the well in April 2019. Historical aerial images show:
  - 1962 Image (Figure 18) shows a two-celled production pit east of the well pad with tanks and production equipment around the wellhead. These features remain consistently visible through the 1981 image (Figures 19 through 22).
  - The production pit is no longer visible in the 1990 image (Figure 23), and much of the production equipment is no longer visible. Subsequent images from 1995 (Figure 24) through 2014 (Figure 28) show a three-tank battery adjacent to SWD#2 well. These tanks are no longer visible in the 2021 image (Figure 29).
- The Boudreaux #2 (sn78514) was drilled by General Crude Oil Company in the southwest portion of the property in Section 29 in May 1960. The well was P&A’d in May 1961 as a non-commercial well.
- **The Johnson Boudreaux #1 (sn82022) was drilled in the east central portion of the property in Section 17 by Midwest Oil Corporation in December 1960.** An initial production test indicated production of 159 bopd, 2659 mcf/d, no bsw, with 47.6 API gravity oil. Midwest recompleted the well as a dual completion with the **Johnson Boudreaux #1d (sn139067)** in April 1972. Subsequent operators of record include Amoco Production Company in July 1974, Petroleum Well Services Inc in May 1984, and The Stone Petroleum Corporation in April 1986. The well was P&A’d in November 1991. Historical aerial imagery shows only a well pad at this location.
- **The Johnson Boudreaux #2 (sn82706) was drilled by Midwest Oil Corporation in April 1961,** and was P&A’d in May 1961 as a dry hole. Midwest submitted an application to convert the well to SWD in March 1963. The historical well file at the LDENR is sparse, but included notices that no record of receipt of the Annual Saltwater Disposal Well reports were received in December 1985, July 1986, September 1987, June 1989, January 1991 and September 1992. **A note in the**

file dated September 1988 indicates that Amoco bought Midwest Oil Corporation, and that adjacent production was by The Stone Petroleum Corporation. The well status is “unable to locate well, no P&A”. Historical images show no discernable features.

- The **Bruce etal #1 (sn158347)** was drilled in the northwest portion of the property in Section 39 by Crown Central Petroleum Corporation in February-March 1978. The initial completion test showed production of 93 bopd, 2239 mcfd, no bsw with 53.3° API gravity oil. The well was P&A’d in October 1980. The well was reentered in July 1995 by Cajun Minerals Inc. as the **Bruce etal #1 (sn217815)**. The well was P&A’d in 1997. The 1981 aerial image (Figure 22) shows remnants of the well pad. The 1990 (Figure 23) and 1995 (Figure 24) images show the location was in rice production. The well pad for the reentry is visible in the 1998 image (Figure 25) and remains in existence today.
- **The RR Bruce #1 (sn200772)** was drilled in the eastern portion of the property in Section 17 by The Stone Petroleum Corporation in November 1985. Initial production was reported at 270 bopd, 3058 mcfd, 8.2% bsw, with 53.8° API gravity oil. The 5-1/2” casing collapsed and the well was P&A’d in June 1988. The well was sidetracked and deepened by the Stone Petroleum Corporation in June 1988 as the **RR Bruce #3 well (sn208588)**. Initial production of the #3 well was reported at 177 bopd, 495 mcfd, 23.7% bsw, with 42.8° API gravity oil. Subsequent operators of record include Torch Operating Company in February 1995, **Occidental Energy Company Inc in January 1997**, and Enco Resources Inc in August 2000. The well is currently shut in. Historical images from 1990 (Figure 23) through 1998 (Figure 25) show the well pad with a tank battery at the east end of the pad. The 2004 (Figure 26) and later images show an additional tank battery north of the first battery. Damaged storage tanks are visible at the edge of the pad.
- The **RR Bruce #2 well (sn206253)** was drilled in the northeast corner of the property in Section 17 by The Stone Petroleum Corporation in July-October 1987. Initial production was reported at 336 bopd, 2100 mcfd, no bsw, with 47.3° API gravity oil. A test in March 1990 reported 62 bopd, 1412 mcfd, 67.5% bsw, with 49.6° API gravity oil. Subsequent operators included Torch Operating Company in November 1994, Occidental Energy Company Inc in January 1997, and Enco Resources Inc in August 2000. **During an inspection on November 24, 2014, a crater (50 feet across and 20 feet deep) was found around the well with bubbling from the cellar and around the casing.** A March 9 2015 inspection found the casing leaking at the base and 15 feet from the base. A February 5, 2016 inspection found dry gas leaking about 18 feet around the well, and it was concluded that the well was a hazard to people living about a mile away. The well was P&A’d by C&S well service on August 2-31, 2016. The P&A report indicated that the casing failed a pressure test between depths of 221 to 813 feet. The 1990 aerial image (Figure 23) shows the well pad with a former pit north and east of the pad. Subsequent image through 2012 (Figure 27) show the well pad, with the pit areas becoming progressively more vegetated through time, and a

tank south of the well. The 2014 image (Figure 28 from GoogleEarth dated October 30, 2014) shows the crater around the wellhead and a large area of sand north and west of the wellhead.

- The Johnson Boudreaux Farm #1 (sn229984) was drilled in the northeast portion of the property in Section 17 by St. Mary Energy Company in December 2004. Initial production was reported at 324 bopd, 1932 mcf/d, no bsw, with 45.6° API gravity oil. Subsequent operators of record include St. Mary Land & Exploration company in August 2008 and CEL Properties LLC in May 2009. The well is actively producing. Aerial imagery shows the well pad with circular drive, production equipment and a tank battery.
10. Soil constituents were compared to a **calculated background value (applicable to both lease restoration and Louisiana Law)**. Soil background values were calculated using sampling data from throughout the property. The locations used to calculate background (CD-5, CD-6, CD-8, CD-9, CD-10, and CD-11) are shown on **Figure 33**. Nineteen (19) soil samples from six (6) borings were used to calculate a background concentration for salinity and 18 soil samples were used to calculate background for heavy metals and sodicity (**Table 1**). Background was calculated as the arithmetic mean concentration plus two standard deviations, which represents a 95% confidence interval for a normal distribution. Background values are included in the header and exceedances of these standards are shaded on **Table 2**.
  11. Sources of soil contamination consist of historical pits and surface discharges from production equipment as determined from scarring and vegetative stress on historical aerial images. The proposed soil restoration areas are shown on **Figure 56**.
  12. **The existence of salt-contaminated soils at deep depths is evidence that produced salt water discharged at the land surface, spilled or seeping from pits has the capability of penetrating underlying silty clay and clay strata to a much higher degree as compared to seepage of fresh water. Geotechnical laboratory testing for permeability is performed using distilled or deionized water.** It has been known for decades that the hydraulic conductivity (permeability) of clays is affected by the salt concentration of the solution, and the chemical composition of the liquid moving through a liner must be taken into account (*“Design Considerations for Earth Linings for Seepage Control, Herman Bouwer, Groundwater, Vol 20, No.5, Sep-Oct 1982”*). The United States Corps of Engineers Field Manual (*EM 1110-2-1901, 30Sep86*) states that “cohesive soils may be two to three orders of magnitude more permeable to seepage water containing moderate amounts of dissolved salts (less than 300 ppm by weight) than the distilled water”. Also, a letter dated January 5, 1989 to Southwest Water Disposal (a contractor to BP) from the State of New Mexico discussed results of permeability tests for a commercial evaporation pond and stated: *“the results showed a 37% increase in hydraulic conductivity of material compacted with fresh water followed by leaching using synthetic produced water of 35,000 mg/L TDS, over the same material compacted and leached using only fresh water”*. Historical operators utilizing production pits to dispose of salt water should have known the potential for high seepage rates of salt water through underlying silty clay and clay strata, thereby endangering groundwater aquifers.
  13. **Groundwater analysis results were compared to background constituent concentrations (applicable to both lease restoration and Louisiana Law)**. For the A-Zone and B-Zone

aquifers, data from monitoring wells that were located near the subject property in the publication “*Quality of Water from Shallow Wells in the Rice Growing Area of Southwest Louisiana, Water Resources Investigative Report 03-4050 (USGS 2004)*” were used to evaluate background groundwater quality. Data from monitoring wells 10, 21 and 24 in that publication (Figure 34) were used to represent background values (Table 3). Background was calculated as the arithmetic mean concentration plus two standard deviations, which represents a 95% confidence interval for a normal distribution. This evaluation is considered conservative, because the calculated comparative values for all constituents are less than the reported median value for all samples in the publication (Table 4). Background values are included in the header and exceedances of these standards are shaded on Table 4.

14. Groundwater data from the onsite monitoring wells in the A-Zone and B-Zone aquifers exceeded the calculated background standards for salts (TDS, sodium and chlorides) and heavy metals (arsenic, barium, lead, iron, manganese, strontium, and zinc). Additionally, constituents not normally present in groundwater that were detected included Total Petroleum Hydrocarbons as Diesel (TPHD), TPH-Gasoline, TPH-Oil, and benzene. Although no Radium 226-228 data were available in the background data pool, wells in the areas of elevated COC concentrations also exhibited elevated Radium 226-228 concentrations that obviously exceeded lower concentrations in upgradient wells (generally less than 1 pCi/L). Contaminant distribution maps were prepared for chlorides, arsenic, barium, radium 226-228, benzene, TPH-D and TPH-O (Figures 36 through 51). The contaminant distributions exhibited the following trends:

- Chlorides in the A-Zone (Figure 36) exhibited a commingled plume from multiple sources from pits in former production areas. A major source of chlorides is the pit complex at the Johnson Boudreaux SWD1 (sn34959), where continued leaching from source soils in that area is causing very elevated chloride concentrations (greater than 10,000 mg/L) in the A-Zone aquifer that are higher as compared to chloride concentrations in the underlying B-Zone aquifer in that area (with maximum concentrations of 3520 mg/L). Chloride contamination in the A-Zone aquifer has migrated laterally towards the east central portion of the property due to groundwater flow patterns, and downward into the B-Zone aquifer.
- Chlorides in the B-Zone (Figure 37) exceeded the calculated background standard in three areas: at the Johnson Boudreaux SWD1 (sn34959) pit complex, at the Bruce #2 (sn206253) blowout crater, and at the Johnson Boudreaux SWD2 (sn971675) production pit area. Chloride contamination in the B-Zone aquifer is migrating laterally towards the west from the Johnson Boudreaux SWD2 (sn971675) production pit area due to groundwater flow patterns, and downwards and towards the subcrop of the B-Zone aquifer into the Chicot Aquifer. Chlorides in the SWD2 area are higher in the B-Zone aquifer (>10,000 mg/L) as compared to the concentrations in the overlying A-Zone aquifer, suggesting leaching from the source soils is largely spent, similar to a pulsed release.
- Benzene in the B-Zone Aquifer (Figure 39) exceeded the comparative standard downgradient of the Johnson Boudreaux SWD2 (sn971675) production pit area

likely associated with the pulsed release in that area. Benzene in the B-Zone Aquifer at the Bruce#2 (sn206253) blowout crater is the result of “bottom up” migration from a deeper release from the leaking well in that area.

- TPH-Diesel in the A-Zone aquifer (**Figure 40**) exhibited a commingled plume from multiple sources from pits in former production areas similar to the chloride distribution. An additional potential source is leakage from the two-tank storage battery on the Mermentau River that is south of the CD19 well cluster. TPH-Diesel in the B-Zone aquifer (**Figure 41**) reflects downward migration from elevated TPH concentrations in the overlying A-Zone aquifer.
  - TPH-Oil in the A-Zone and B-Zone aquifers exhibits similar patterns to the TPH-Diesel, with the exception that TPH-Oil was also detected in a Chicot Aquifer well (CD-5d, Figure 45).
  - Barium and Radium 226-228 exhibited similar patterns to the chloride distribution in both aquifers.
  - Arsenic in the A-Zone aquifer (**Figure 48**) exhibited a similar distribution to chlorides with the highest concentration detected (101 ug/L) downgradient of the Bruce#2 (sn206253) blowout crater. The lateral extent has not been delineated to the calculated background value. Arsenic in the B-Zone aquifer (**Figure 49**) generally exhibited concentrations lower as compared to the overlying A-Zone aquifer.
15. Thermogenic gas under pressure was encountered in three Chicot Aquifer monitoring wells adjacent and west of the Bruce #2 (sn206253) blowout crater (**Figure 52**). Gas was also encountered in three B-Zone aquifer monitoring wells, likely resulting from migration across the B-Zone/Chicot subcrop from an accumulated pocket at the top of the Chicot. Samples of the gas were collected on May 13, 2022 from monitoring wells CD-6C, CD-2a, and CD-5b using a cap with nipple connection at the top of the well, and filled an IsoBag sample container. The samples were analyzed at Isotech Labs (Appendix x), with gas from monitoring wells CD-2a and CD-6c plotting in the thermogenic gas zone of stable carbon and hydrogen isotopic compositional ranges of methanes (**Figure 53**). CD-6c exhibited 5.6 mol% methane, 3.05 mol% ethane, and 1.33 mol% propane. A structure map of the top of the Chicot Aquifer based on driller’s logs of water wells, and monitoring well logs suggests accumulated gas pockets may be confined to the east of a ridge of low elevation that extends down to elevation -99 feet NAVD in the vicinity of the Johnson Boudreaux SWD2 (sn971675) area.
16. For the Chicot Aquifer, data from monitoring wells that were located near the subject property in the publication “*Quality of Water in Domestic Wells in the Chicot Aquifer, Water Resources Investigative Report 03-4122 (USGS 2003)*” were used to evaluate background groundwater quality. Data from six monitoring wells in that publication (**Figure 35**) were used to represent background values (**Table 3**). Background was calculated as the arithmetic mean concentration plus two standard deviations, which represents a 95% confidence interval for a normal distribution. This evaluation resulted in a comparative standard for chlorides of 129 mg/L, and is considered conservative because the highest chloride of all six wells was 107 mg/L. Groundwater in the Chicot Aquifer flows to the northwest from the subject property (**Figure 16**). Two water supply

wells located northwest (and thus downgradient) of the subject property were sampled in 2019 during a separate unrelated environmental assessment, and both wells yielded chloride concentrations that exceeded the calculated comparative standard (142 mg/L and 134 mg/L, **Figure 38**). This data suggests that historical site E&P activities, including the Bruce #2 blowout crater, had had an adverse affect on water quality in the Chicot Aquifer.

## RESTORATION PLAN

This plan is based on currently available data and was formulated to address:

- Restoration of soil by excavation (to a maximum depth of 20 feet below ground surface (bgs), limited by the depth of excavation above the A-Zone, to background standards for constituents of concern to satisfy expressed or implied lease obligations and Louisiana Law.
- Restoration of groundwater in the A-Zone and B-Zone to background groundwater concentrations to meet expressed or implied lease restoration obligations. Two versions of this option were considered: one considering offsite disposal of wastewater and one considering onsite disposal of wastewater in saltwater disposal wells (SWDs).
- Install three vent wells into the Chicot Aquifer to vent the gas within the area shown on **Figure 42**.

Methods to remediate soil and groundwater in the areas of investigation identified at the subject properties include the following elements:

### Soil Restoration (Excavation) Cost Estimate

The volume of impacted soil was calculated using soil sample laboratory data and areas were calculated using an engineering design computer program (AutoCadd). Soil remediation includes the following elements:

- Excavate any clean (compliant) overburden to stockpile. Excavate contaminated soil into trucks for offsite disposal. If water accumulates in the excavation, dewatering will occur by digging a sump that is 2 feet deeper than the maximum planned excavation depth and pumping accumulated water into a holding tank for treatment and volume reduction.
- Collect confirmation samples.
- Backfill excavated areas to land surface using stockpiled clean soils and/or clean soil from an offsite location.

## **Groundwater Restoration Cost Estimate**

Costs for restoration were developed for the groundwater remediation areas (**Figure 54 and 55**) associated with the A-Zone and B-Zone. The groundwater plumes used to calculate the remediation areas are shown on the **Figures 36 through 51**. Multiple contaminants are present above baseline standards in Plume A, including metals, chloride, radium 226/228, TPH-Disel, and TPH-Oil. Metals, chloride, radium 226/228, TPH-Disel, TPH-Oil, TPH-Gasoline, and benzene are present above baseline standards in Plume B. The restoration plan for contaminated groundwater in the A-Zone and B-Zone at this site includes pumping contaminated water to the target remedial standards, and treating recovered contaminated groundwater by volume reduction using a treatment train that includes air stripping, physical filtration, chemical dosing, anti-scaling, pH adjustment, and reverse osmosis (RO) to remove chlorides, TDS, metals and to concentrate the volume (the estimate for the RO treatment systems were prepared using specifications provided by Pure Aqua, Inc.). Six RO units are proposed to be used to remediate Plume A and Plume B. A brackish water RO unit will be used to treat the plumes based on the total dissolved solids. The brackish water RO system is designed to operate at 50% recovery; approximately 50% of the recovered groundwater volume will be discharged onsite for soil flushing. Super-concentrated wastewater, or retentate, (approximately 50% of the original feed volume) from RO treatment will be stored in tanks onsite, pending disposal. Disposal costs were developed considering onsite injection of retentate into two saltwater disposal wells (SWD's). Costs to remediate groundwater were evaluated as follows:

- The average contaminant concentration in groundwater was used as the initial concentration for modeling.
- The yield, radius of influence and drainage area for recovery wells was calculated to arrive at an optimum well spacing, recovery rate and number of recovery wells applicable to the geometry of the aquifer and site. The Theis non-equilibrium equation was used to predict yield and radius of influence from a 4-inch diameter recovery well using:
  - The average aquifer thickness within each plume,
  - The site-wide average hydraulic conductivity, based on the geometric mean of slug test data.
  - A storativity of 0.1.
  - The average available drawdown within each plume

The radius of influence was read from the Theis sheets at the approximate 3.0 ft drawdown distance. The resulting calculations are included on the summary sheets in **Appendix G**.

- A sensitivity analysis was performed to calculate the number of aquifer pore volume flushes required to achieve remedial goals, based on the volume of the plume, the groundwater recovery rate, and starting and ending contaminant concentration. Pore volume flushing calculations were based on algorithms presented in EPA's "*Design Guidelines for Conventional Pump-and-Treat Systems, EPA/540/S-97/504, September 1997*". The time required to achieve

target remedial goals at the site was then derived based on the number of pore volumes required to achieve remedial goals and the groundwater recovery rate.

This is a conservative approach, as some studies suggest that four (4) pore volume flushes are required based on the ideal advective-dispersive equation, and as many as 10 pore volume flushes may be needed in non-ideal aquifers due to the tailing effect, as interstitial clays desorb contaminants to the groundwater (*Evaluation of Simple Methods for Estimating Contaminant Removal by Flushing*, Brusseau, *Ground Water*, Vol 34, No. 1, Jan-Feb 1996).

- This methodology is sufficient to estimate the cost of groundwater remediation for cost estimation purposes. Actual system design will be determined after installation of recovery wells, long-term (7-day) pumping tests, groundwater modeling and system engineering and optimization.

### **Restoration Cost Estimate**

Estimated costs for site remediation were prepared assuming the following common elements:

- Disposal costs were estimated based on the waste being classified as Exploration and Production Waste (E&P Waste) and considering offsite disposal at a licensed commercial E&P disposal facility (R360 Environmental Solutions in Mermentau, LA). A soil disposal cost of \$22.00 per barrel was provided by R360. An estimate from Custom Ecology, Inc. for transportation was used for this scenerio. Costs for excavation, earthwork, site preparation, and backfilling under this option were calculated from unit price data included in *Heavy Construction Costs with RSMeans Data, 36<sup>th</sup> Edition (2022)*, and include material, equipment and labor. The RS Means publication includes comprehensive construction cost data and is listed in the Louisiana Department of Natural Resources (LDNR) document, *Permitting Requirements and Procedures Guidance Document for Commercial Exploration and Production Waste Facilities and Transfer Stations (March 2010)* as the preferred reference for estimating closure and post-closure costs for E&P facilities. Individual unit prices (including overhead and profit) for each task were obtained from categorized tables in the RS Means publication and summarized to provide a unit rate for this estimate. Costs are itemized on tables in **Appendix F**.
- Estimated costs associated with groundwater remediation include recovery well installation, operation and maintenance of the RO systems, installation of two saltwater disposal wells (SWD's), and operation and maintenance of the SWD's. Unit costs are based on vendor estimates provided for similar estimates, and from unit price data included in *Heavy Construction Costs with RSMeans Data, 36<sup>th</sup> Edition (2022)*. Costs are itemized on tables in **Appendix G**.
- A cost to install three vent wells was obtained from Elm Springs, Inc. located in Magnolia, Arkansas. The wells are intended to vent the gas trapped in the Chicot Aquifer. Elm Springs quote includes driving a 13 3/8" conductor to 30'bgs and

installing the following size casings and/or tubing, a 8 5/8” casing to 60’ bgs, a 5 1/2” casing to 95’ bgs, and a 2 7/8” tubing to 110’ bgs.

Itemized costs for site remediation of each area of investigation under each remediation plan are included in the following tables:

**REMEDIATION OF SOIL TO BACKGROUND STANDARDS**

	Soil Remediation to 20’ bls
Soil Remediation	<b>\$16,765,641</b>

**REMEDIATION OF GROUNDWATER TO BACKGROUND STANDARDS**

	Volume Reduction w/offsite disposal of water	Volume Reduction w/onsite disposal of water
A-Zone (Plume 1)	\$89,651,774	\$10,458,845
A-Zone (Plume 2)	\$39,183,169	\$6,990,403
B-Zone (Plume 3)	\$37,952,653	\$5,010,436
B-Zone (Plume 4)	\$70,868,889	\$10,874,417
RO Unit Capital and O&M costs (Brackish)	\$1,076,269	\$1,076,269
SWD Capital and O&M costs	----	\$12,202,592
Installation of Vent Wells Into Chicot	\$552,420	\$552,420
<b>TOTAL</b>	<b>\$239,285,174</b>	<b>\$47,165,382</b>

**IMPLEMENTATION PLAN FOR REMEDIATION**

Site remediation will be implemented in phases according to the following schedule:

Phase 1

- Excavation, offsite disposal/onsite amendment of impacted soils
- Confirmation sampling of soil
- Backfilling
- Groundwater recovery and monitoring well installation



- Data collection/ groundwater modeling/engineering design
- Pilot Testing/Treatment system optimization

Phase 2

- Full-scale groundwater remediation and groundwater monitoring

The opinions and interpretations listed herein are based on the referenced sources and are subject to change upon receipt of additional data. I reserve the right to supplement and amend this report at a later time based on additional information that may become available as discovery in the captioned matter is ongoing. If you have any questions concerning this report, please feel free to contact me at (225) 344-8490.

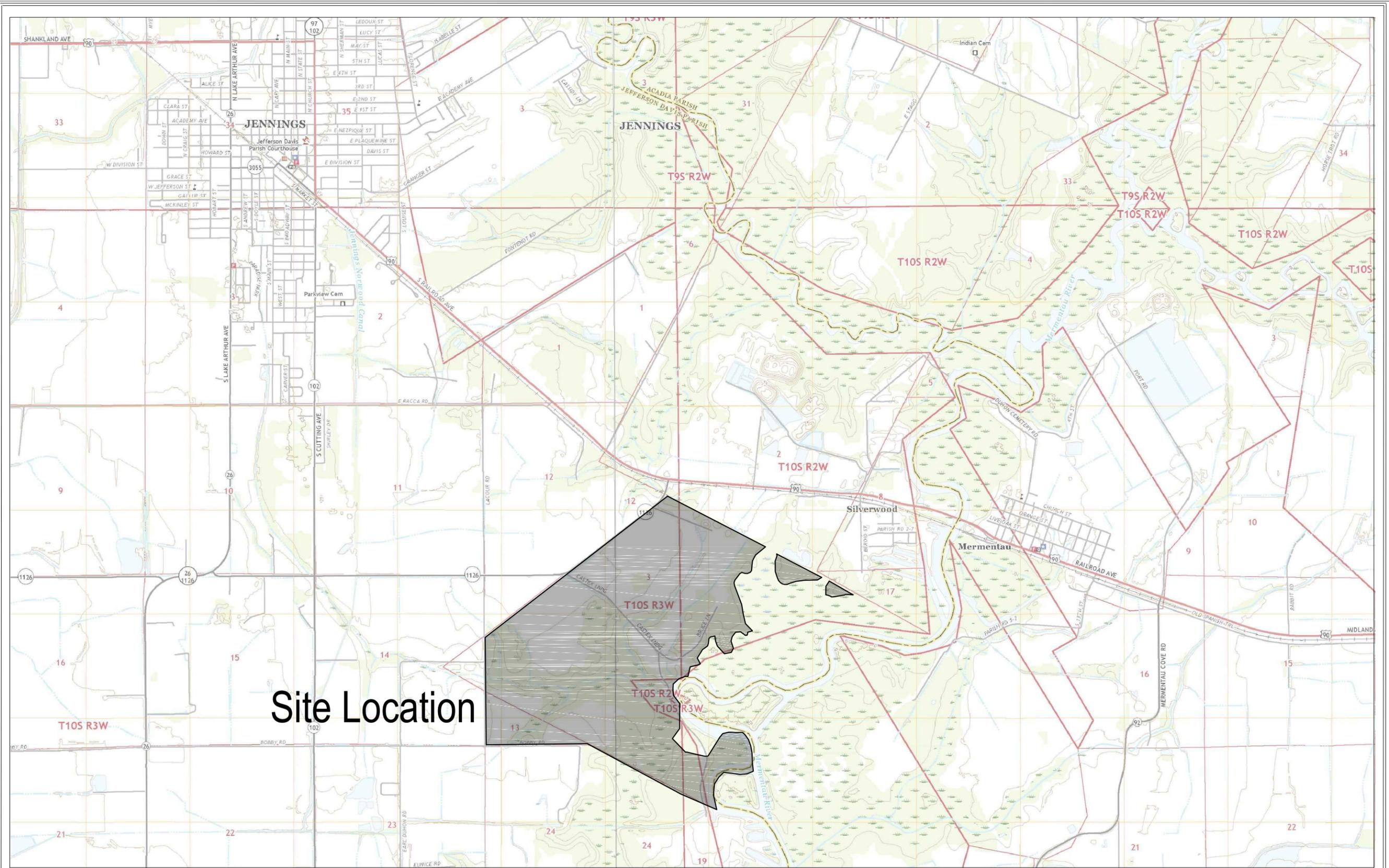
Sincerely,  
**ICON Environmental Services, Inc.**



Gregory W. Miller  
Principal Hydrogeologist LBPG License #939

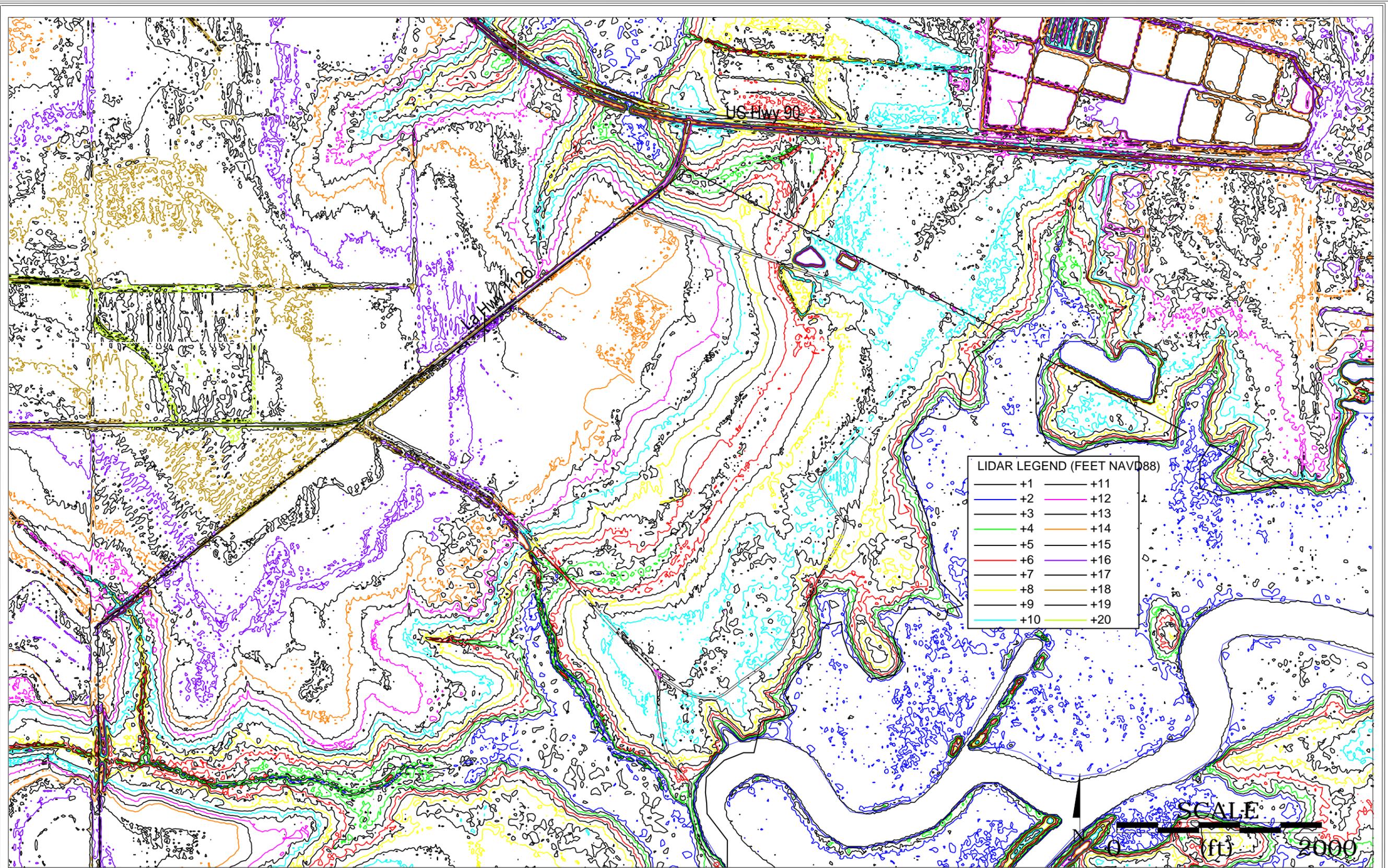


Jason S. Sills  
Senior Engineer EI No. 20568



Site Location

	PREPARED BY: ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, LA 70767	PREPARED FOR: Talbot, Carmouche, Marcello Law Firm 17405 Perkins Road Baton Rouge, la 70810	SITE LOCATION MAP Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA Mermentau Field, Jefferson Davis Parish, LA	FILENAME JOB NO. DIRECTORY	REV # DATE July 2024 FIGURE NO. 1
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LIDAR LEGEND (FEET NAVD88)

— +1	— +11
— +2	— +12
— +3	— +13
— +4	— +14
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— +6	— +16
— +7	— +17
— +8	— +18
— +9	— +19
— +10	— +20

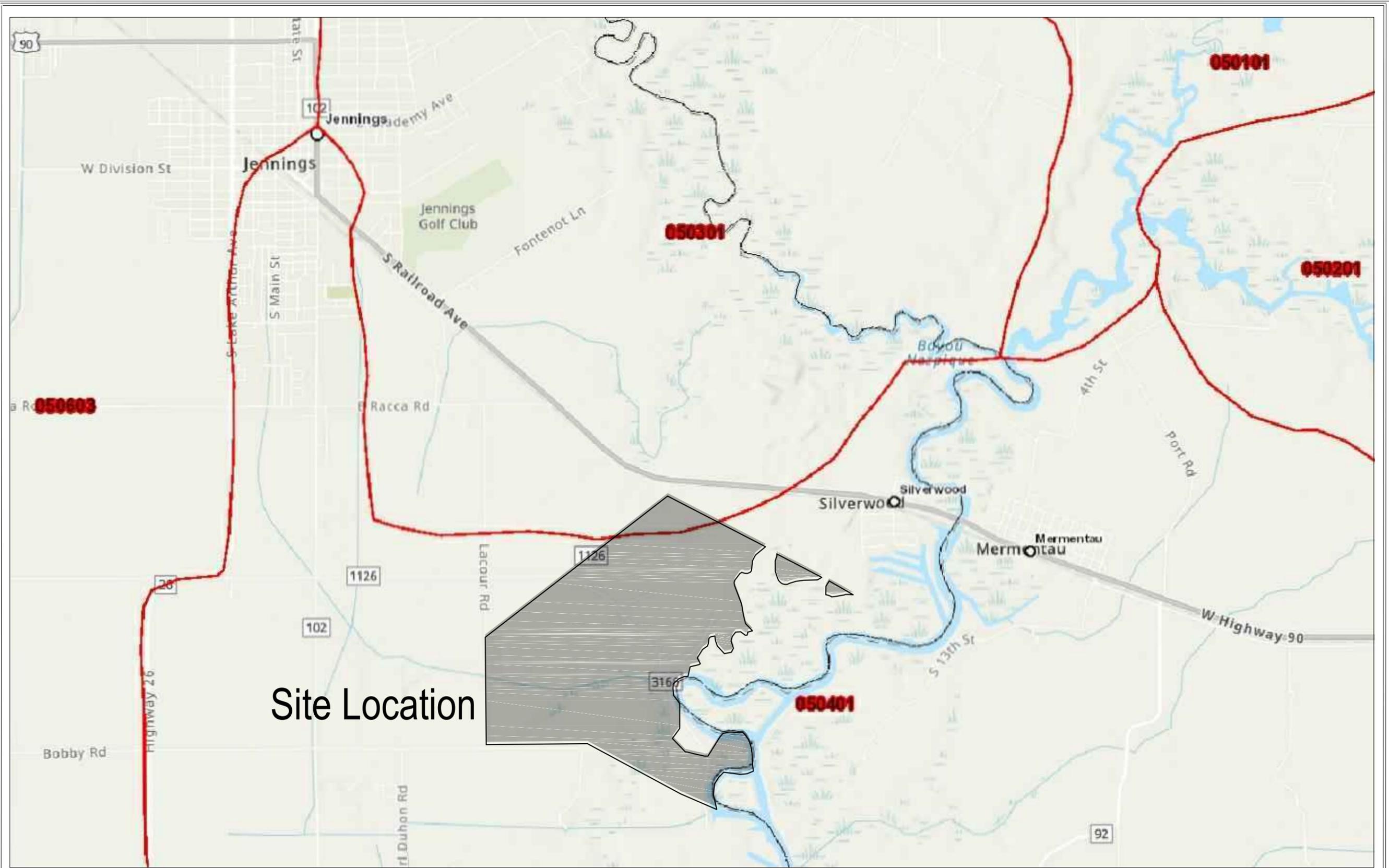


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**SURFACE TOPOGRAPHIC (LIDAR) CONTOURS**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 2



Site Location

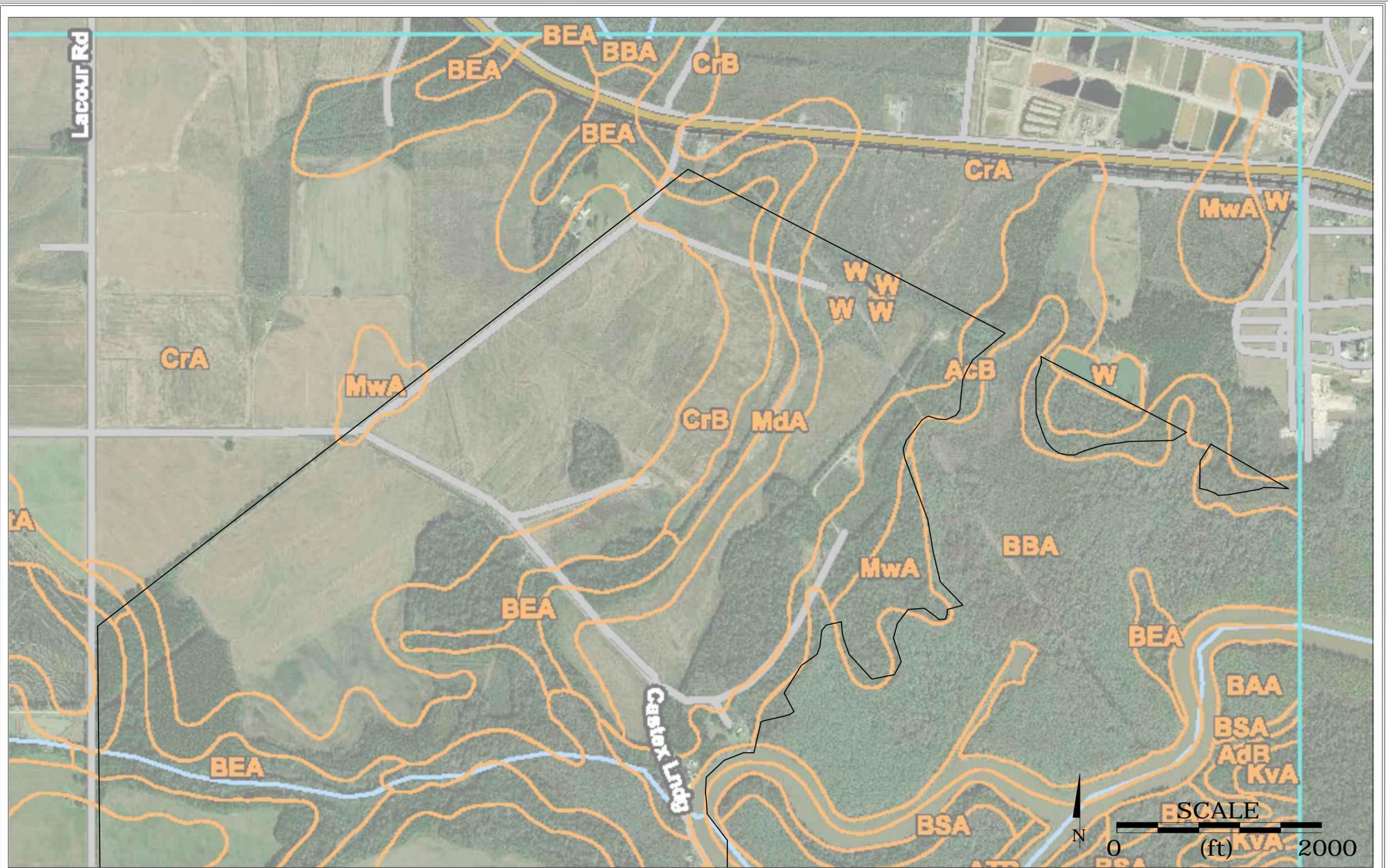


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LDEQ SURFACE WATER SUBSEGMENT MAP  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 3

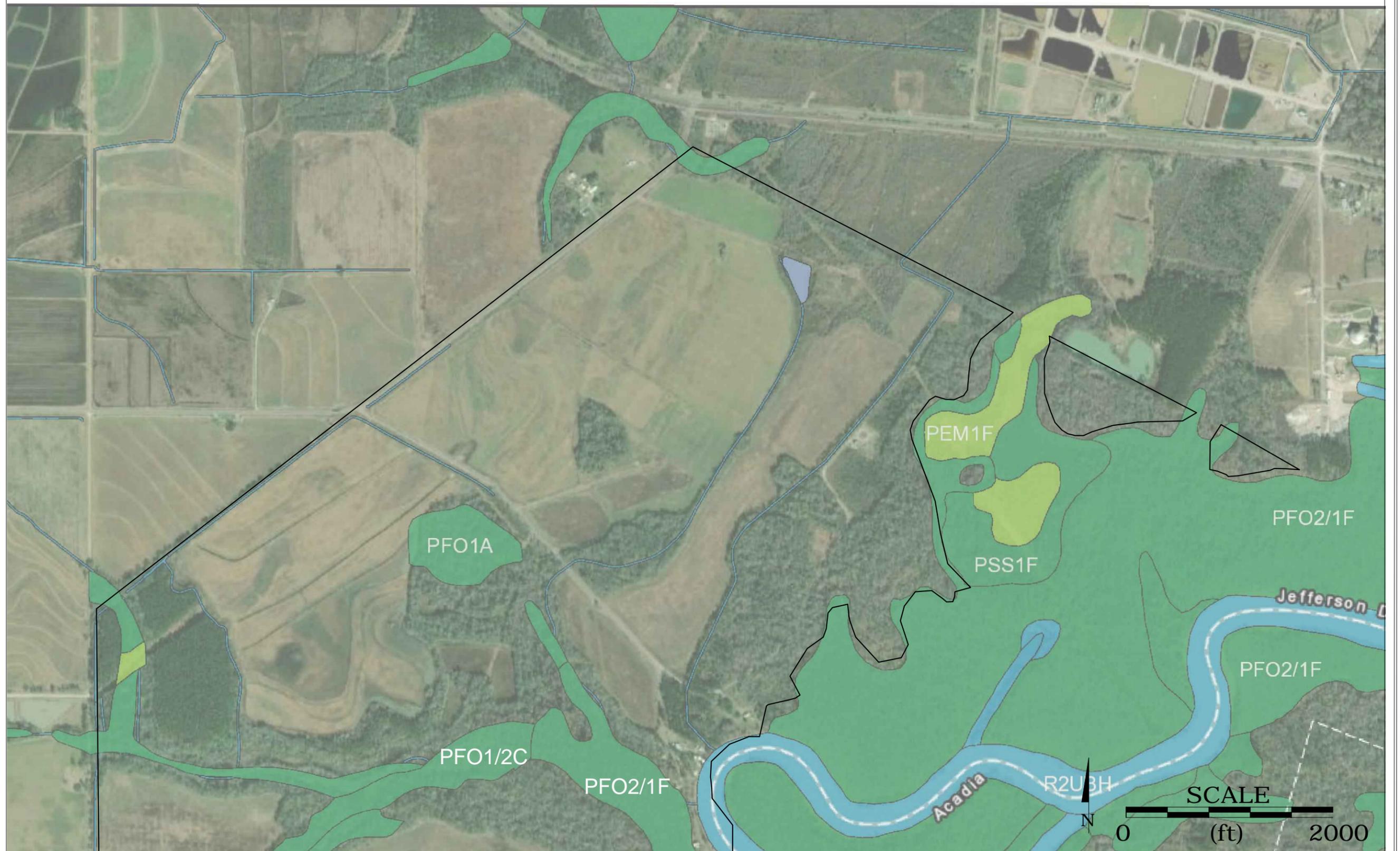


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**NRCS SOILS MAP**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 4



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USFWS WETLANDS MAP  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 5

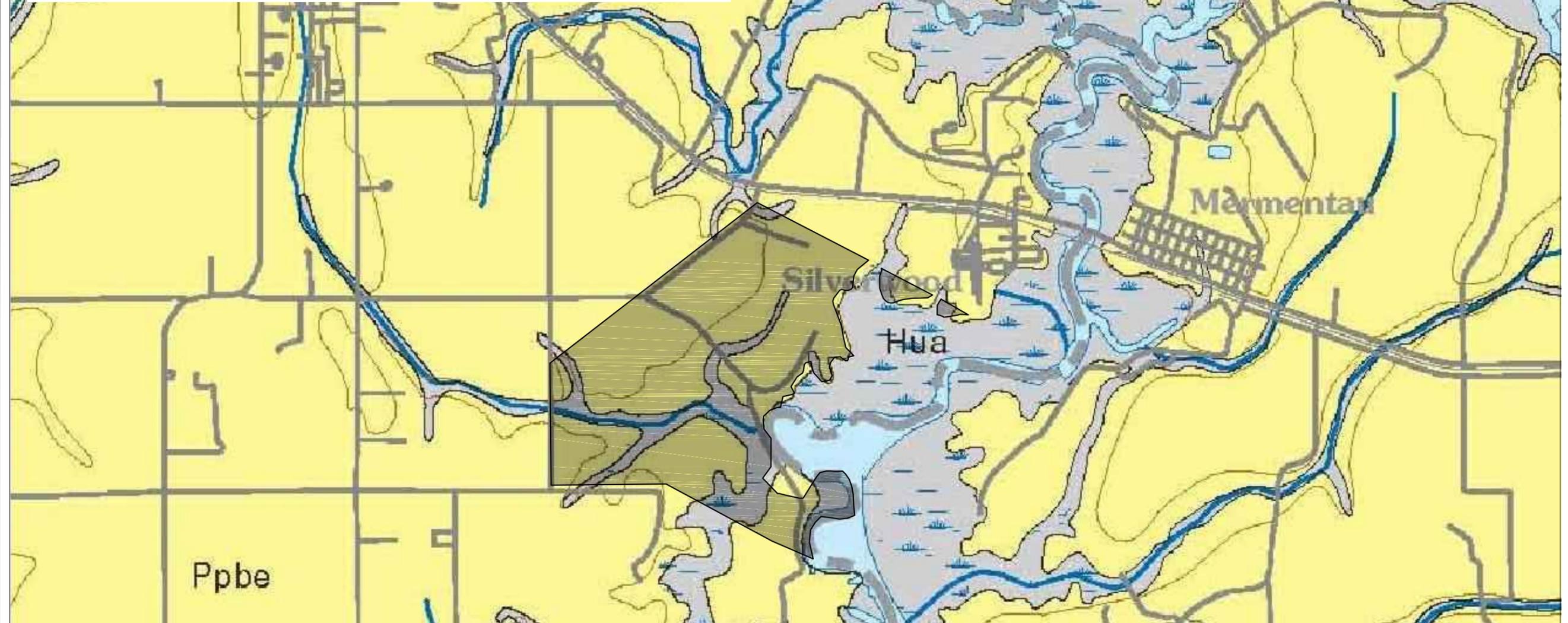
**PRAIRIE ALLOGROUP, EARLY SANGAMON**—older of the Prairie Allogroup temporal phases. A diverse depositional sequence of flood plain, meander-belt, and backswamp deposits of the middle-Pleistocene ancestral Mississippi River, Red River, local fluvial equivalents of tributary streams, and coastal-plain streams. Where this unit is mapped near the Mississippi River flood plain, it is blanketed by Peoria Loess or loess-derived colluvium. The unit dips into the subsurface beneath the Prairie Allogroup, Late Sangamon in the coast-parallel region, but is commonly terraced above it in stream valleys. The sediments are generally clay, silty clay loam, or sandy clay loam, but may include some sand and gravel in deposits of relict channels.

Ppbe

**Beaumont Alloformation**—stratigraphic sequence underlying the oldest and topographically highest of the Prairie surfaces west of the Mississippi alluvial valley. It exhibits the relict channels of the Red River, and includes deposits of the Ingleside barrier trend west of the Crowley quadrangle. It is composed of coastal-plain deposits of late-to-middle Pleistocene streams.

Hua

**Undifferentiated alluvium of small upland streams**—alluvial deposits of minor creeks and streams filling valleys cut into older deposits. The modern flood plain within these valleys constitutes the surface of these deposits.

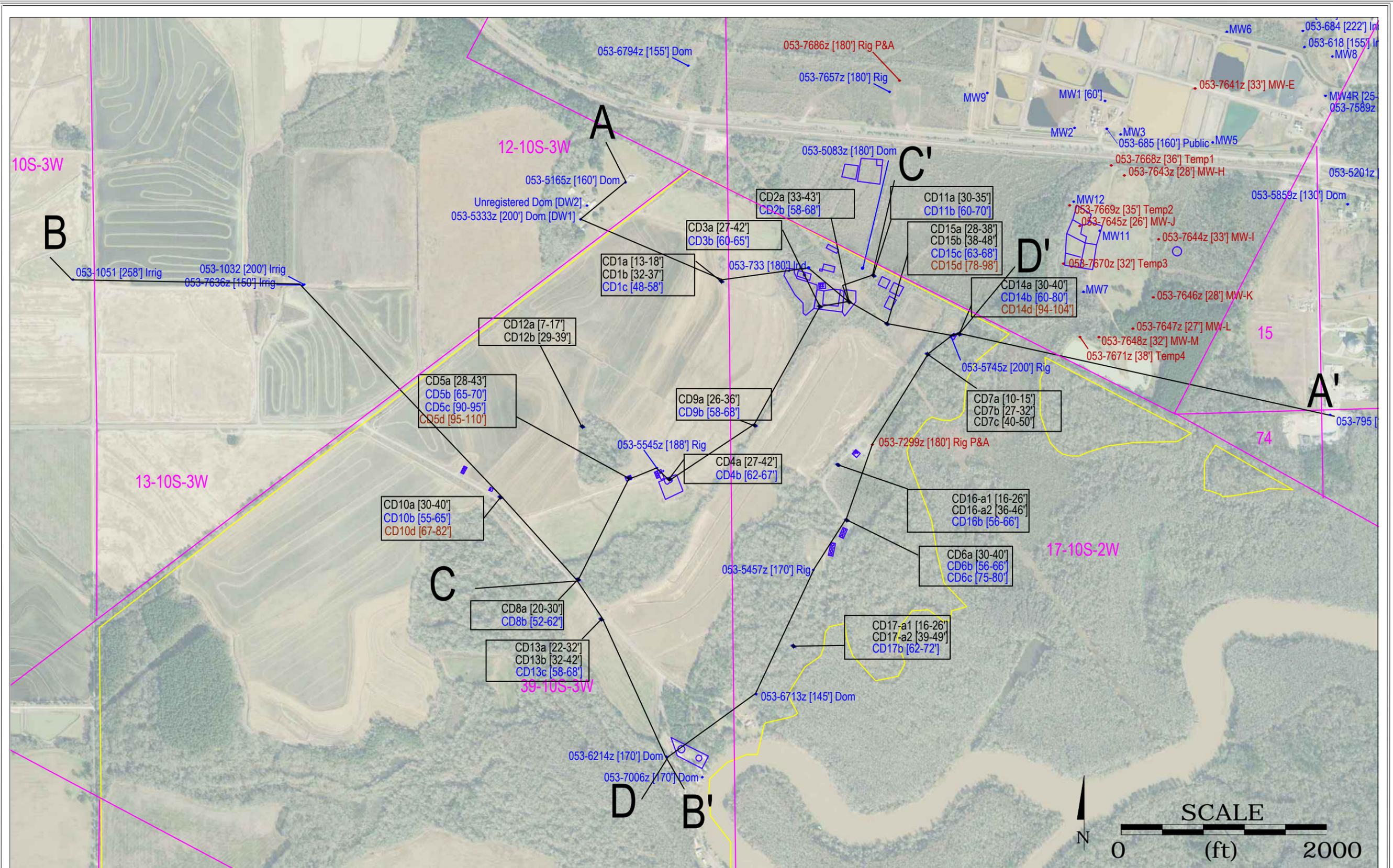


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USGS GEOLOGIC MAP  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 6

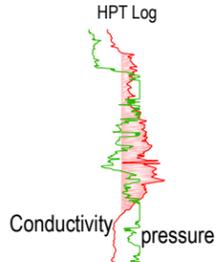
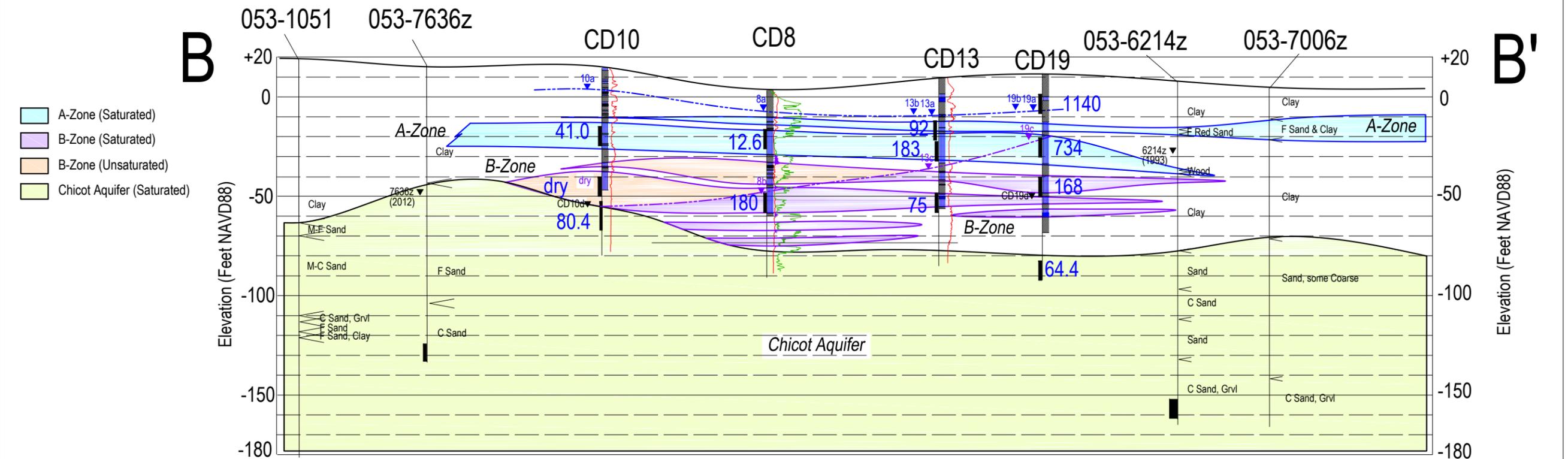
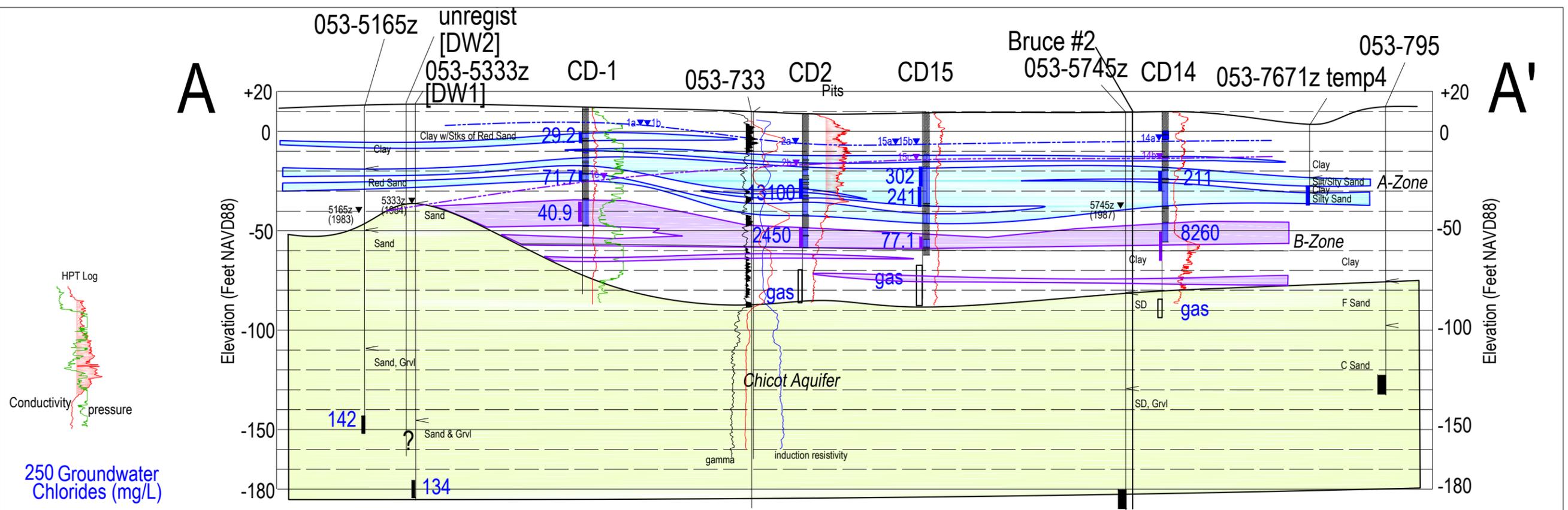


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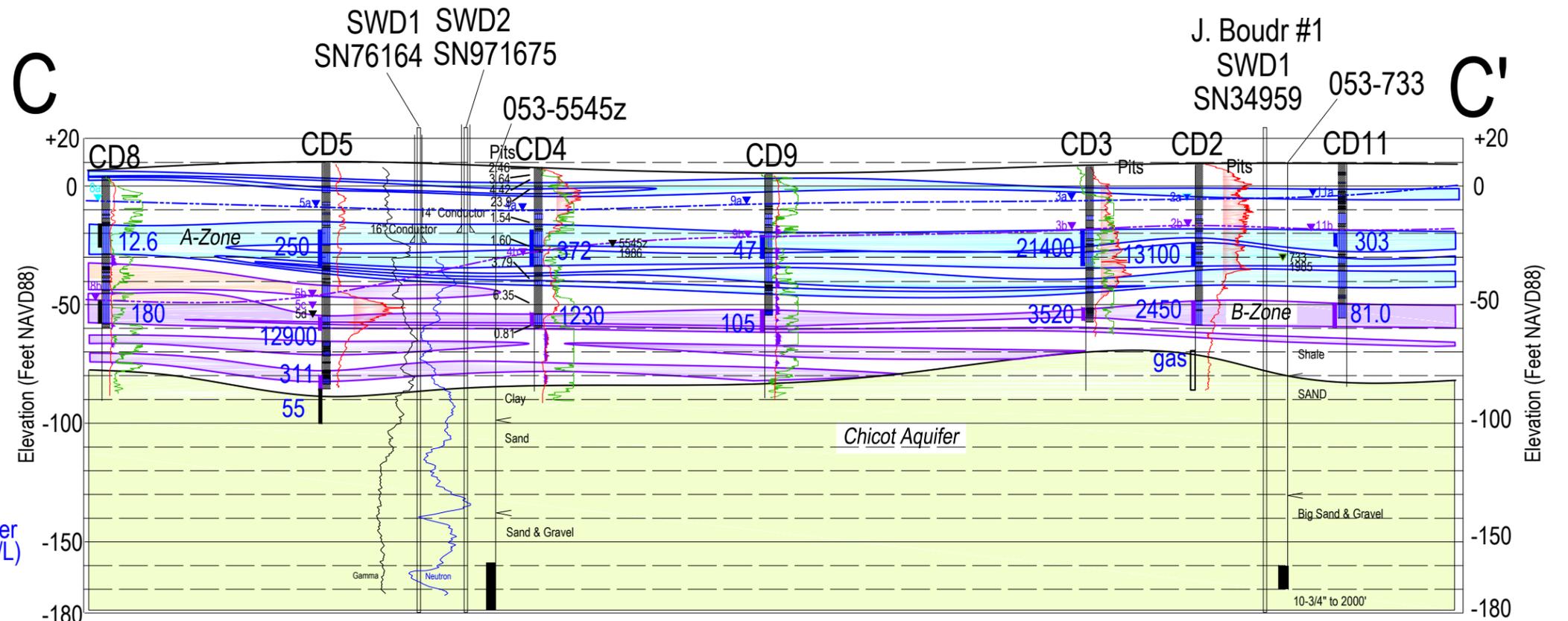
**CROSS SECTION TRANSECT LOCATIONS**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 7

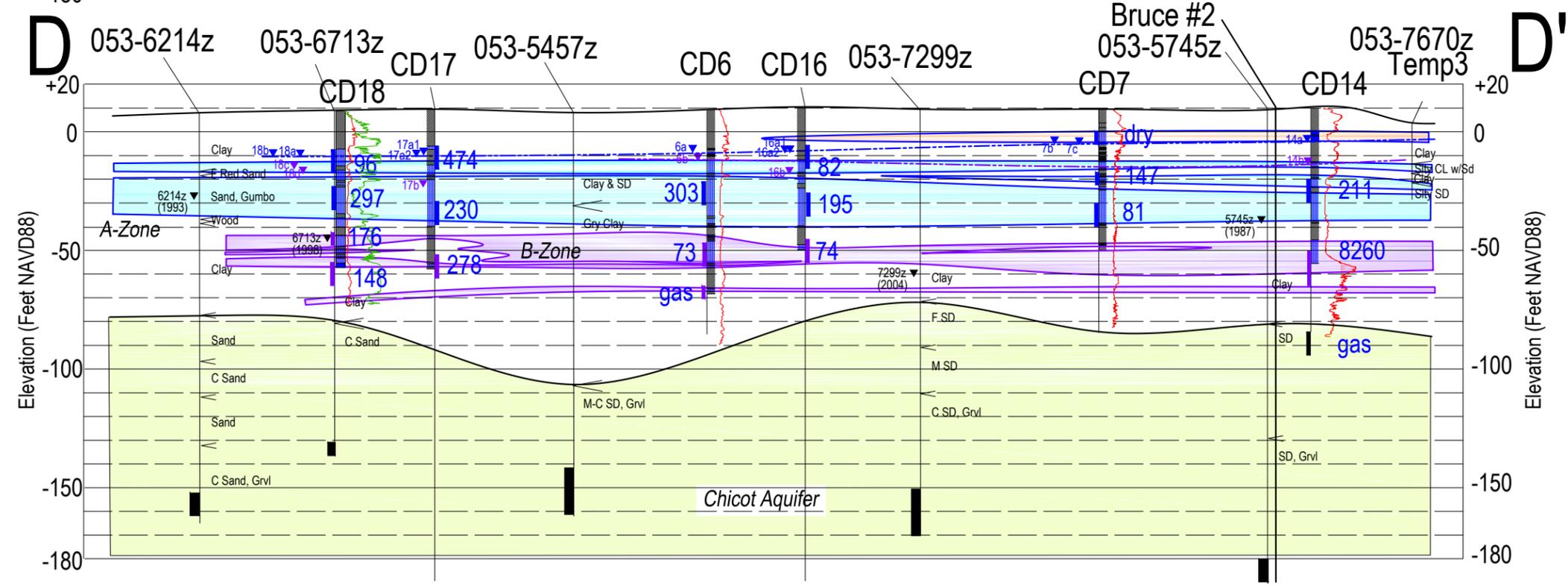


250 Groundwater Chlorides (mg/L)

- A-Zone (Saturated)
- B-Zone (Saturated)
- B-Zone (Unsaturated)
- Chicot Aquifer (Saturated)



- A-Zone (Saturated)
- B-Zone (Saturated)
- B-Zone (Unsaturated)
- Chicot Aquifer (Saturated)

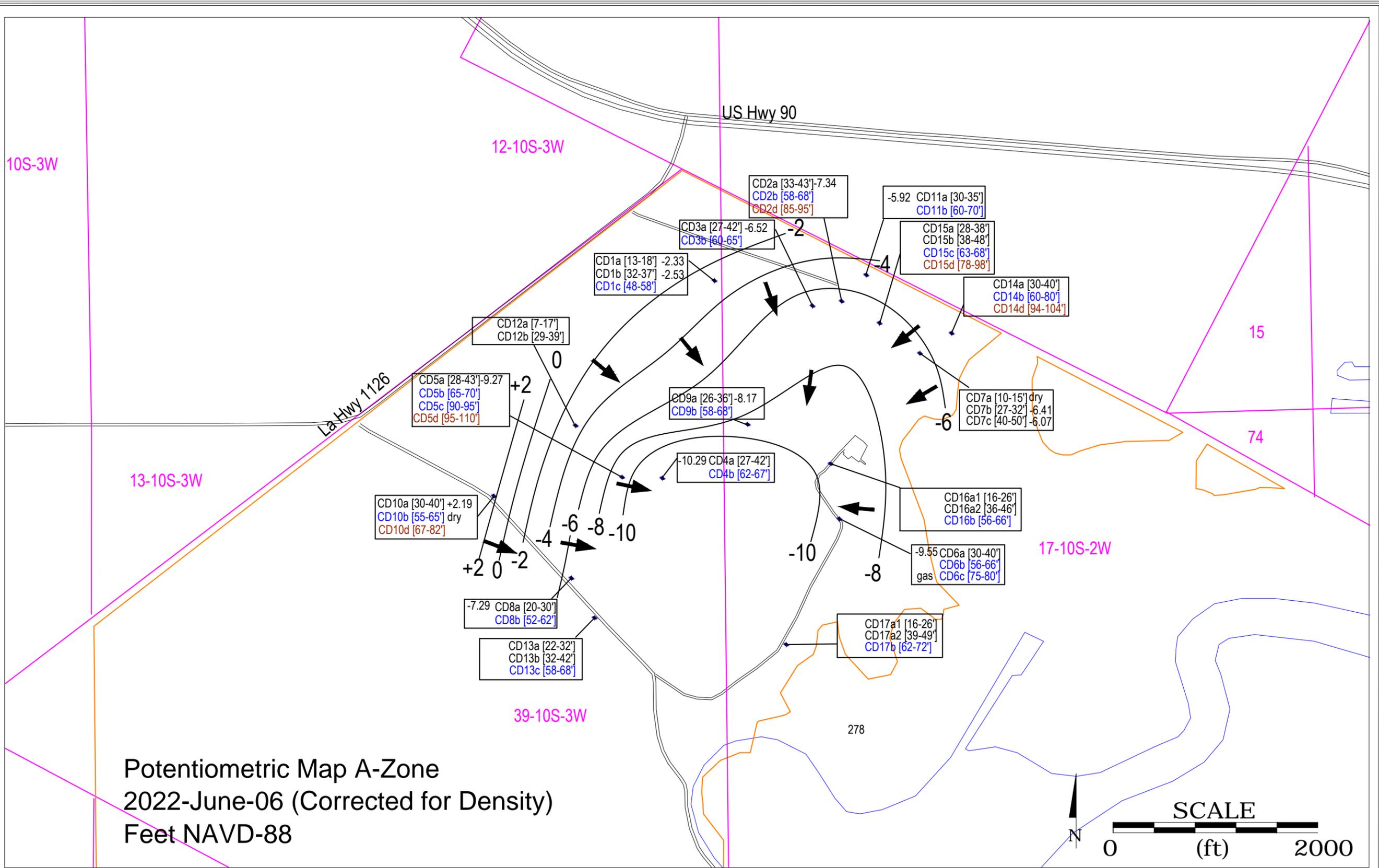


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CROSS SECTIONS C-C' AND D-D'  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE
DIRECTORY	FIGURE NO.
	9



Potentiometric Map A-Zone  
 2022-June-06 (Corrected for Density)  
 Feet NAVD-88

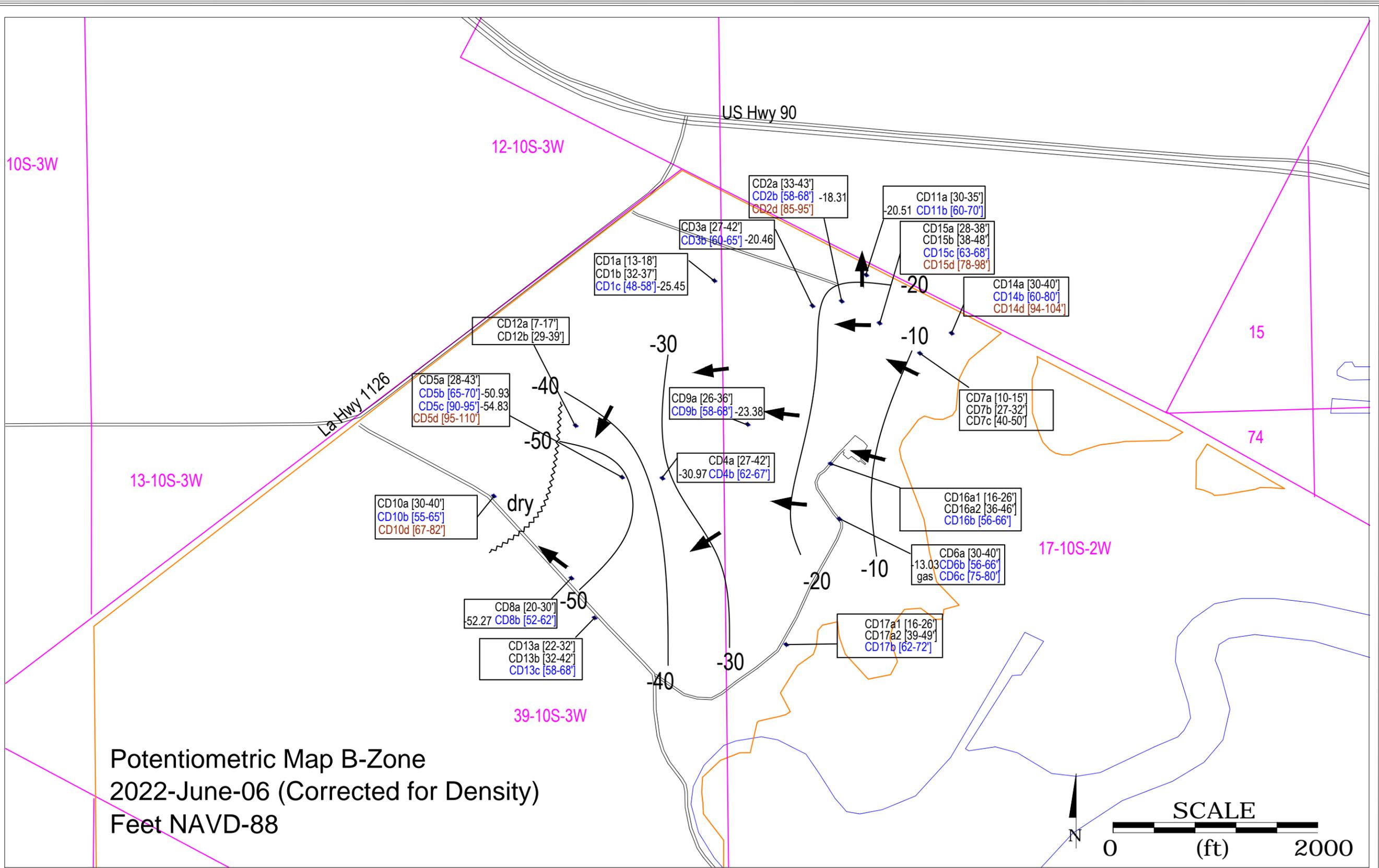


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POTENTIOMETRIC MAP FOR THE A ZONE - JUNE 2022  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 10



Potentiometric Map B-Zone  
 2022-June-06 (Corrected for Density)  
 Feet NAVD-88

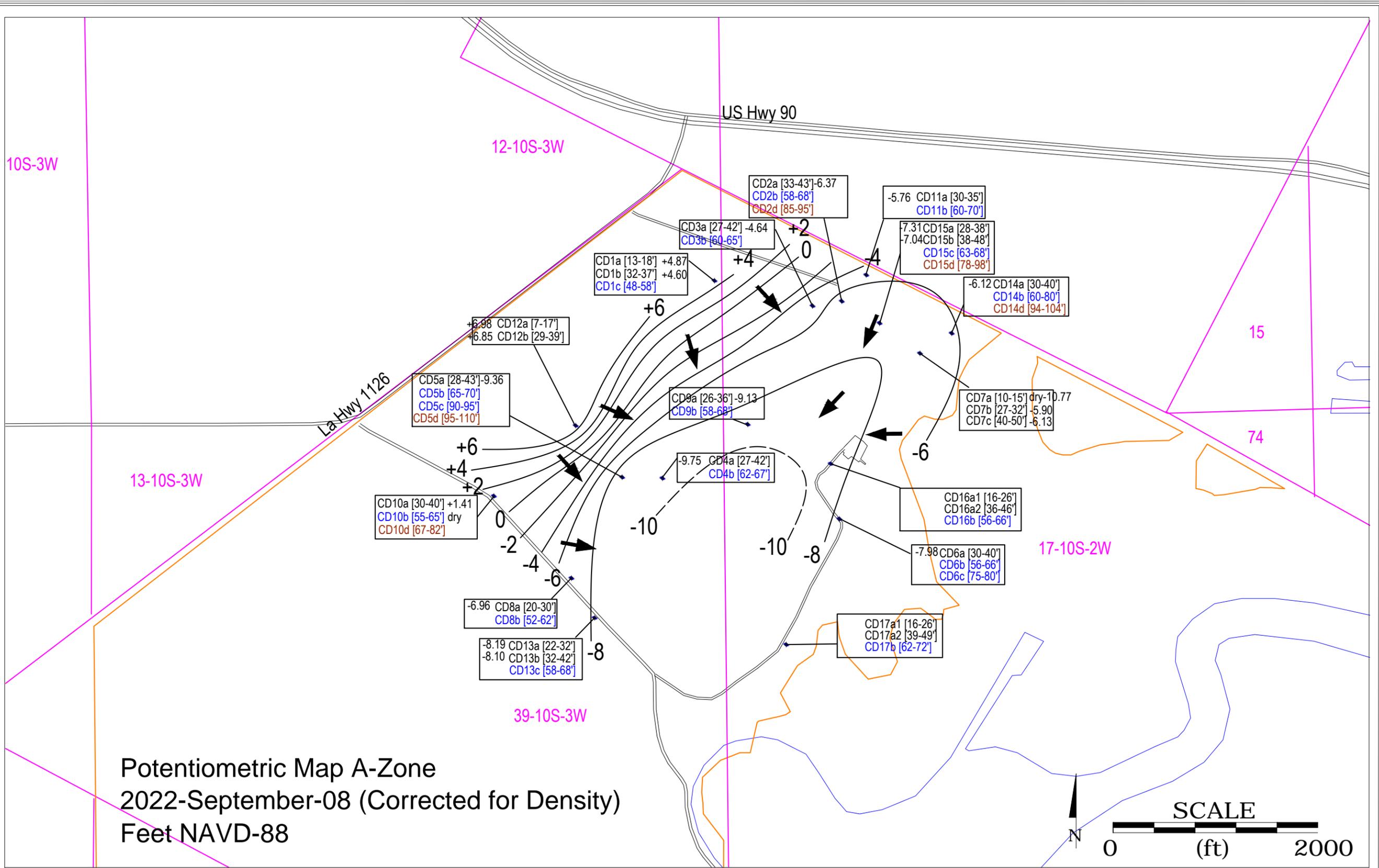


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POTENTIOMETRIC MAP FOR THE B ZONE - JUNE 2022  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 11



Potentiometric Map A-Zone  
 2022-September-08 (Corrected for Density)  
 Feet NAVD-88

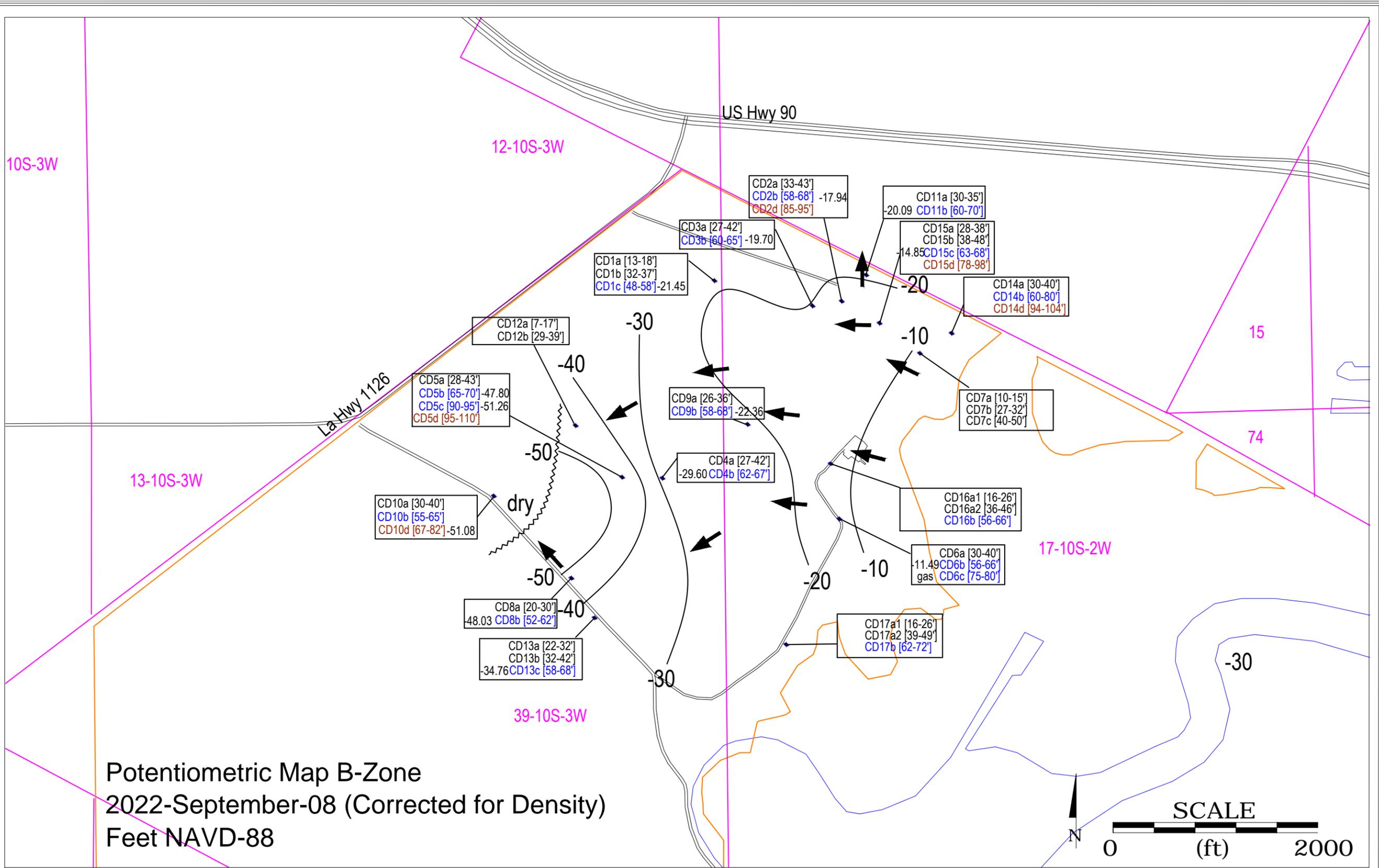


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POTENTIOMETRIC MAP FOR THE A ZONE - SEPTEMBER 2022  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 12



Potentiometric Map B-Zone  
 2022-September-08 (Corrected for Density)  
 Feet NAVD-88

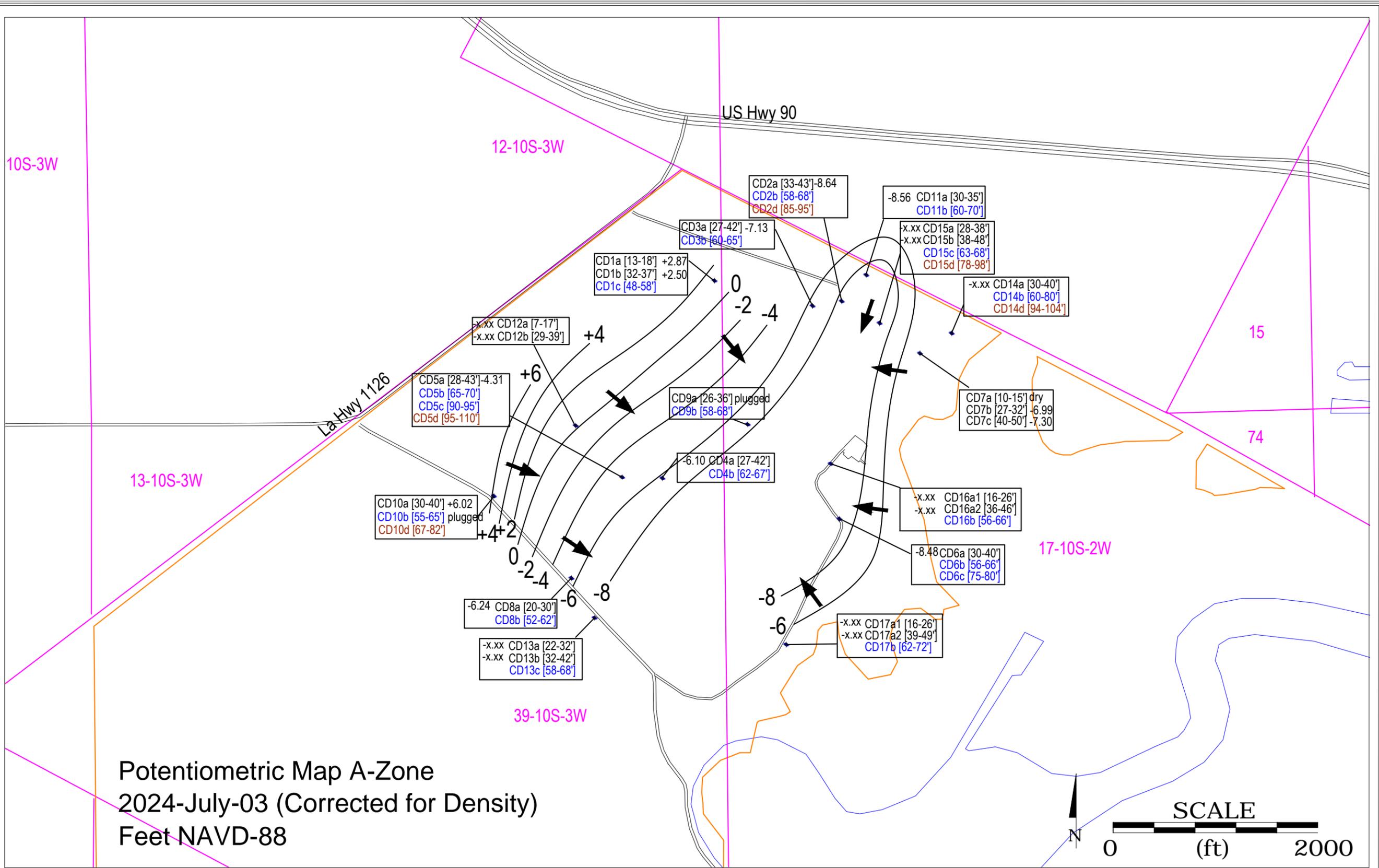


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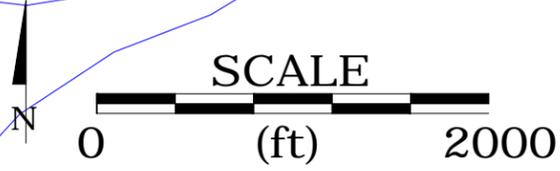
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POTENTIOMETRIC MAP FOR THE B ZONE - SEPTEMBER 2022  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

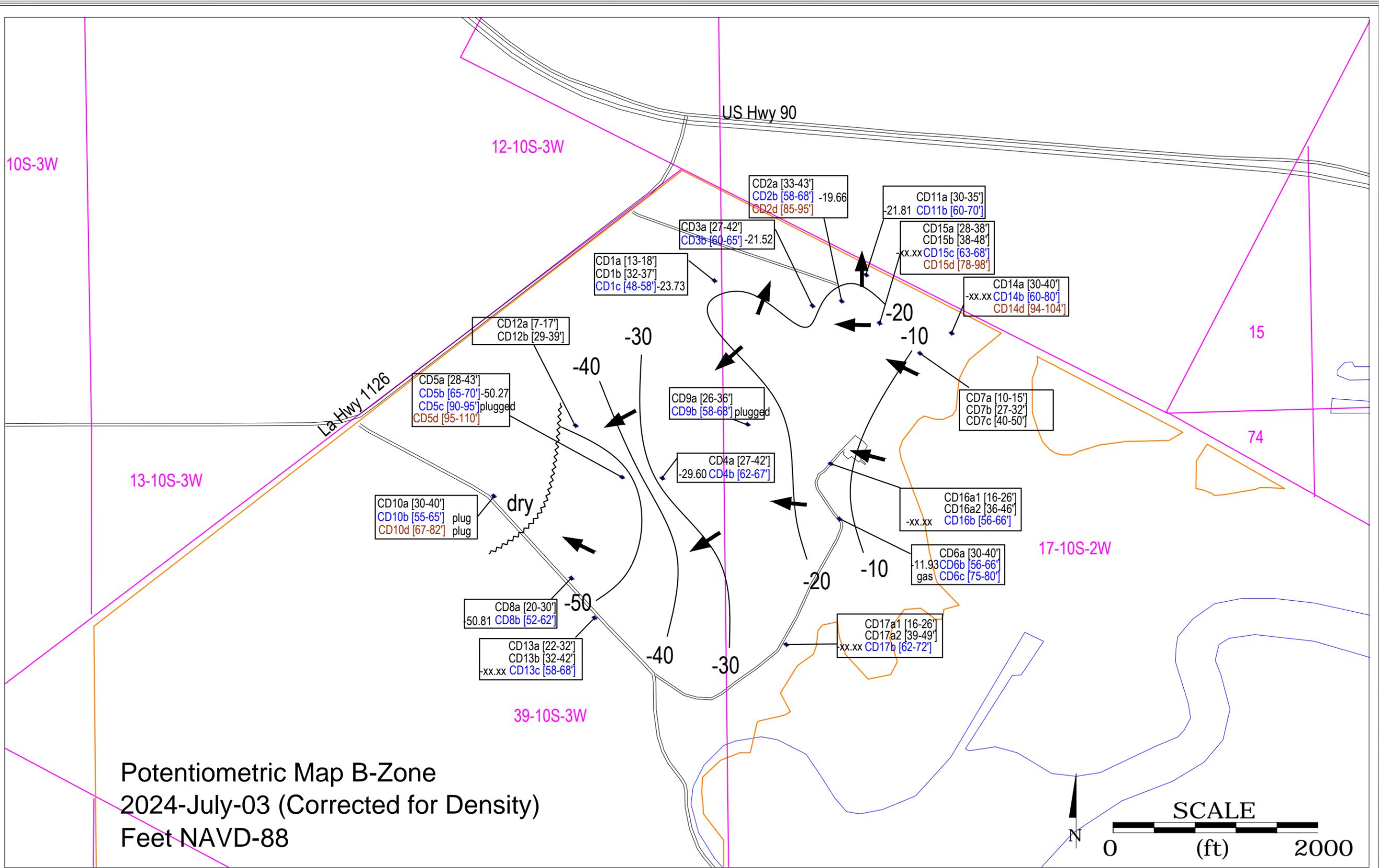
FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 13



Potentiometric Map A-Zone  
 2024-July-03 (Corrected for Density)  
 Feet NAVD-88

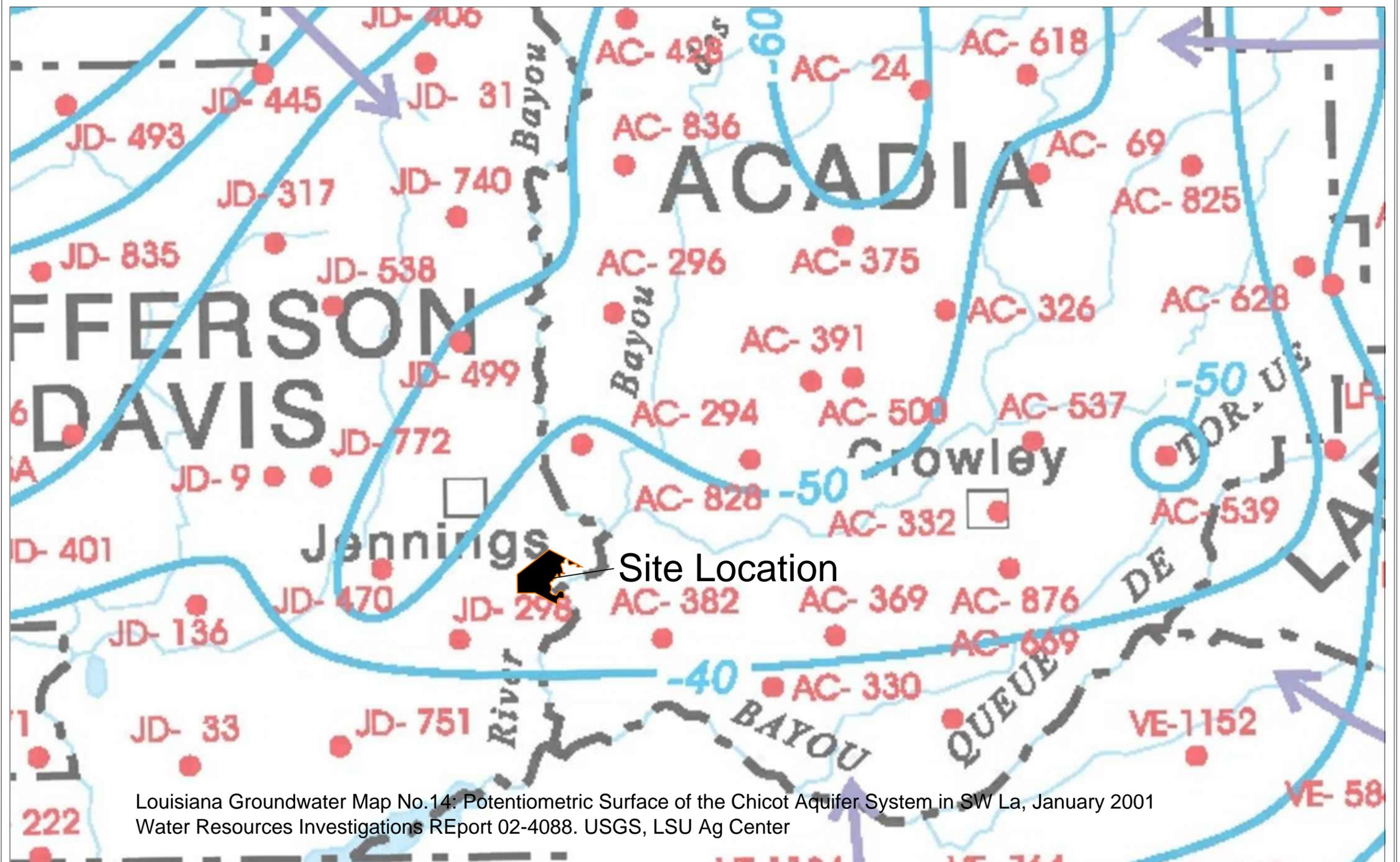


	PREPARED BY: ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, LA 70767	PREPARED FOR: Talbot, Carmouche, Marcello Law Firm 17405 Perkins Road Baton Rouge, la 70810	POTENTIOMETRIC MAP FOR THE A ZONE - JULY 2024 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA Mermentau Field, Jefferson Davis Parish, LA	FILENAME JOB NO. DIRECTORY	REV # DATE July 2024 FIGURE NO. 14
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Potentiometric Map B-Zone  
 2024-July-03 (Corrected for Density)  
 Feet NAVD-88

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Louisiana Groundwater Map No.14: Potentiometric Surface of the Chicot Aquifer System in SW La, January 2001  
 Water Resources Investigations REport 02-4088. USGS, LSU Ag Center



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POTENTIOMETRIC MAP OF THE CHICOT AQUIFER FOR JANUARY 2001  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 16

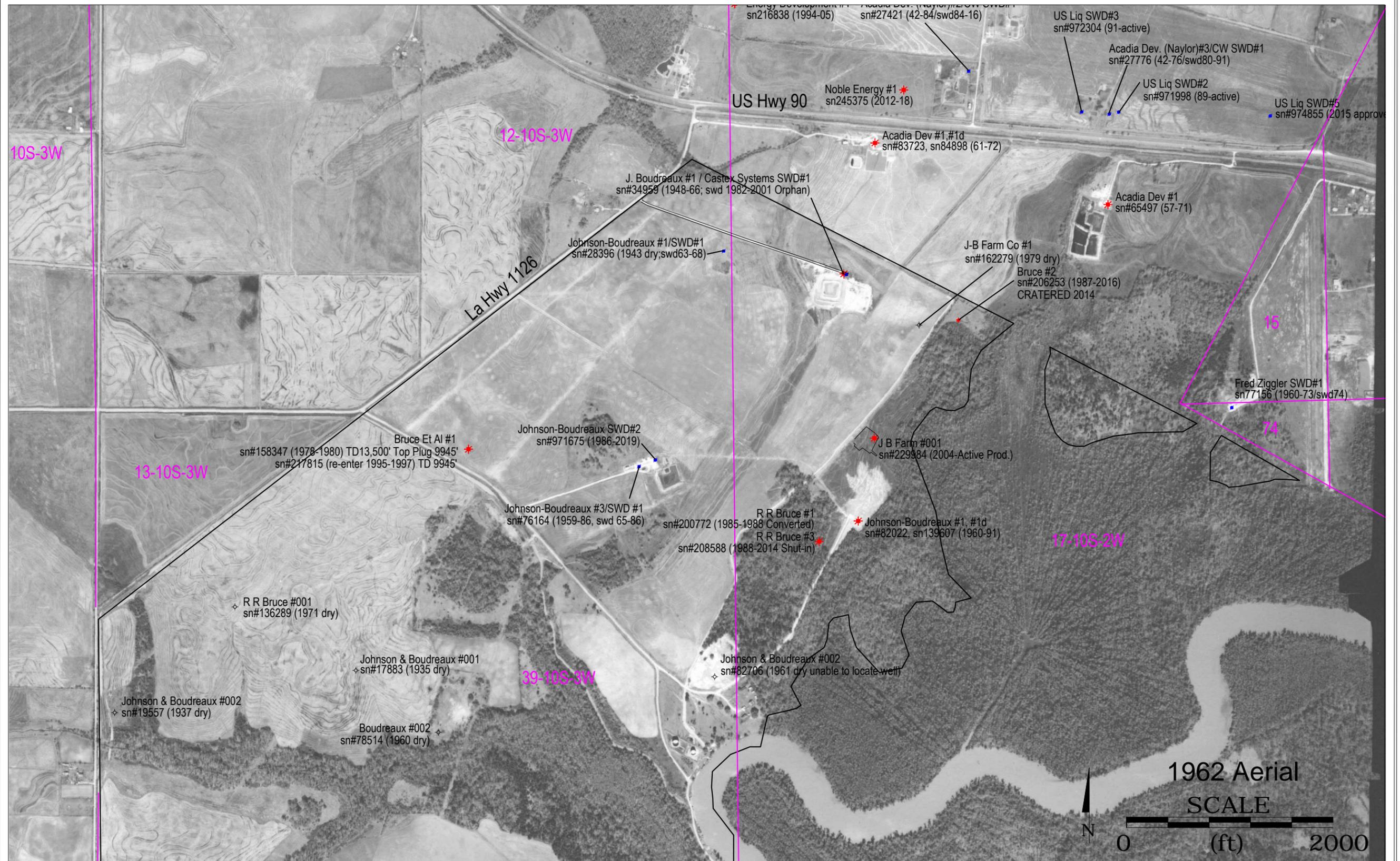


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1952 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 17

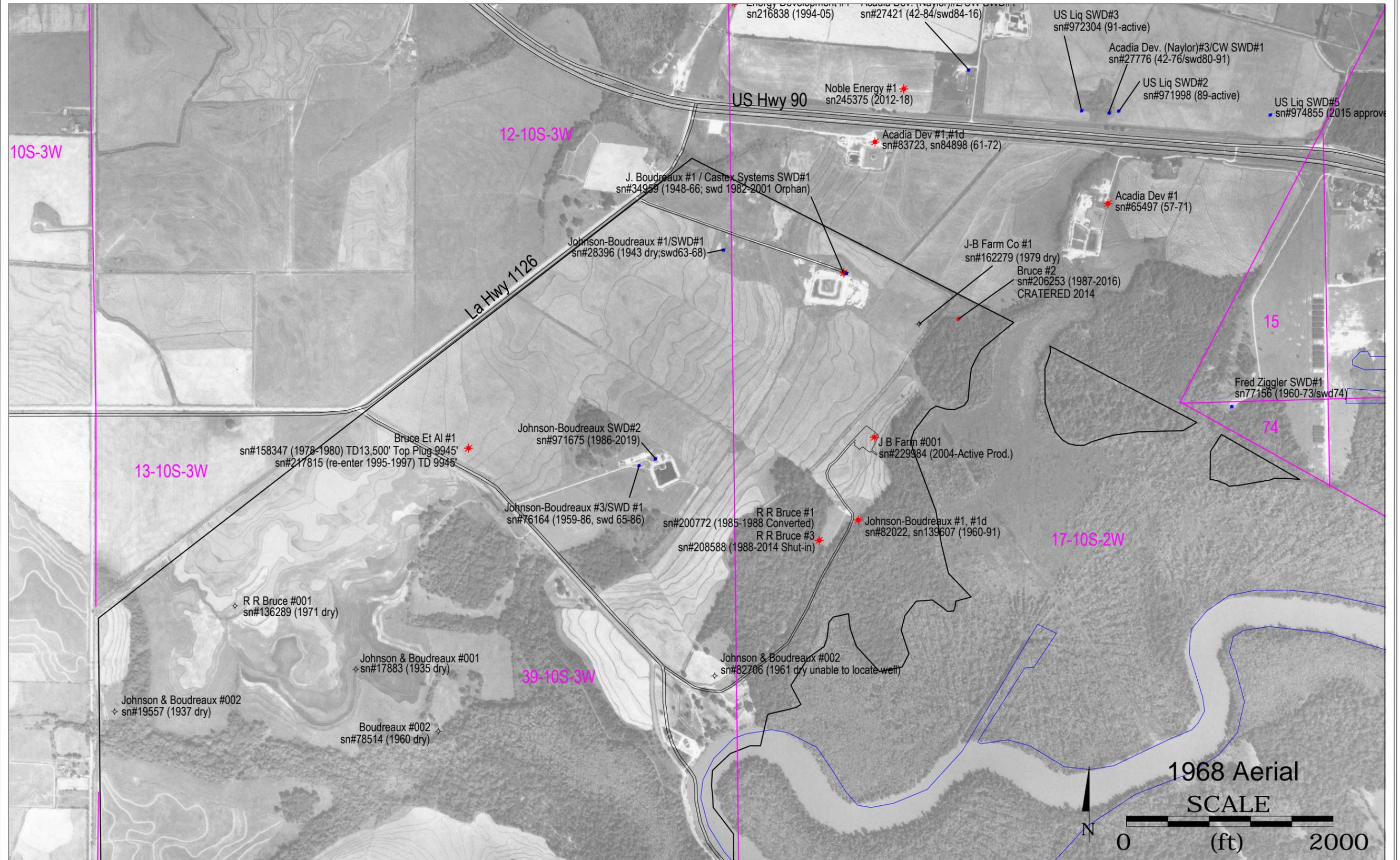


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1962 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 18

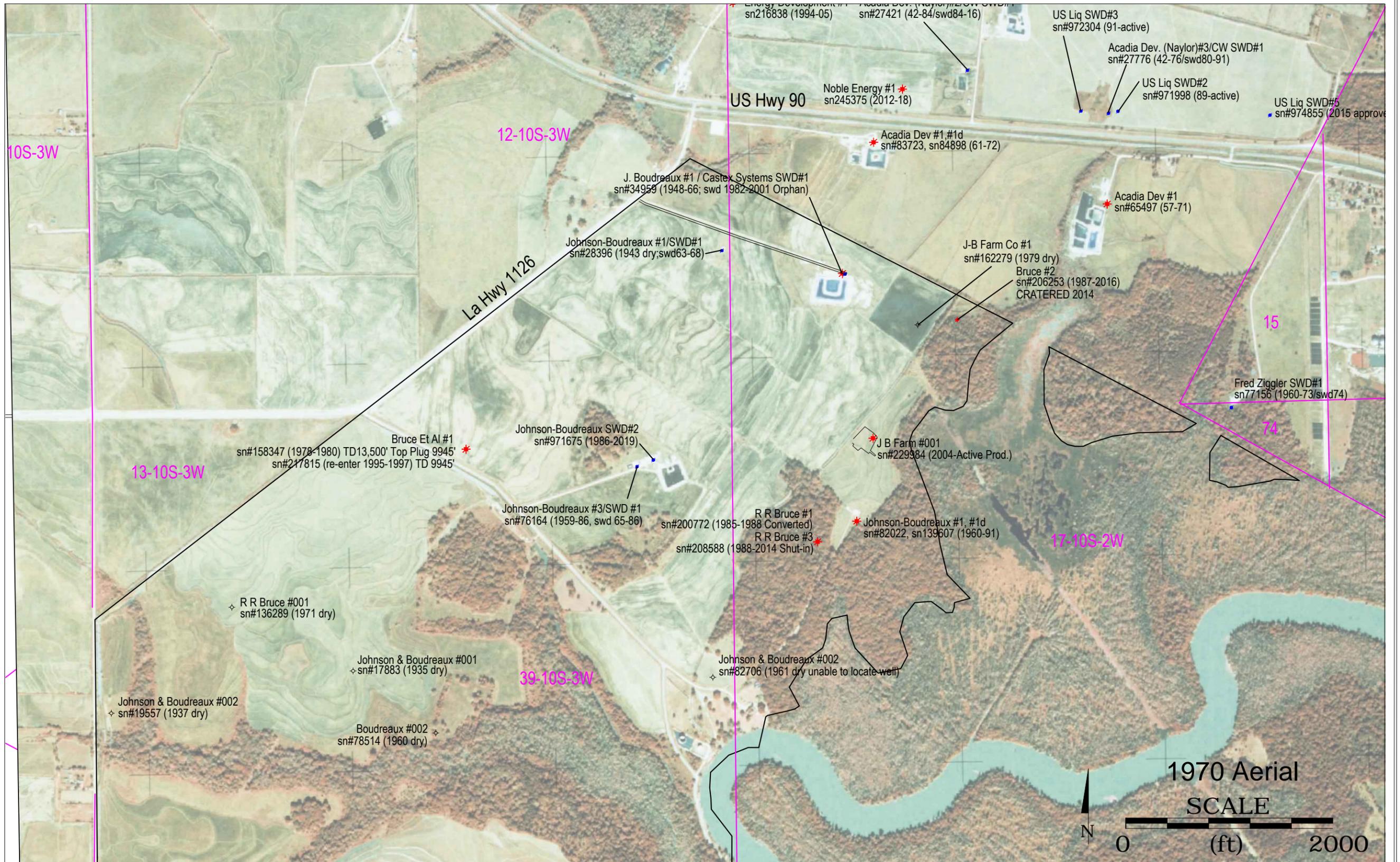


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1968 AERIAL IMAGE  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 19

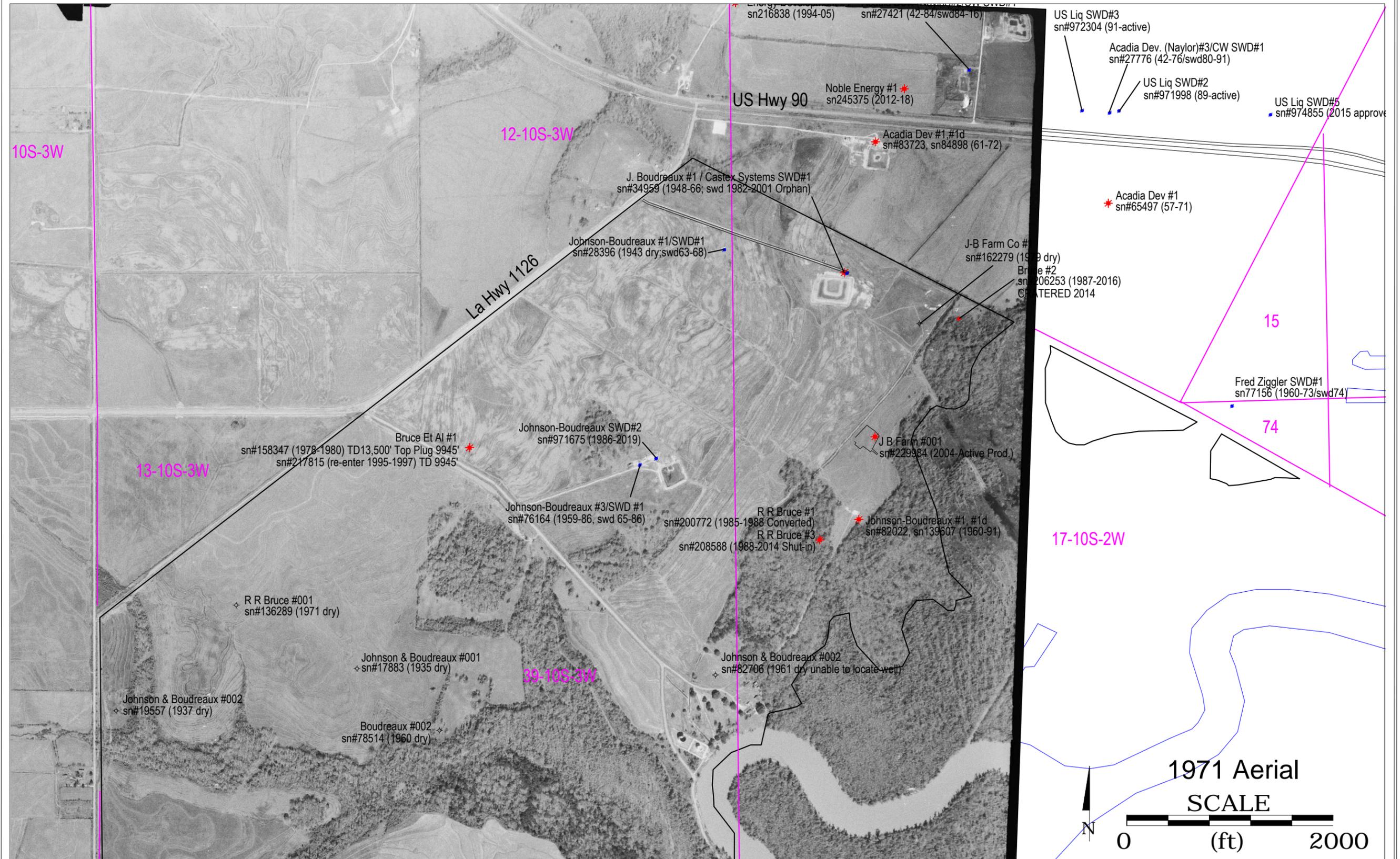


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1970 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 20

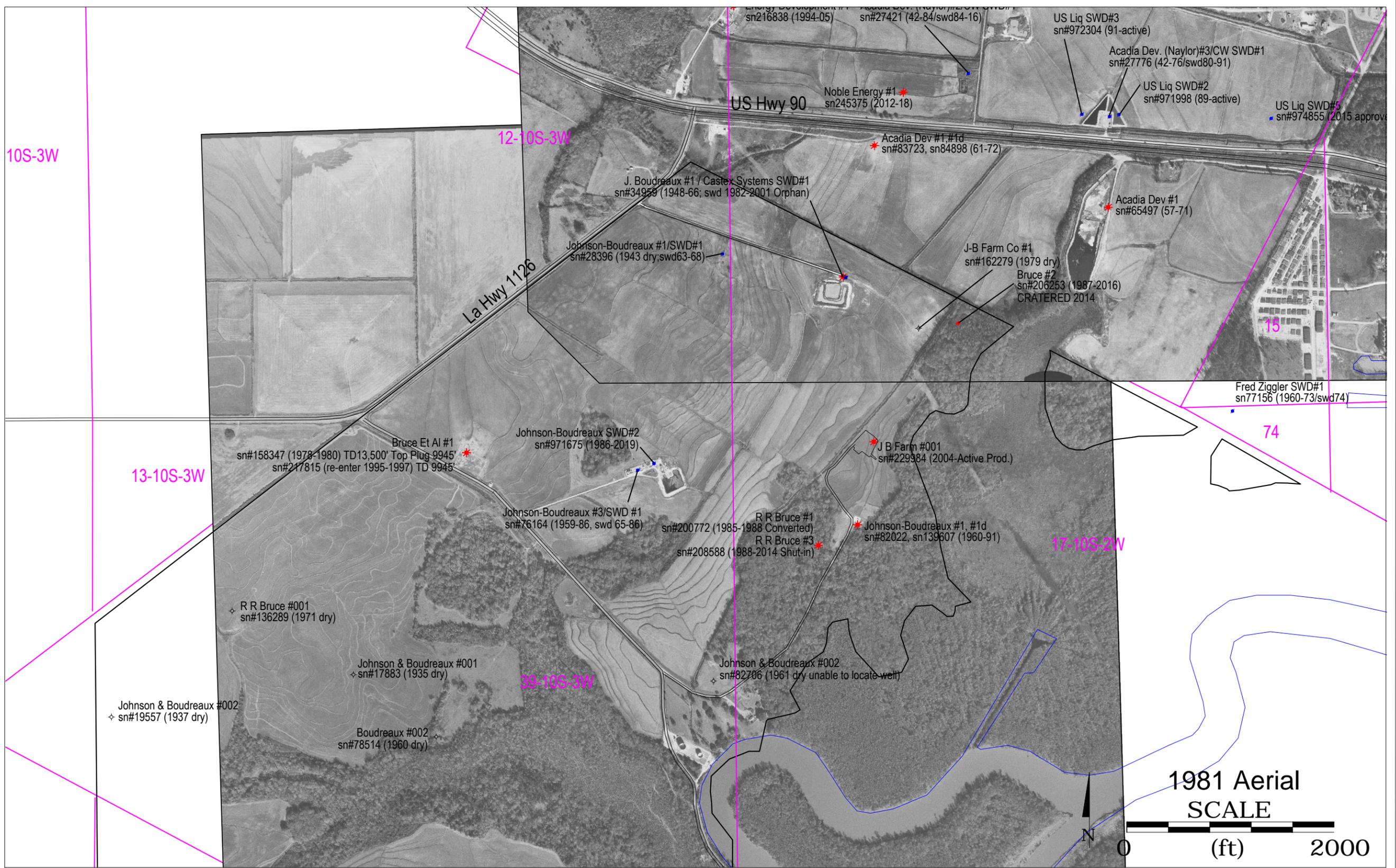


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**1971 AERIAL IMAGE**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 21



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1981 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 22

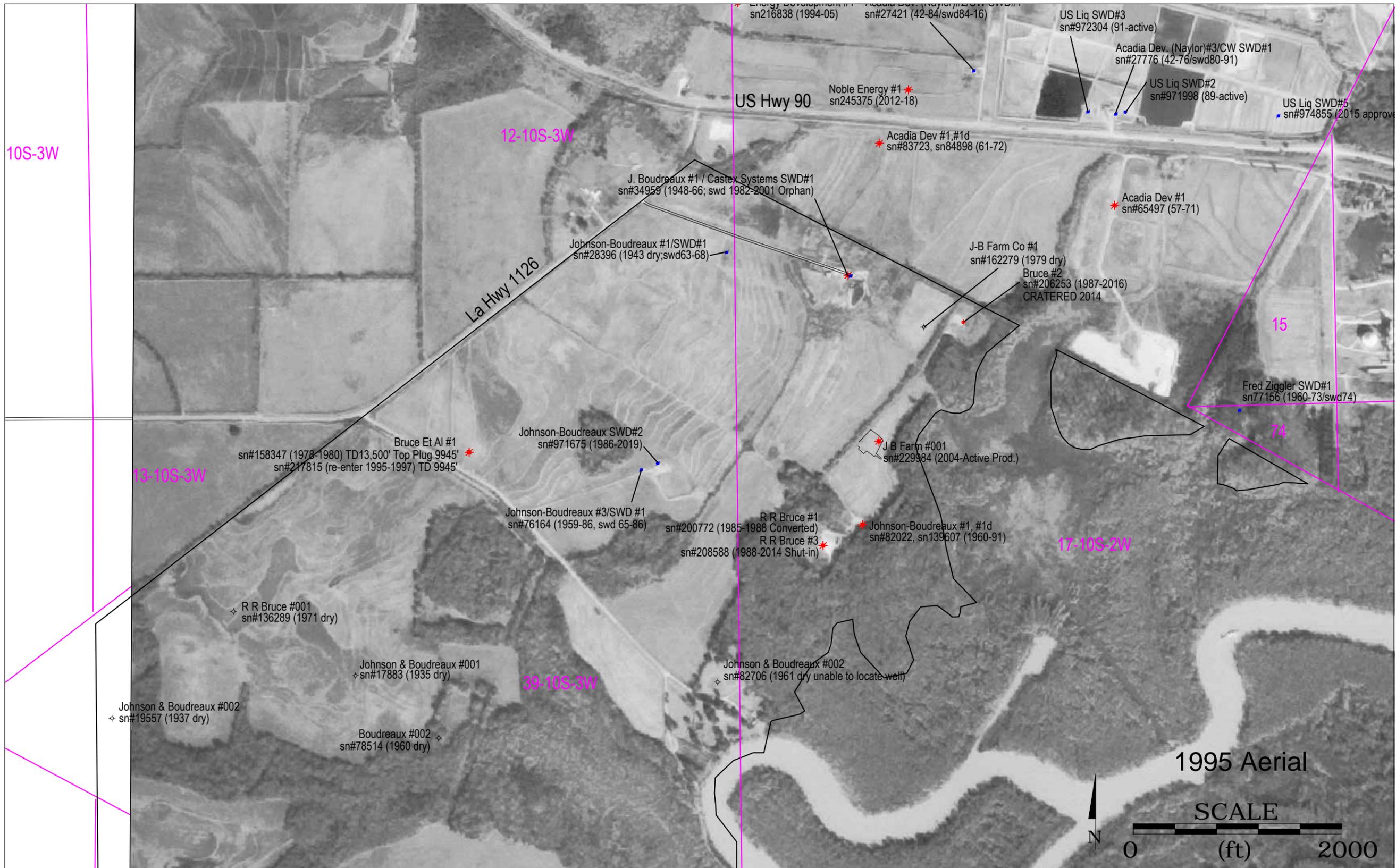


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1990 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 23



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1995 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 24

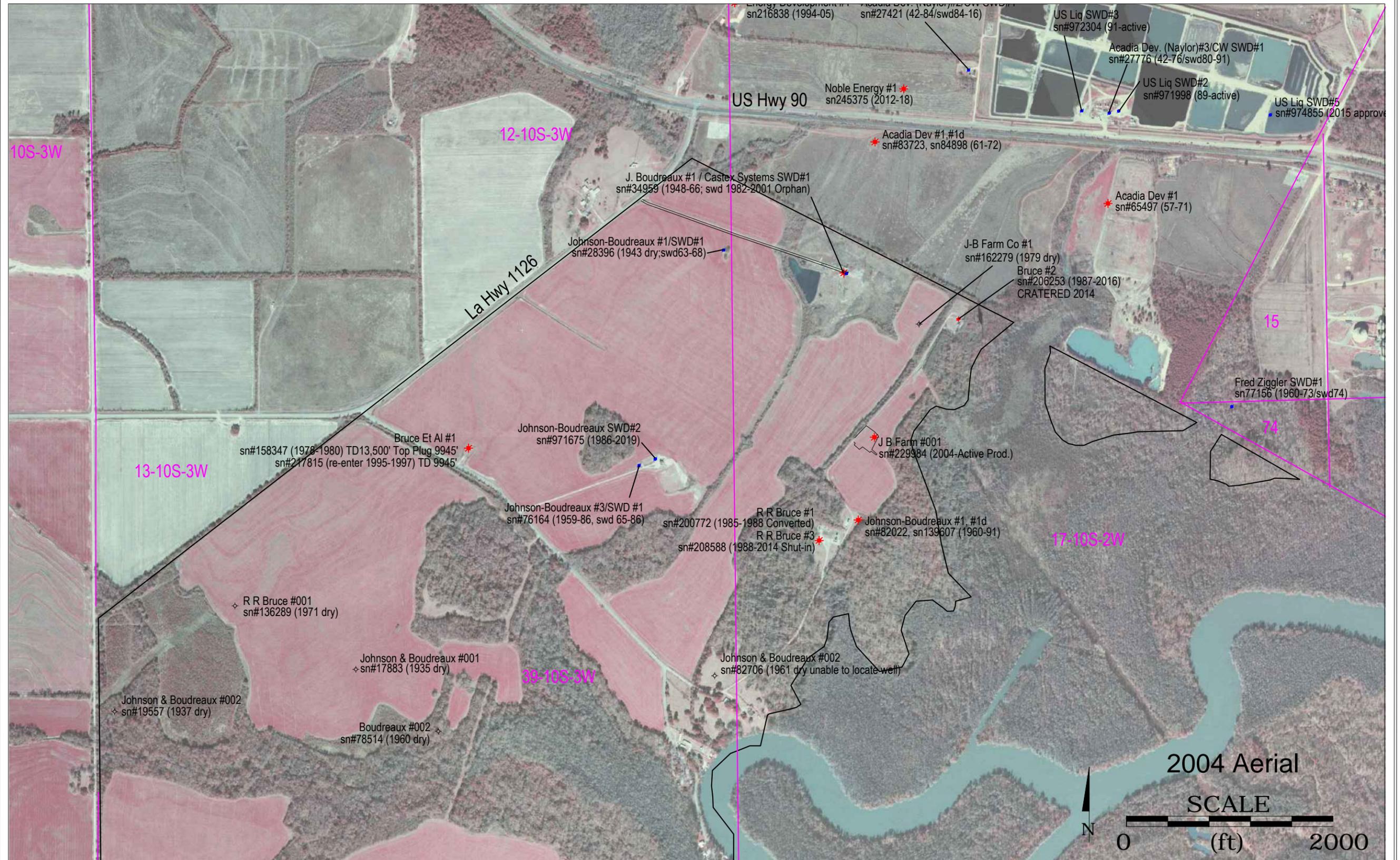


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1998 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 25

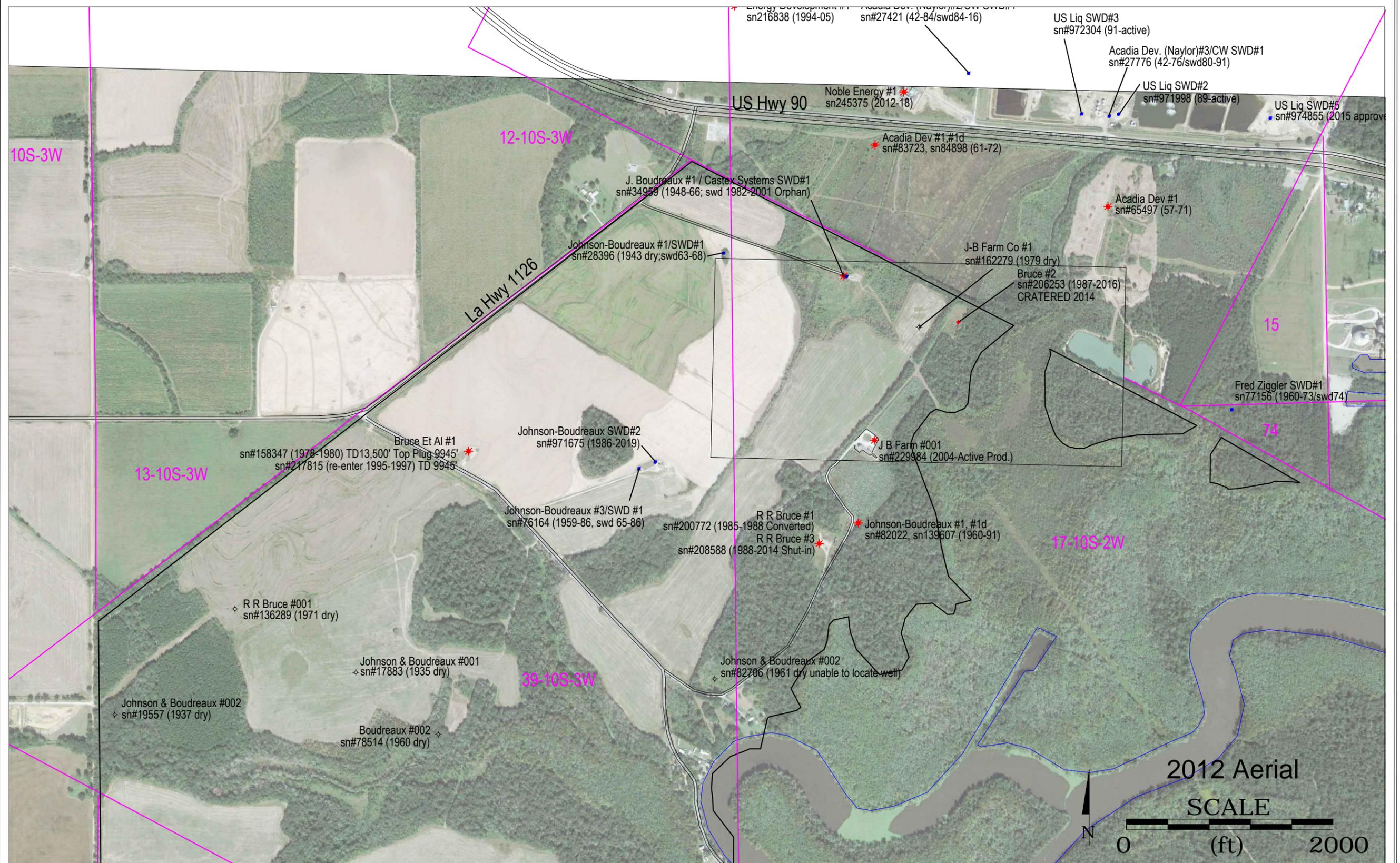


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2004 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 26

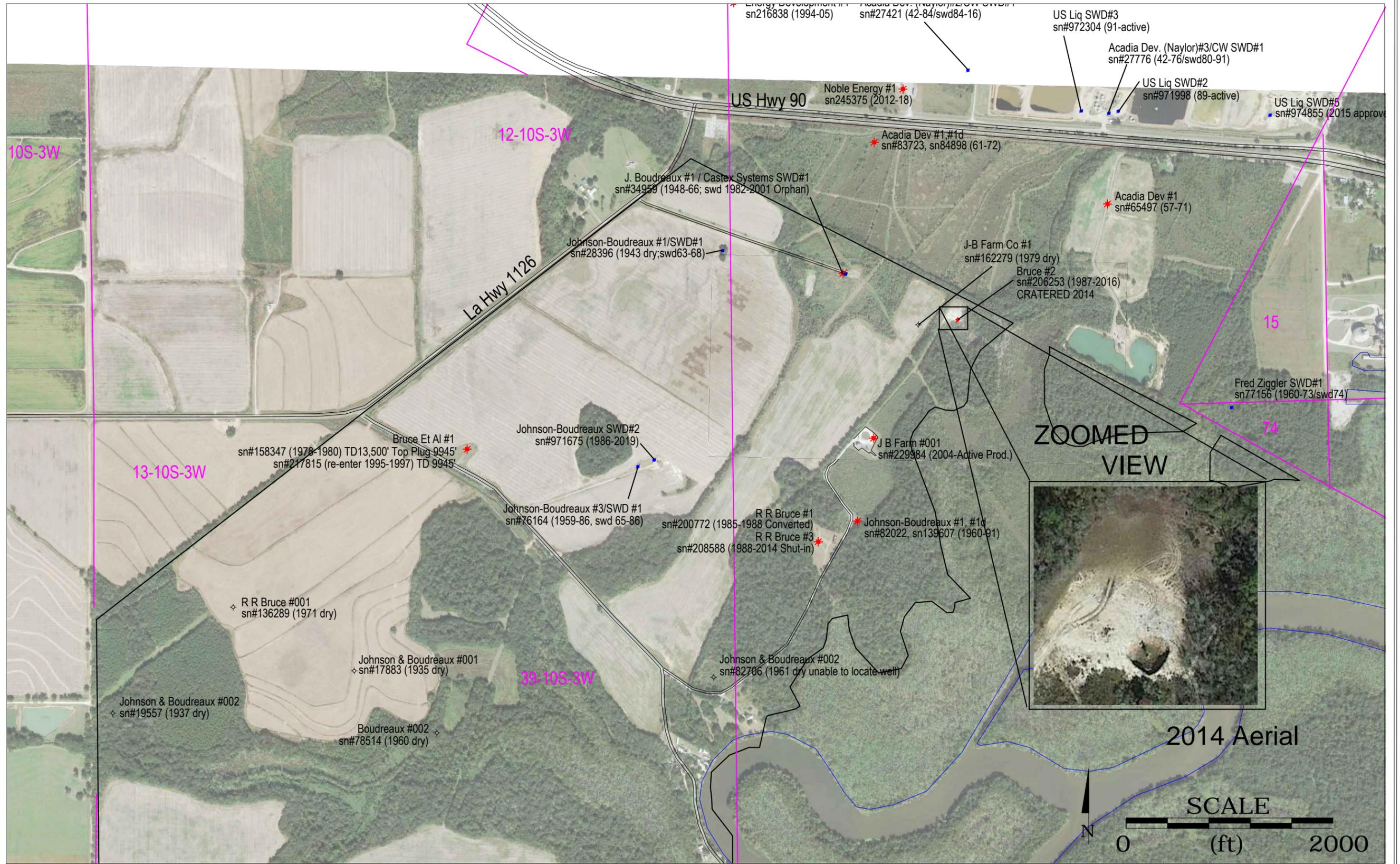


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2012 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 27

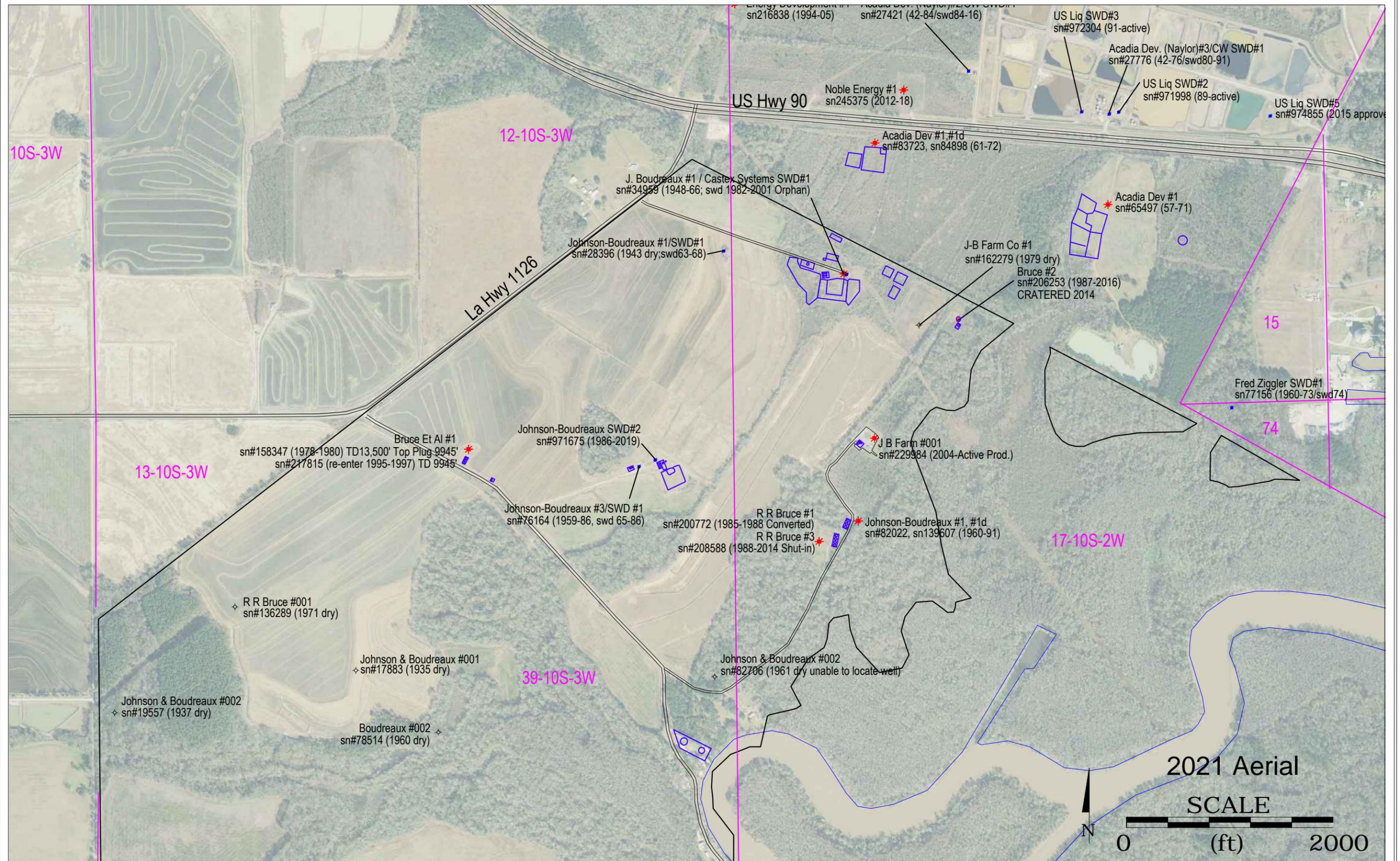


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2014 AERIAL IMAGE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 28



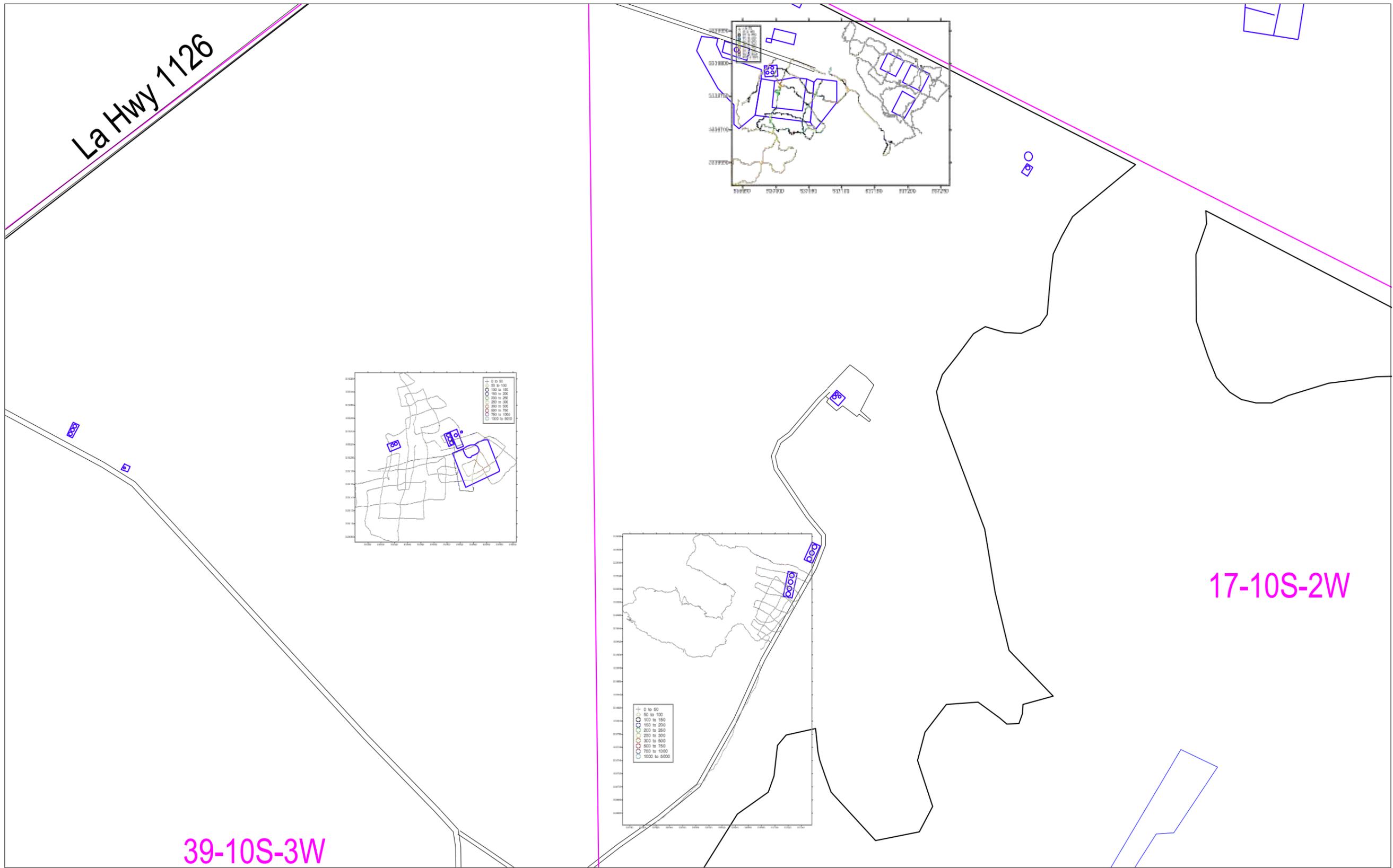
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2021 AERIAL IMAGE WITH THE LOCATIONS OF FORMER PITS AND PRODUCTION EQUIPMENT  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 29

La Hwy 1126



39-10S-3W

17-10S-2W

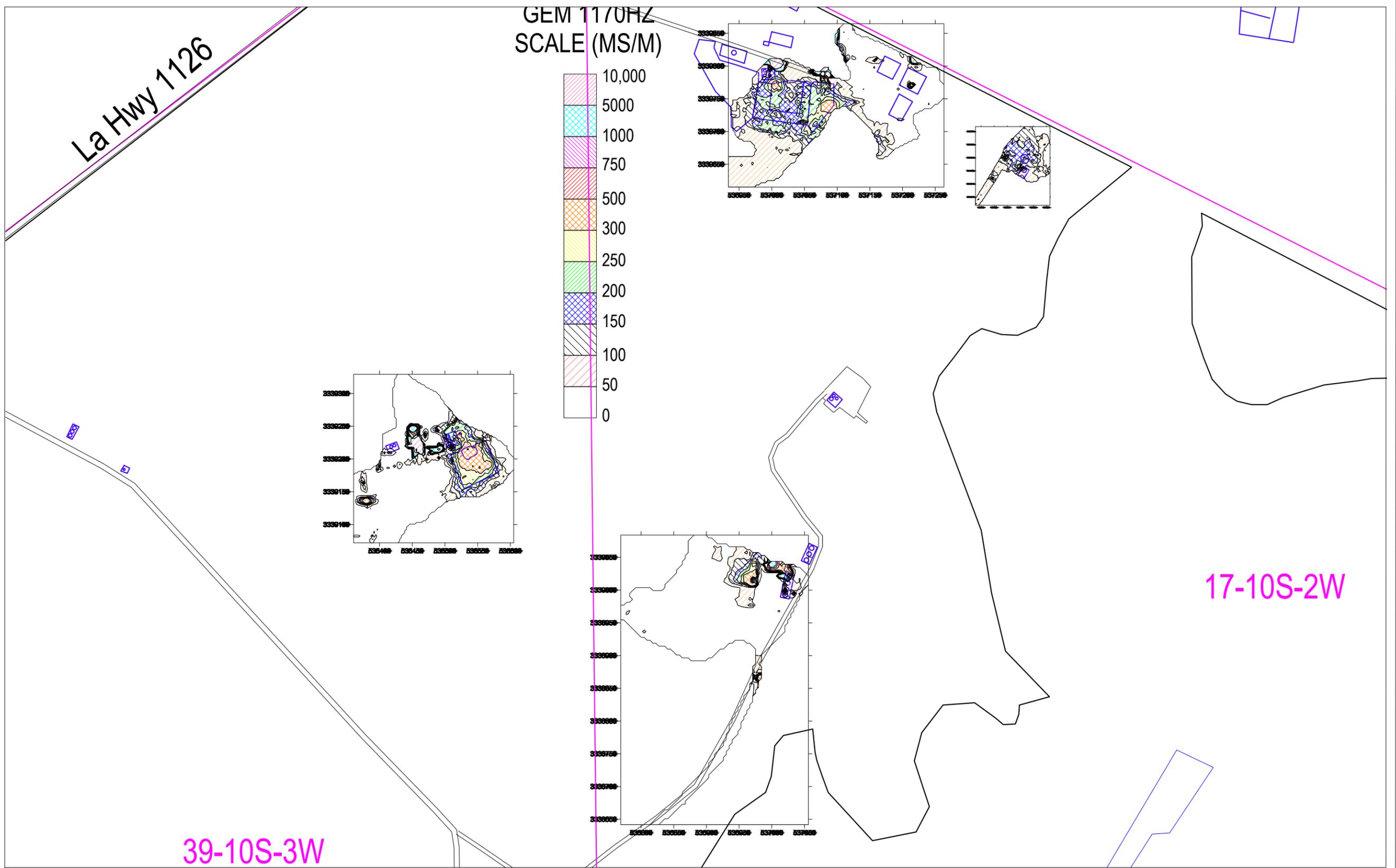


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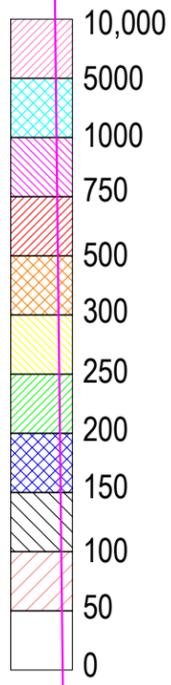
TERRAIN CONDUCTIVITY (GEM-2) TRANSECTS  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 30



La Hwy 1126

GEM 1170HZ  
SCALE (MS/M)



39-10S-3W

17-10S-2W



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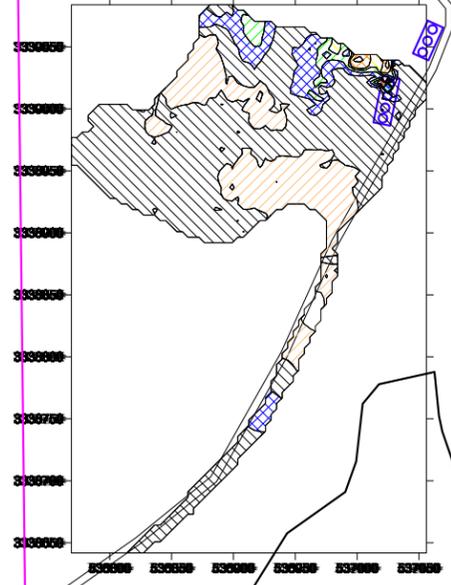
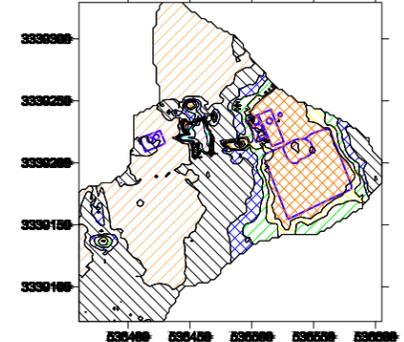
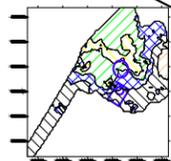
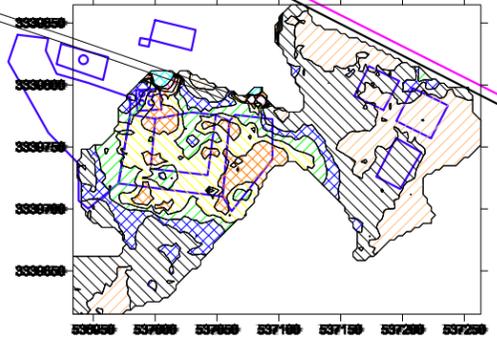
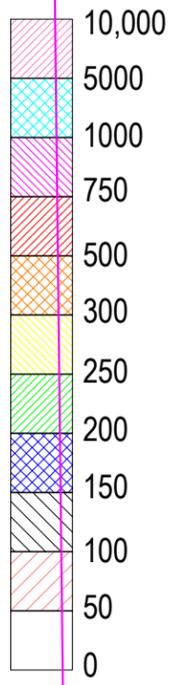
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TERRAIN CONDUCTIVITY (GEM-2) CONTOURS AT THE DEEPER (1170 HZ) FREQUENCY  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
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FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 31

La Hwy 1126

GEM 13590HZ  
SCALE (MS/M)



39-10S-3W

17-10S-2W

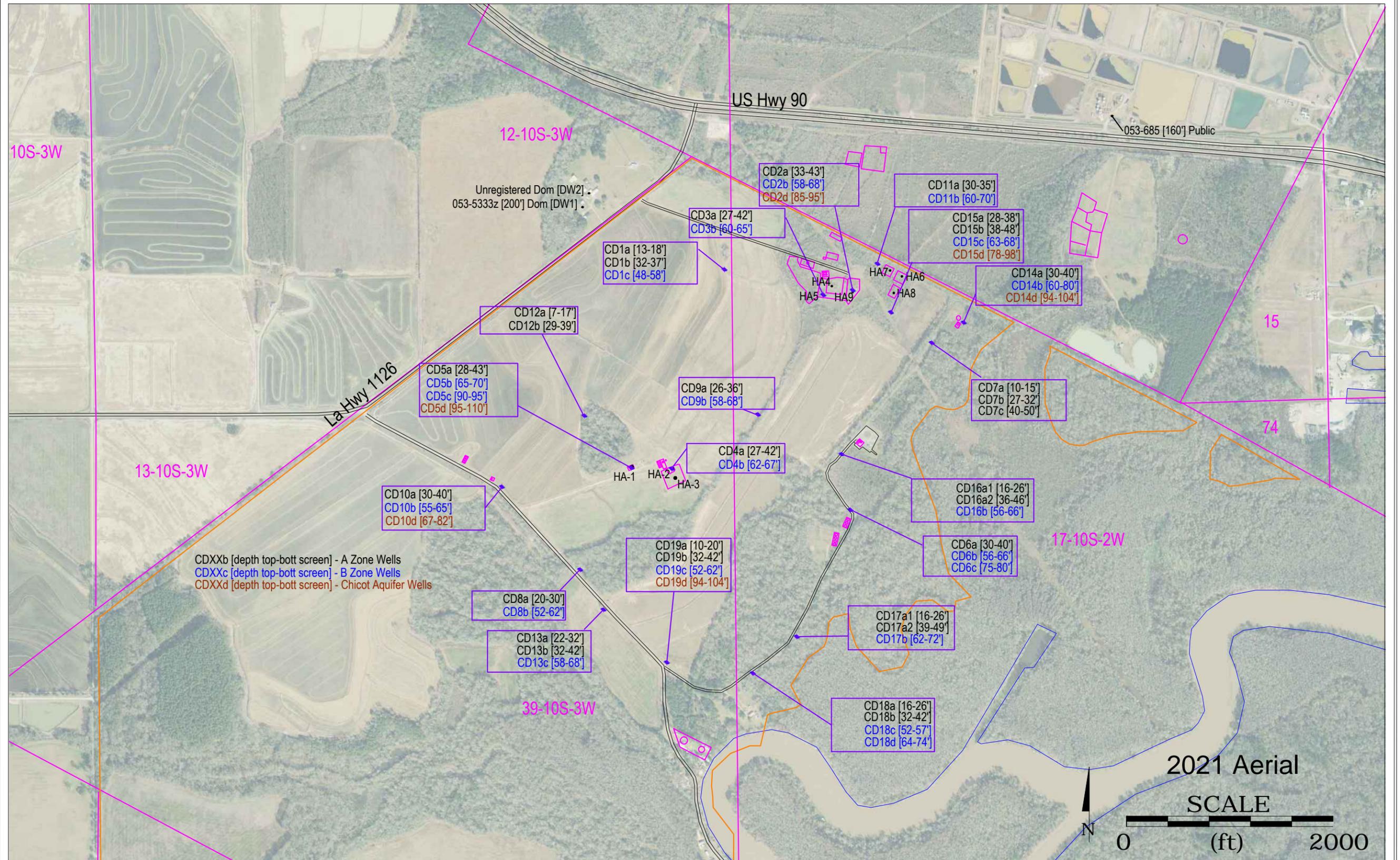


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TERRAIN CONDUCTIVITY (GEM-2) CONTOURS AT THE SHALLOWER (13590 HZ) FREQUENCY  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 32

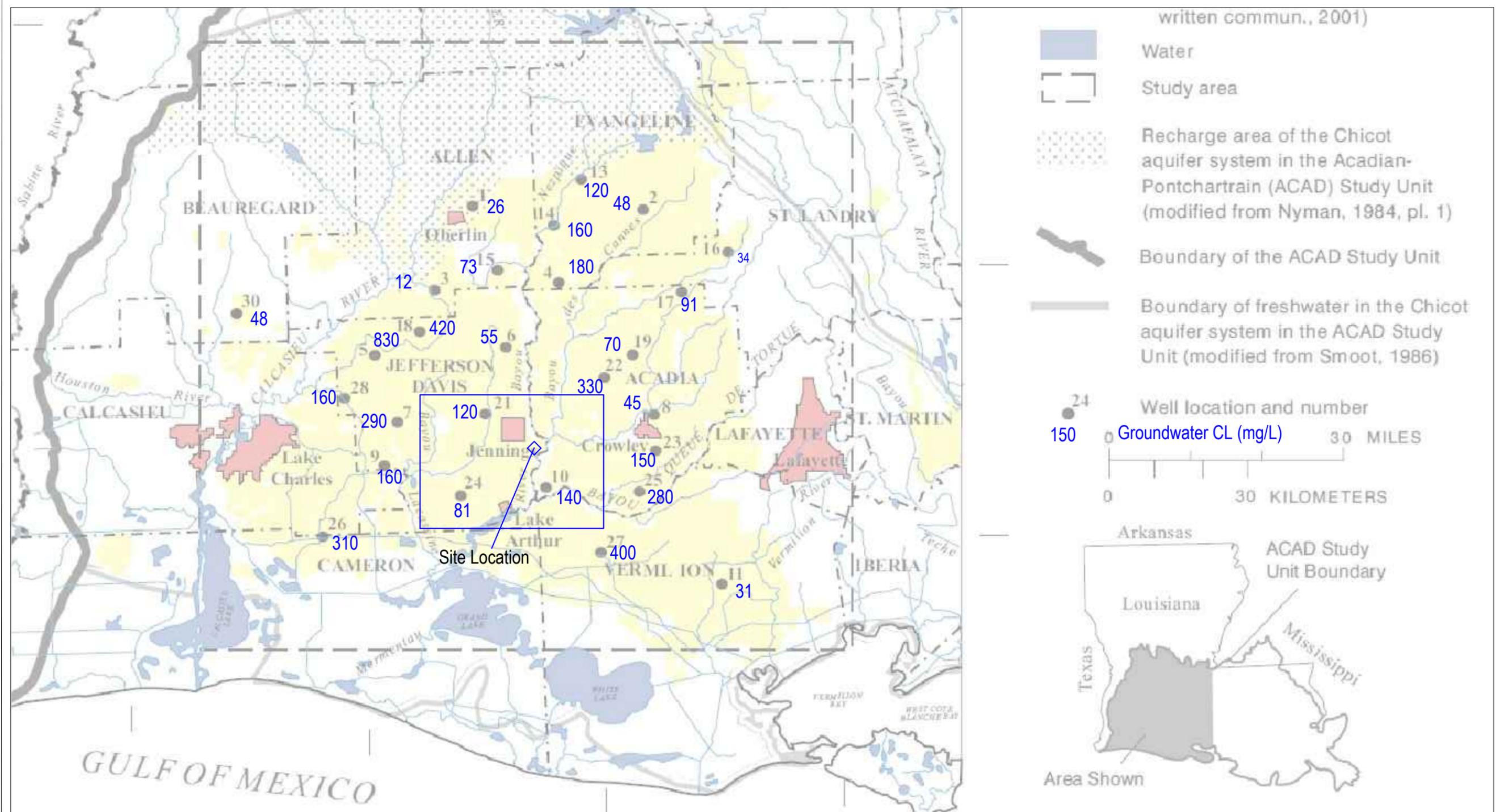


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LOCATIONS OF MONITORING WELLS AND BORINGS  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 33

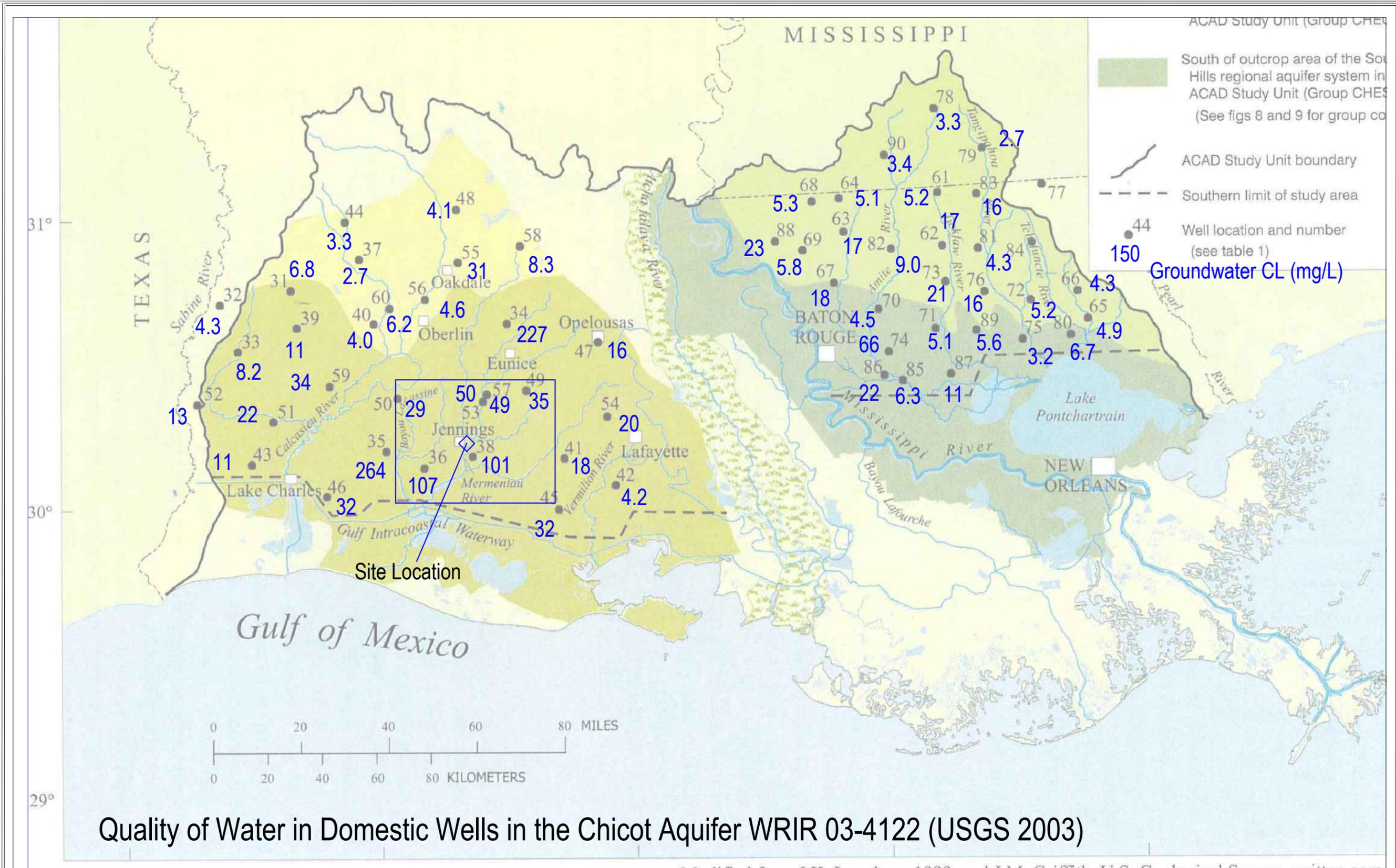


Map modified from, Official Map of Louisiana, Department of Transportation and Development, 1986

## Quality of Water from Shallow Wells in the Rice Growing Area of SW Louisiana, WRIR 03-4050 (USGS 2004)

1. Study area and well locations in the rice-growing area in southwestern Louisiana in the Acadian-Pontchartrain Study Unit.

	PREPARED BY: ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, LA 70767	PREPARED FOR: Talbot, Carmouche, Marcello Law Firm 17405 Perkins Road Baton Rouge, la 70810	LOCATION OF WELLS USED FOR BACKGROUND CALCULATIONS FOR THE A-ZONE AND B-ZONE Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA Mermentau Field, Jefferson Davis Parish, LA	FILENAME JOB NO. DIRECTORY	REV # DATE July 2024 FIGURE NO.
				34	

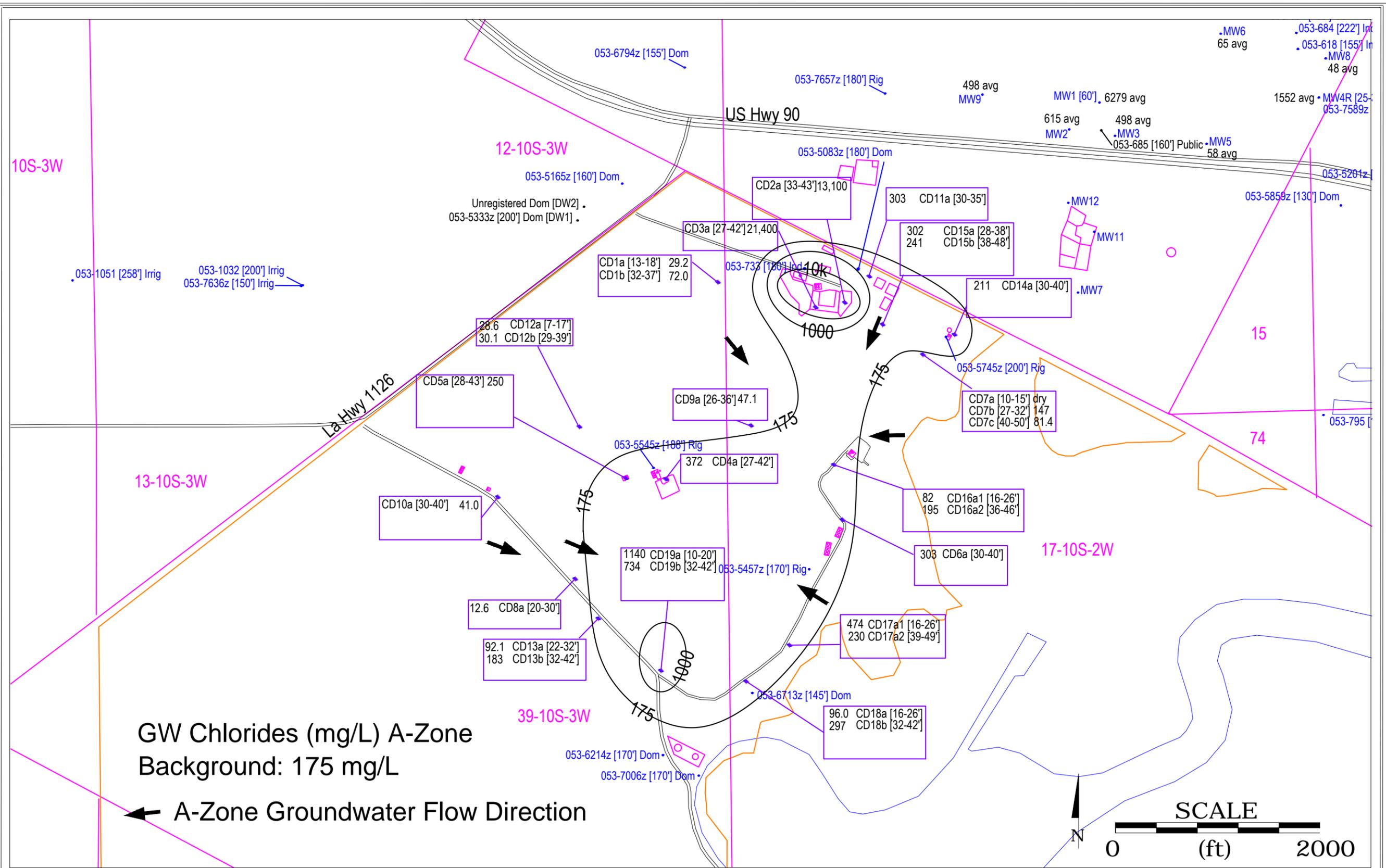


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LOCATION OF WELLS USED FOR BACKGROUND CALCULATIONS FOR THE CHICOT  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE July 2024
DIRECTORY	FIGURE NO. 35

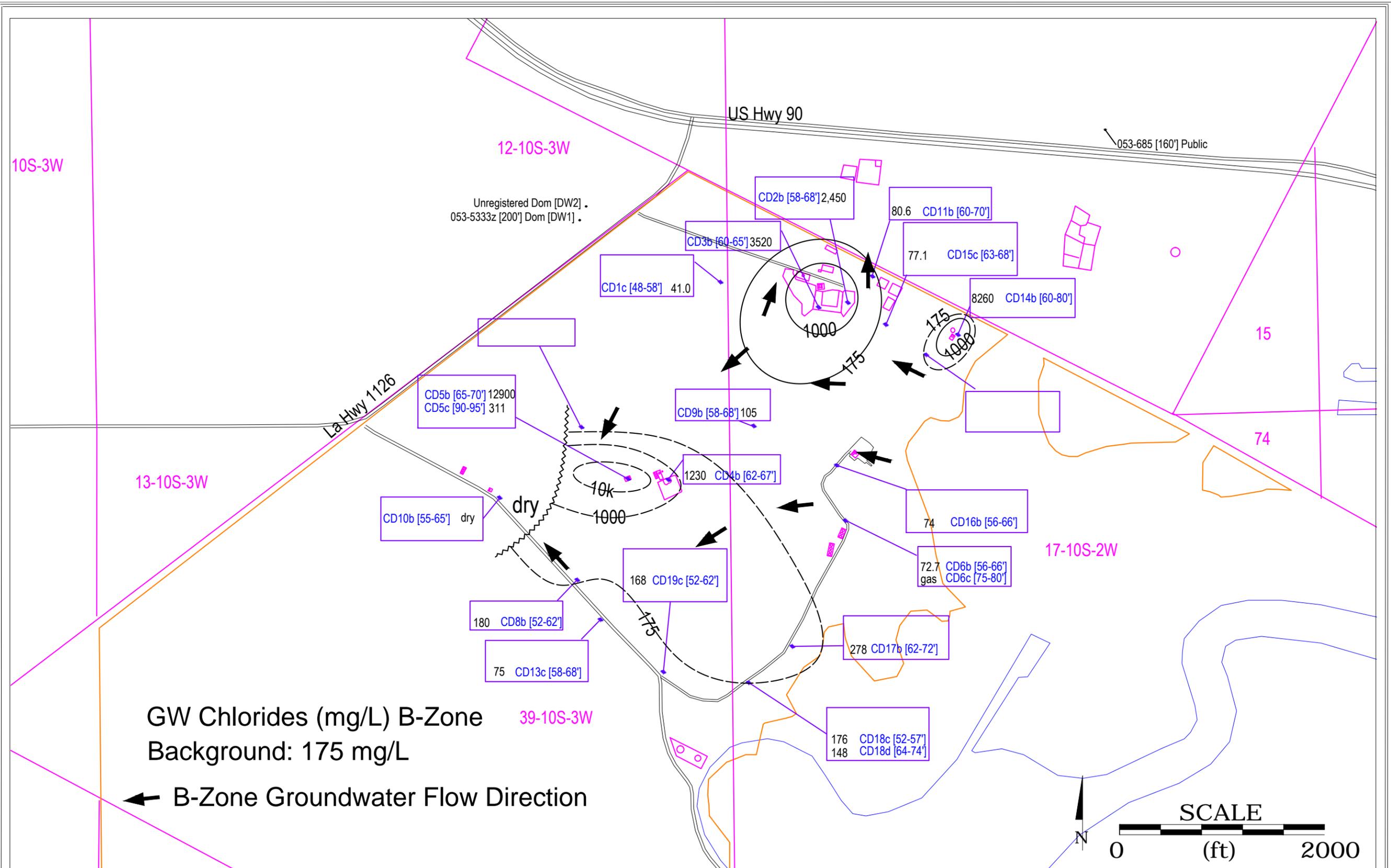


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**GROUNDWATER CHLORIDES IN THE A-ZONE**  
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Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE
DIRECTORY	FIGURE NO.
	36

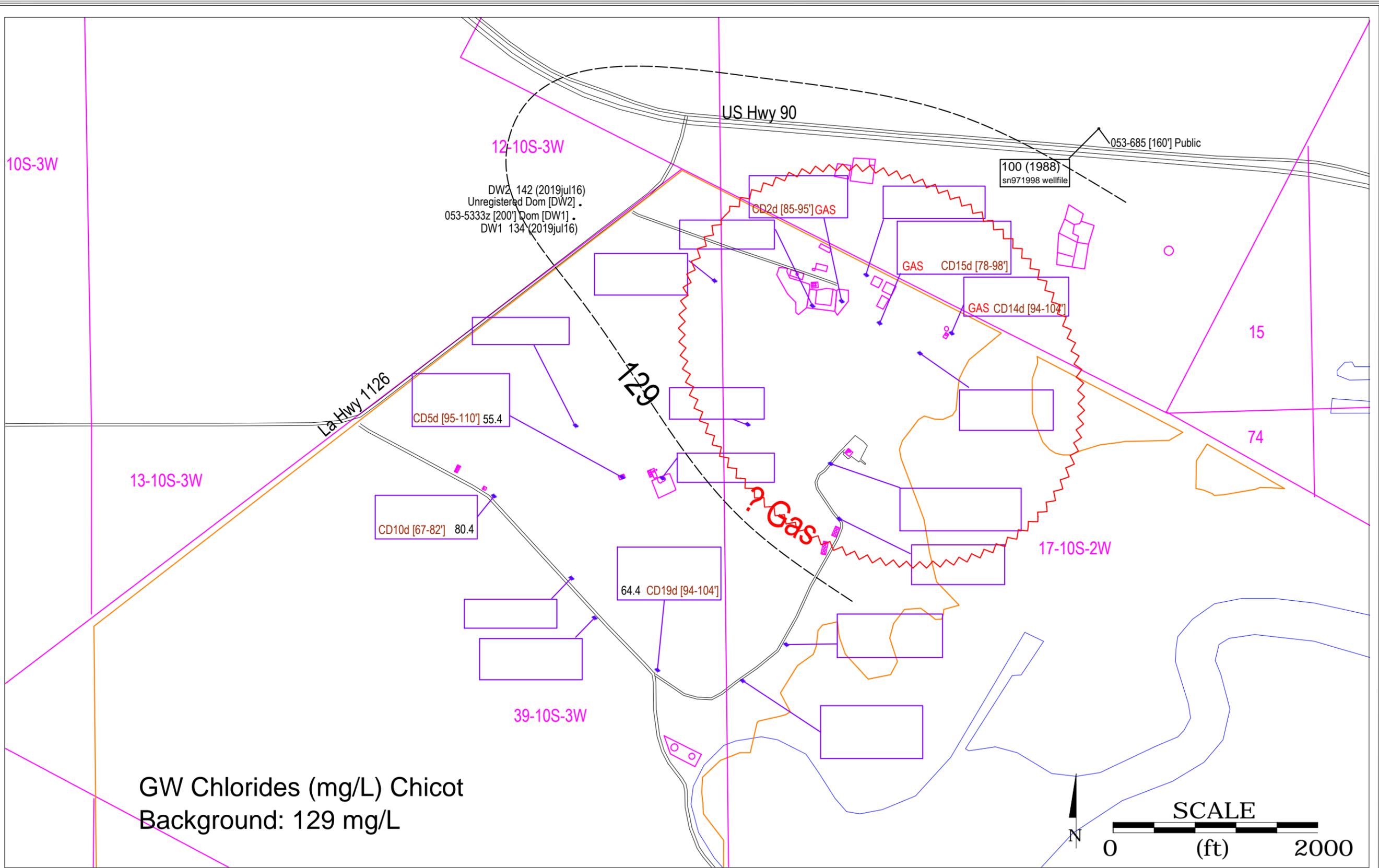


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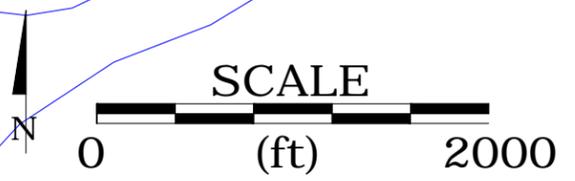
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GROUNDWATER CHLORIDES IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 37



GW Chlorides (mg/L) Chicot  
Background: 129 mg/L

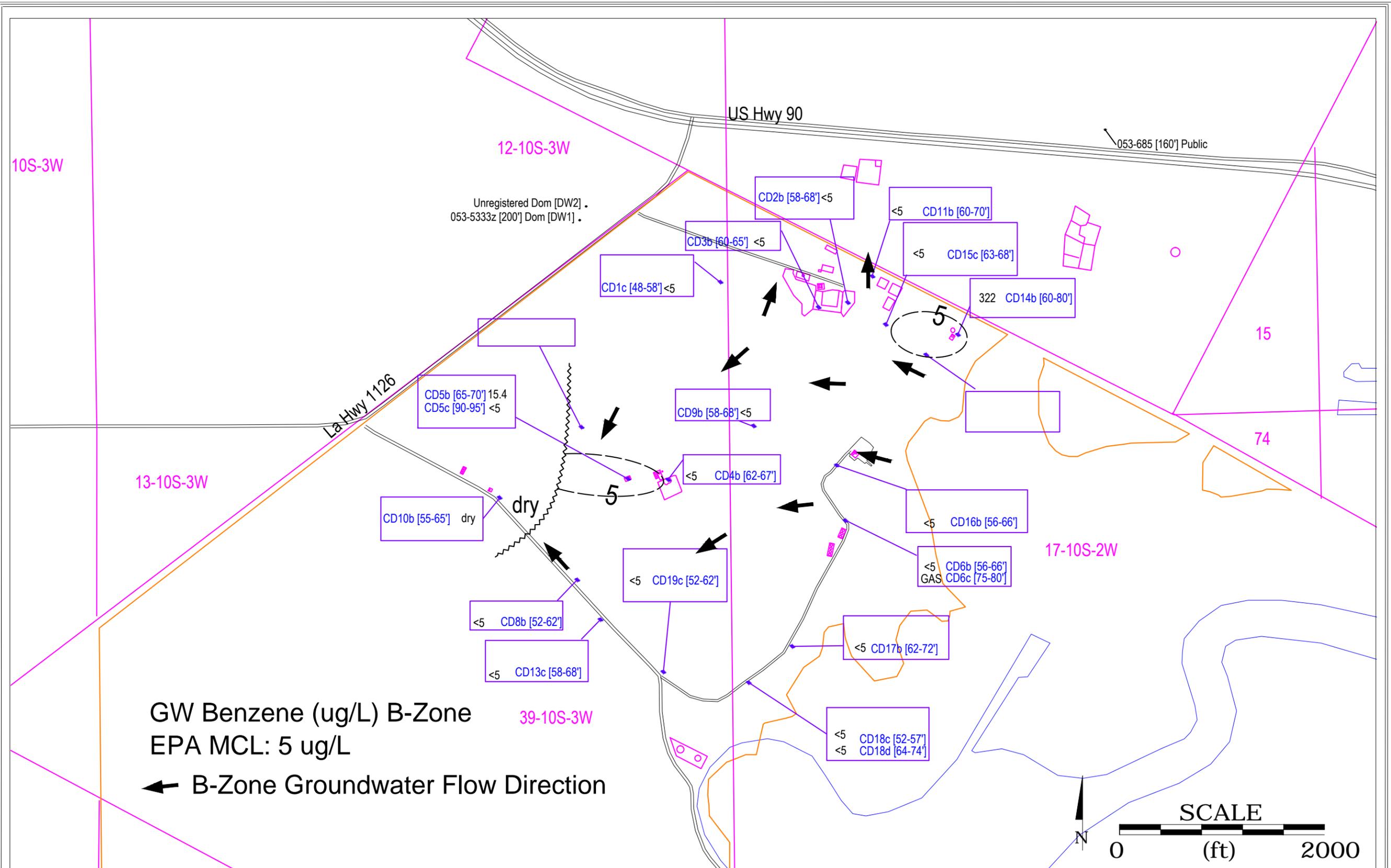


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GROUNDWATER CHLORIDES IN THE CHICOT AQUIFER  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 38

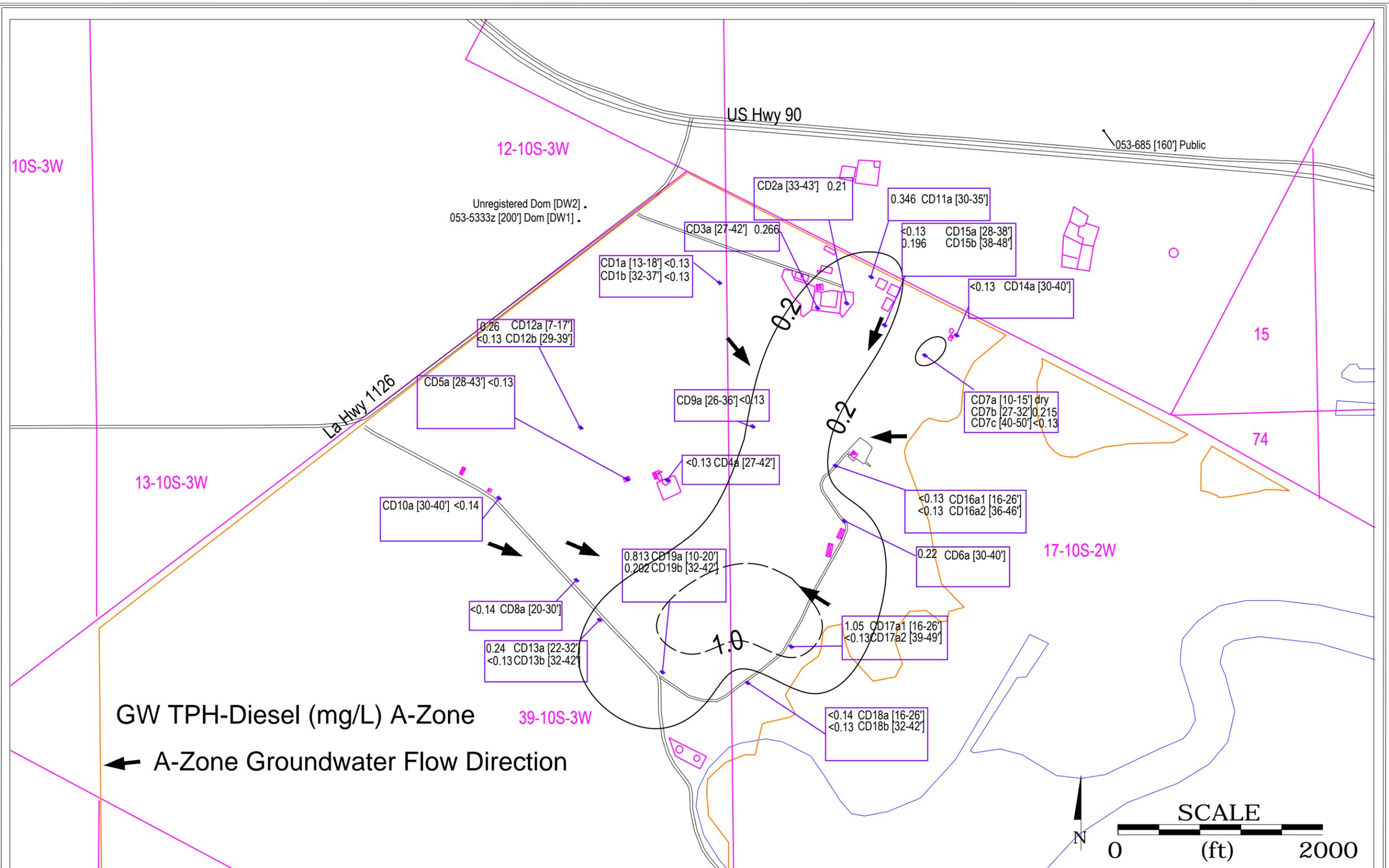


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GROUNDWATER BENZENE IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 39

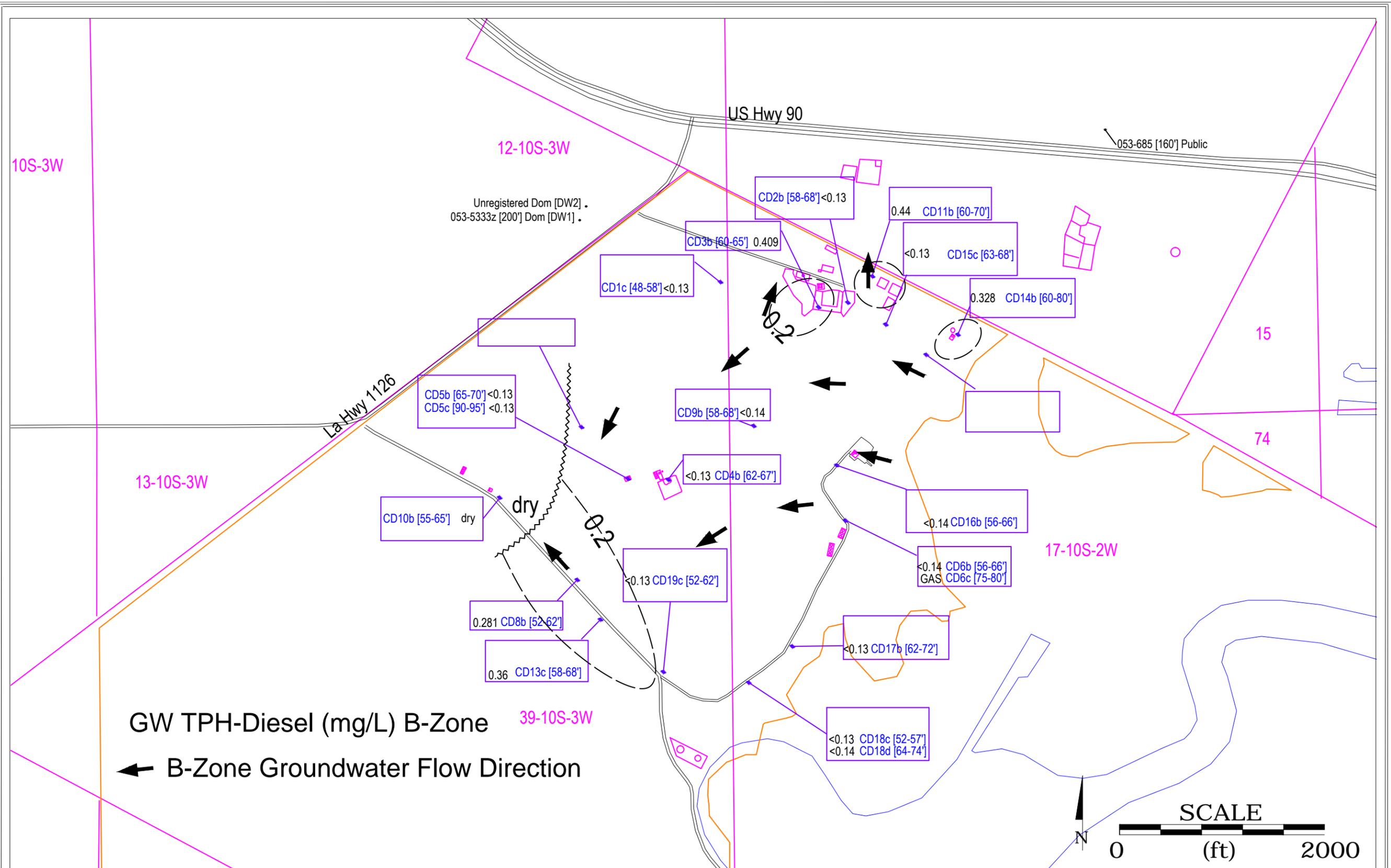


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GROUNDWATER TPH-DIESEL IN THE A-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 40

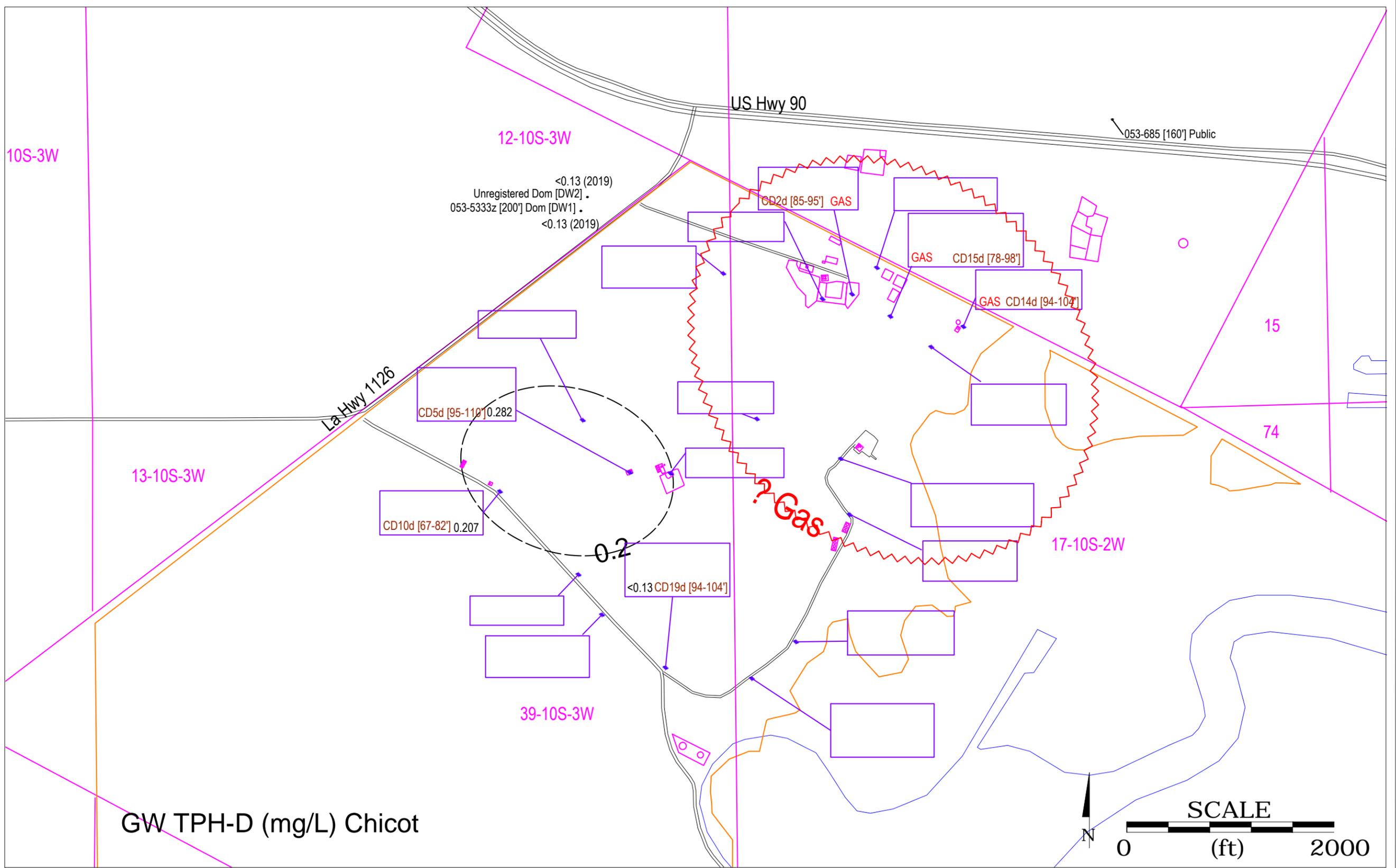


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GROUNDWATER TPH-DIESEL IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 41

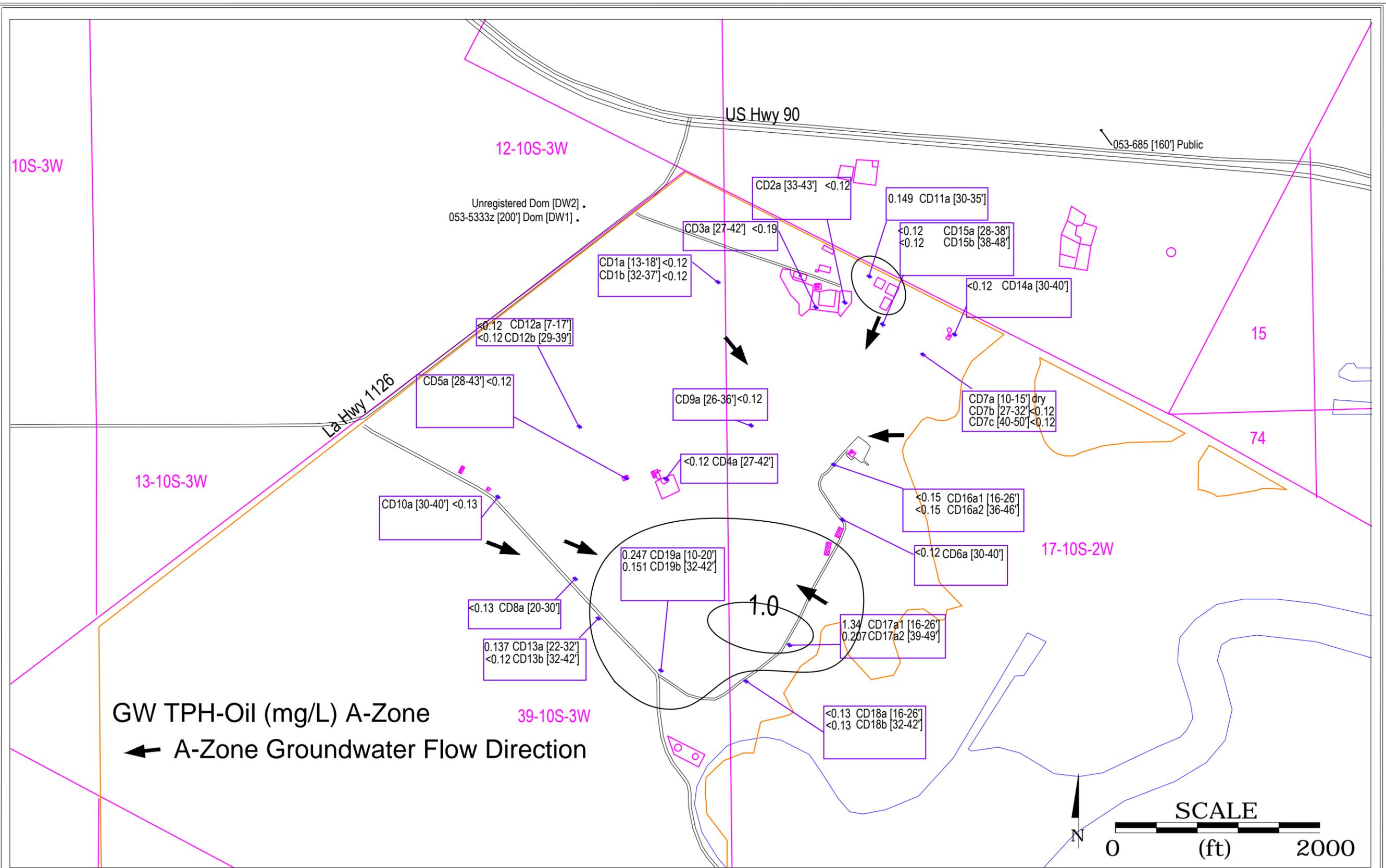


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GROUNDWATER TPH-DIESEL IN THE CHICOT AQUIFER  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 42

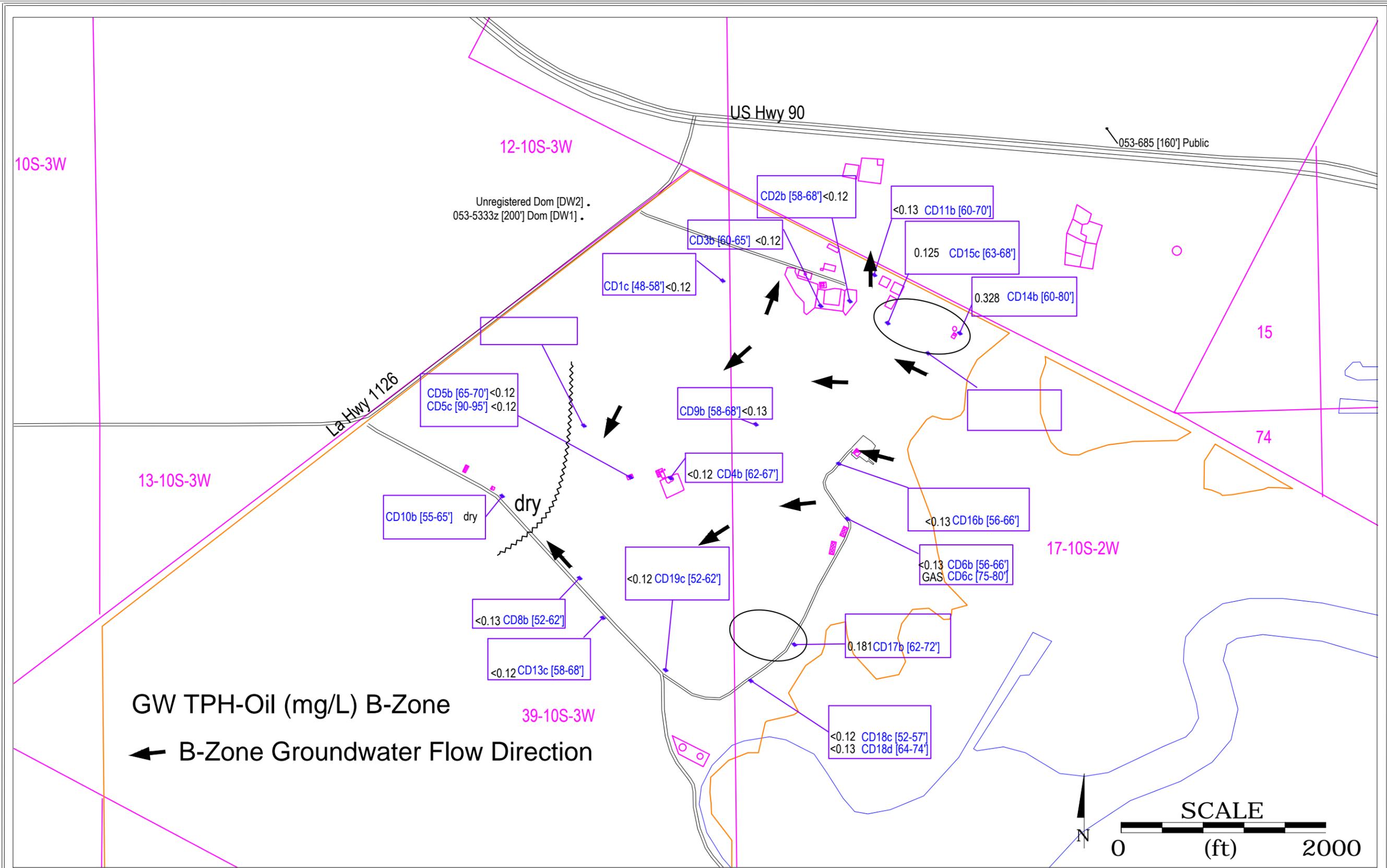


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**GROUNDWATER TPH-OIL IN THE A-ZONE**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 43

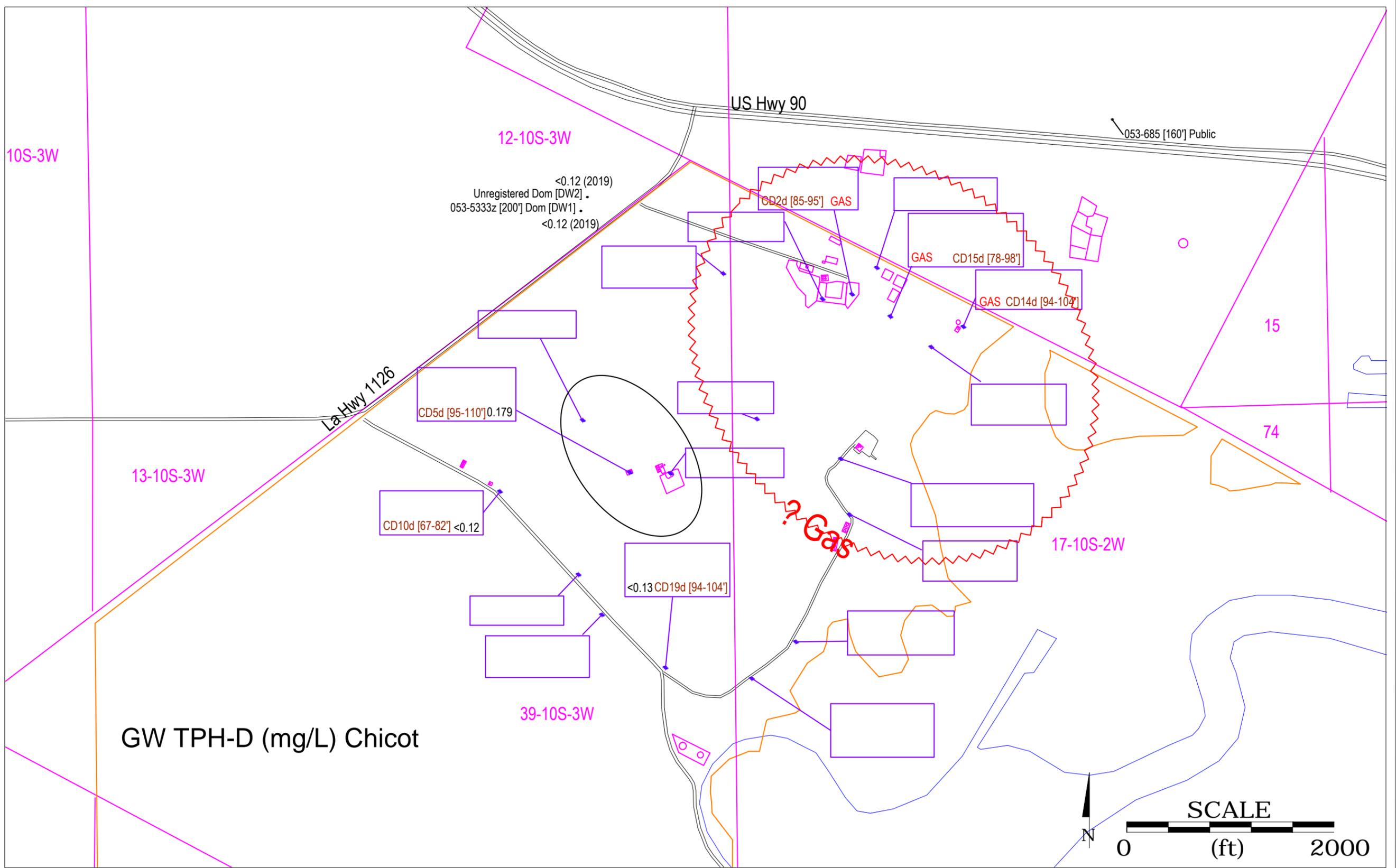


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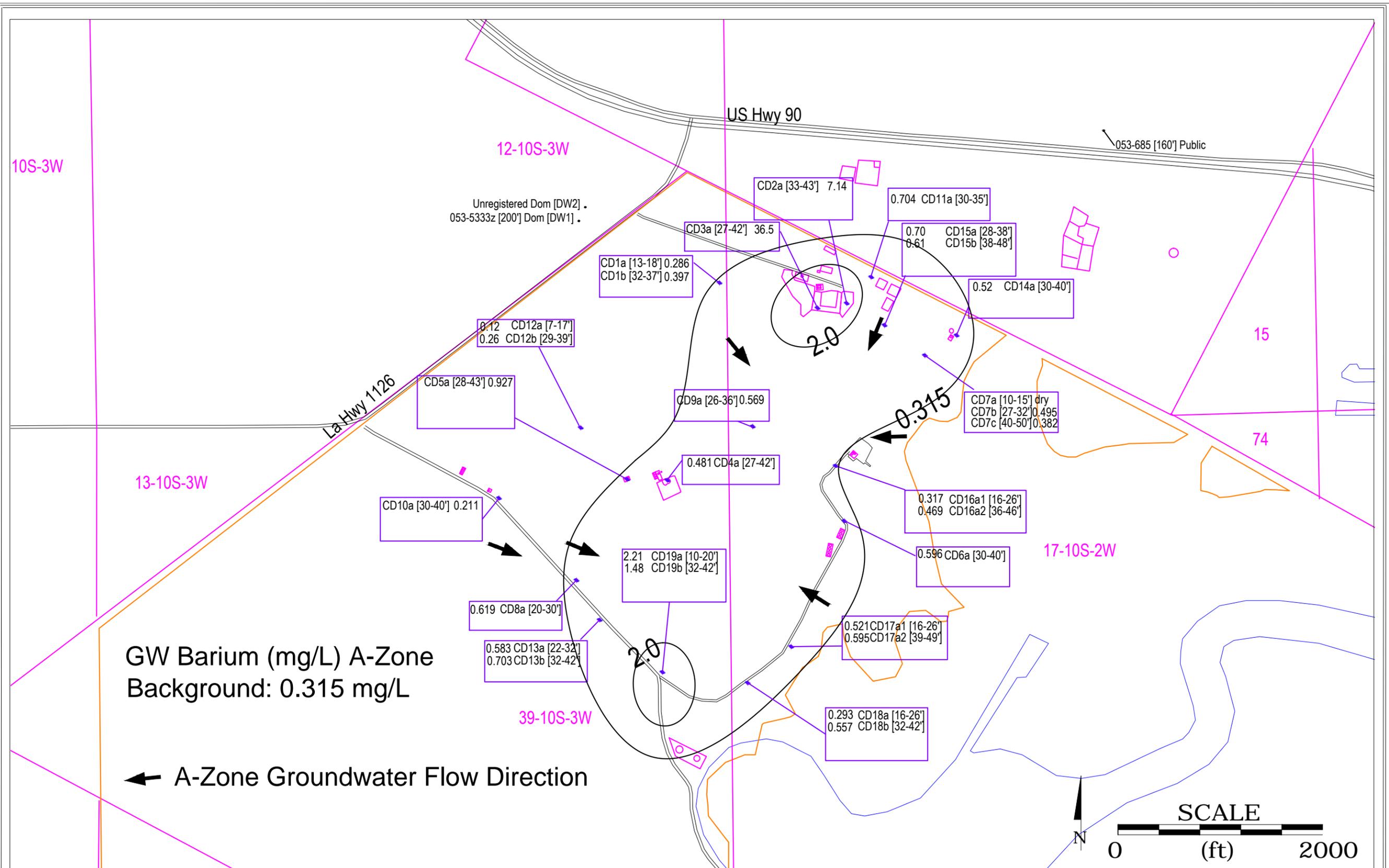
GROUNDWATER TPH-OIL IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 44



GW TPH-D (mg/L) Chicot

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					Sep 2024 45

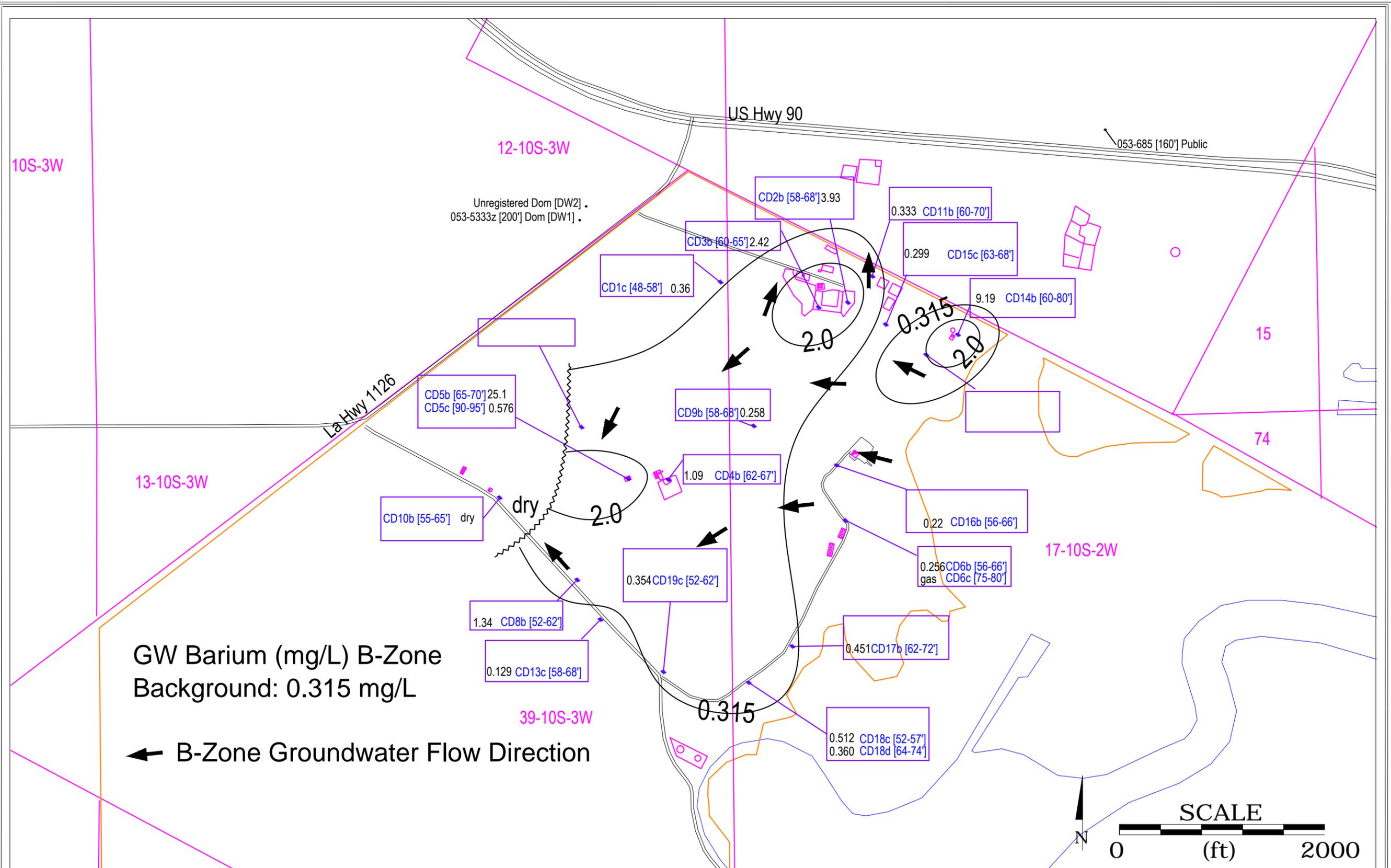


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**GROUNDWATER BARIUM IN THE A-ZONE**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 46

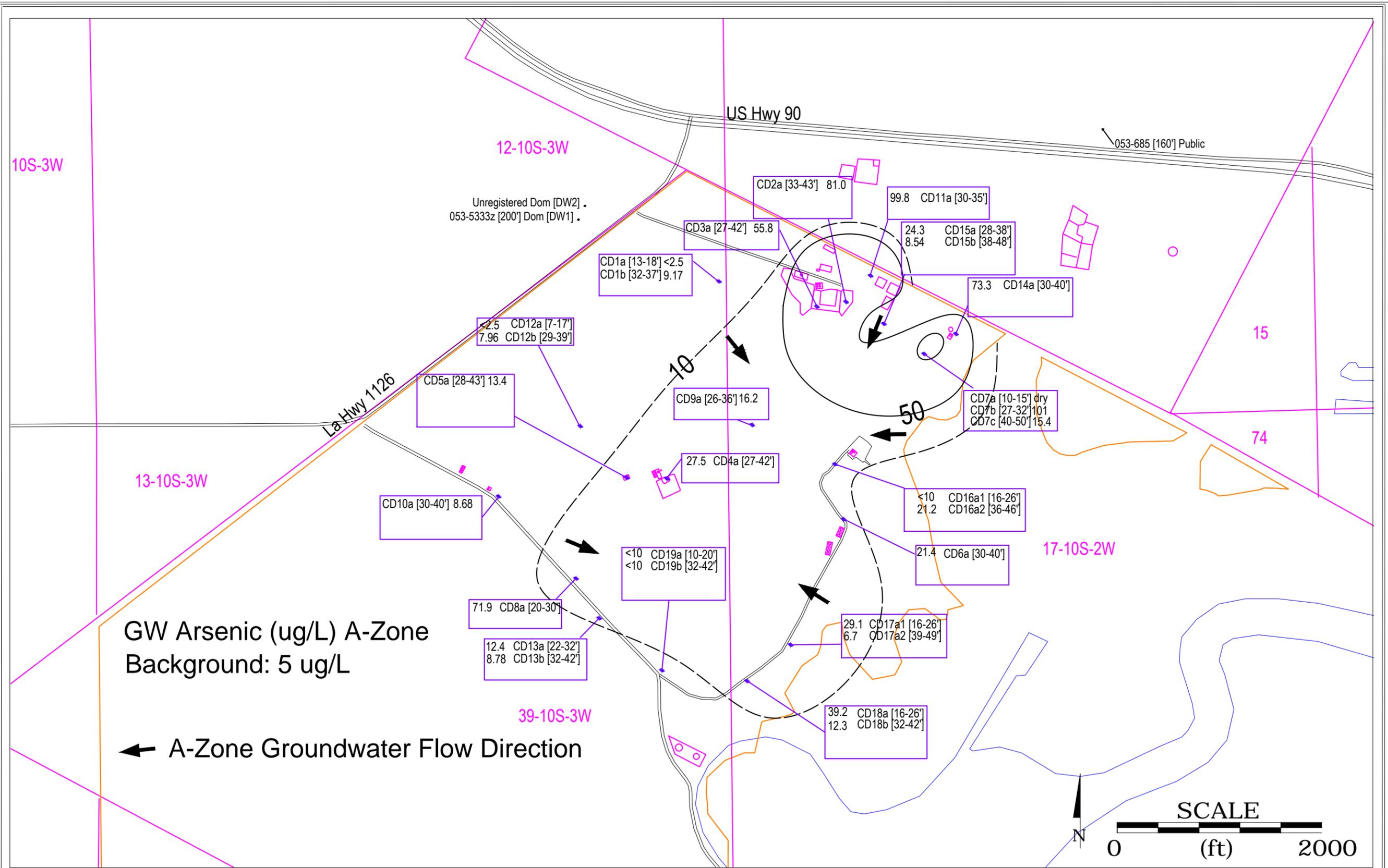


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GROUNDWATER BARIUM IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 47

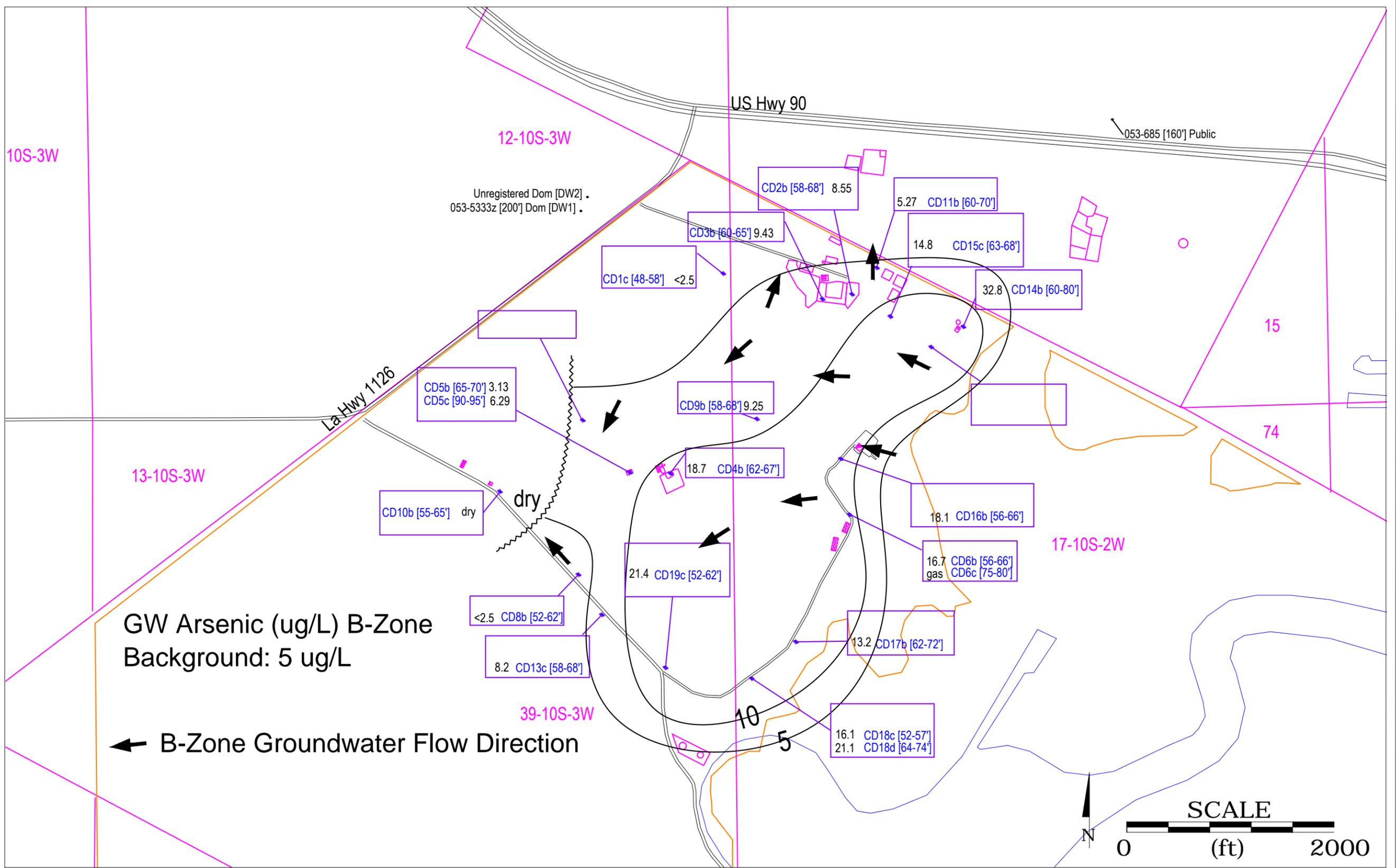


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**GROUNDWATER ARSENIC IN THE A-ZONE**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 48

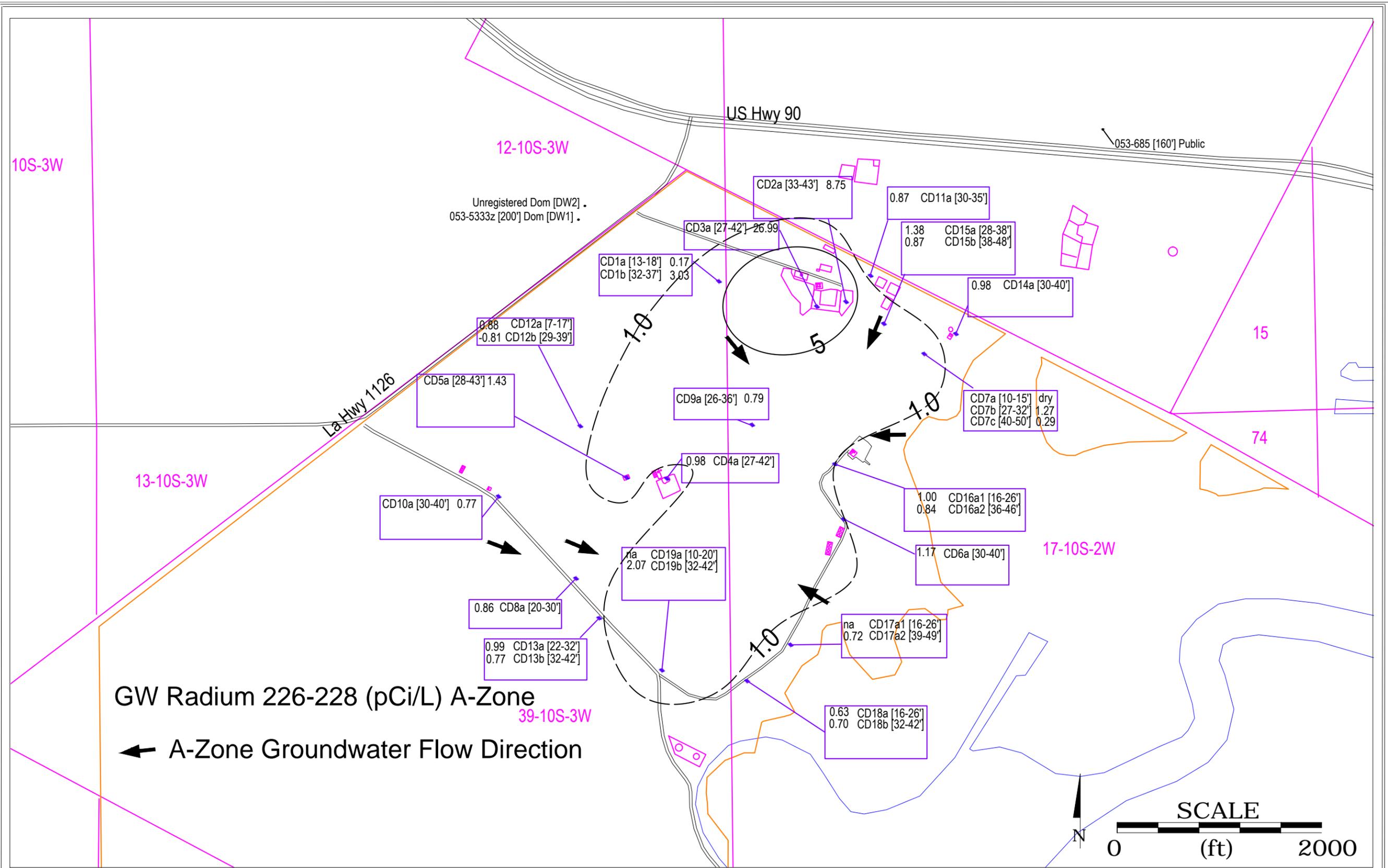


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**GROUNDWATER ARSENIC IN THE B-ZONE**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 49

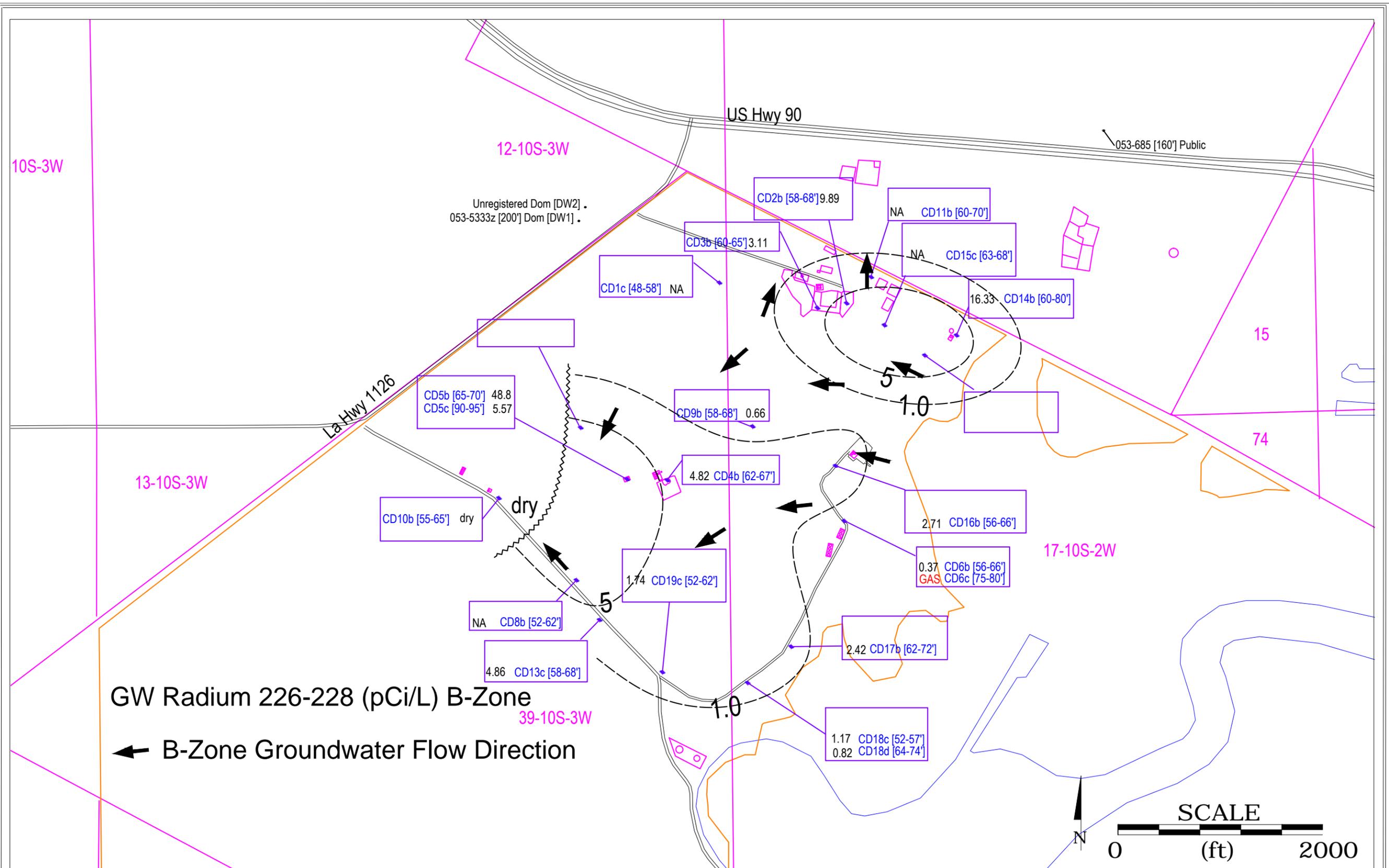


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GROUNDWATER RADIUM 226-228 IN THE A-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 50

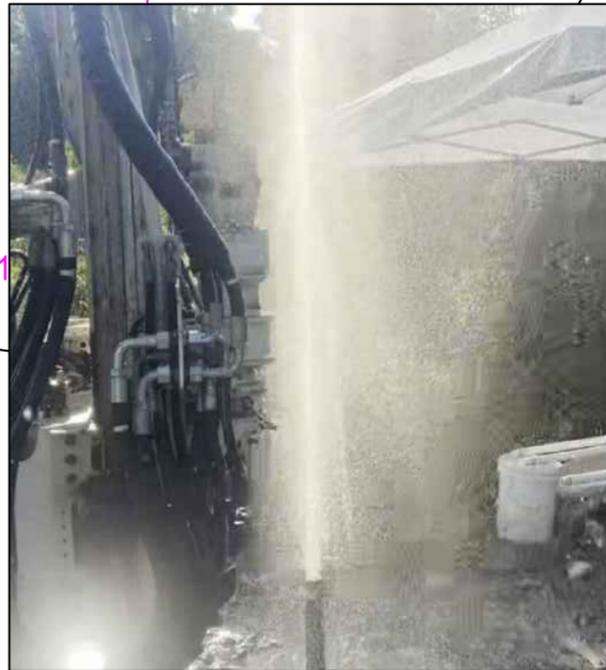


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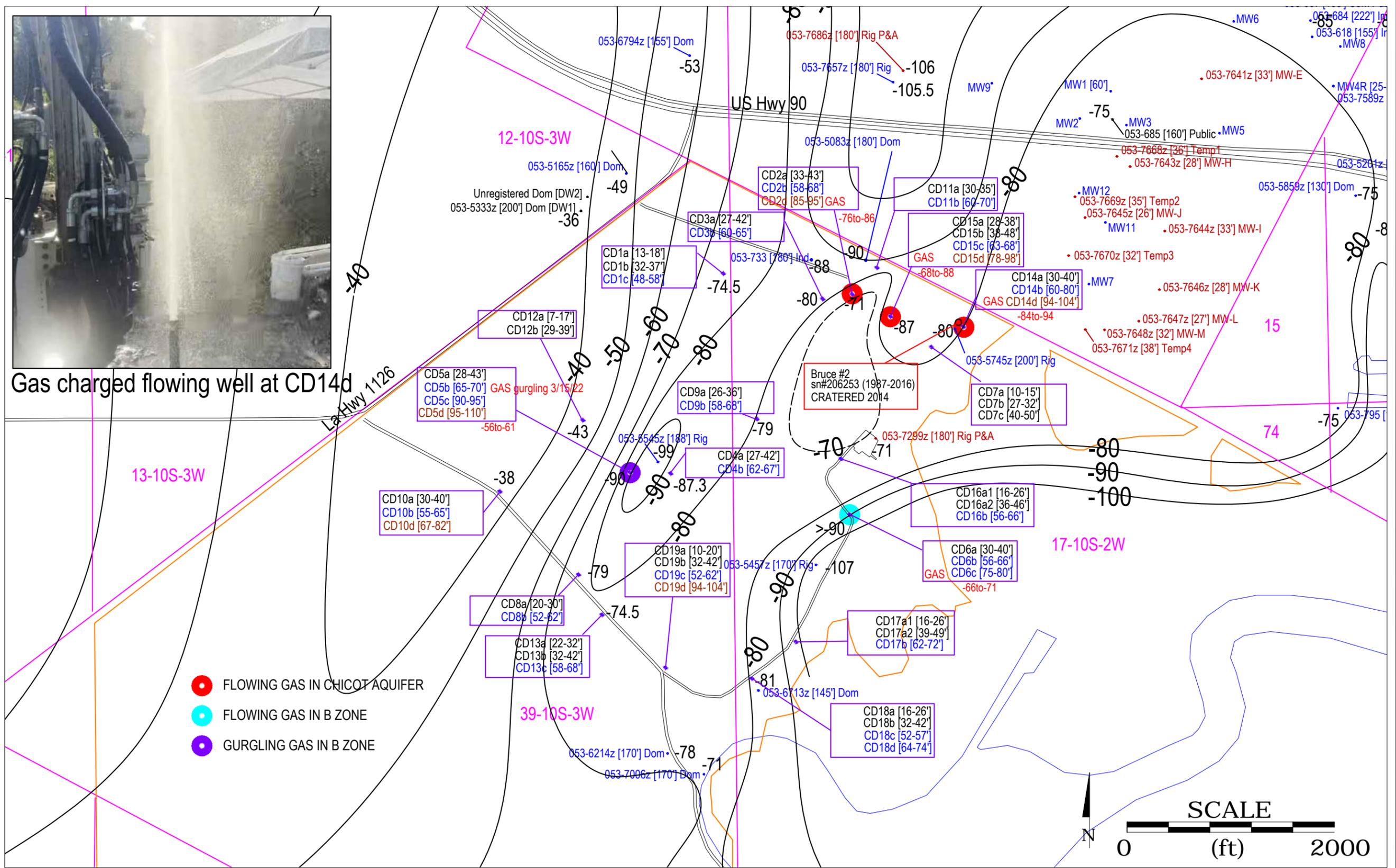
PREPARED FOR:  
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GROUNDWATER RADIUM 226-228 IN THE B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 51

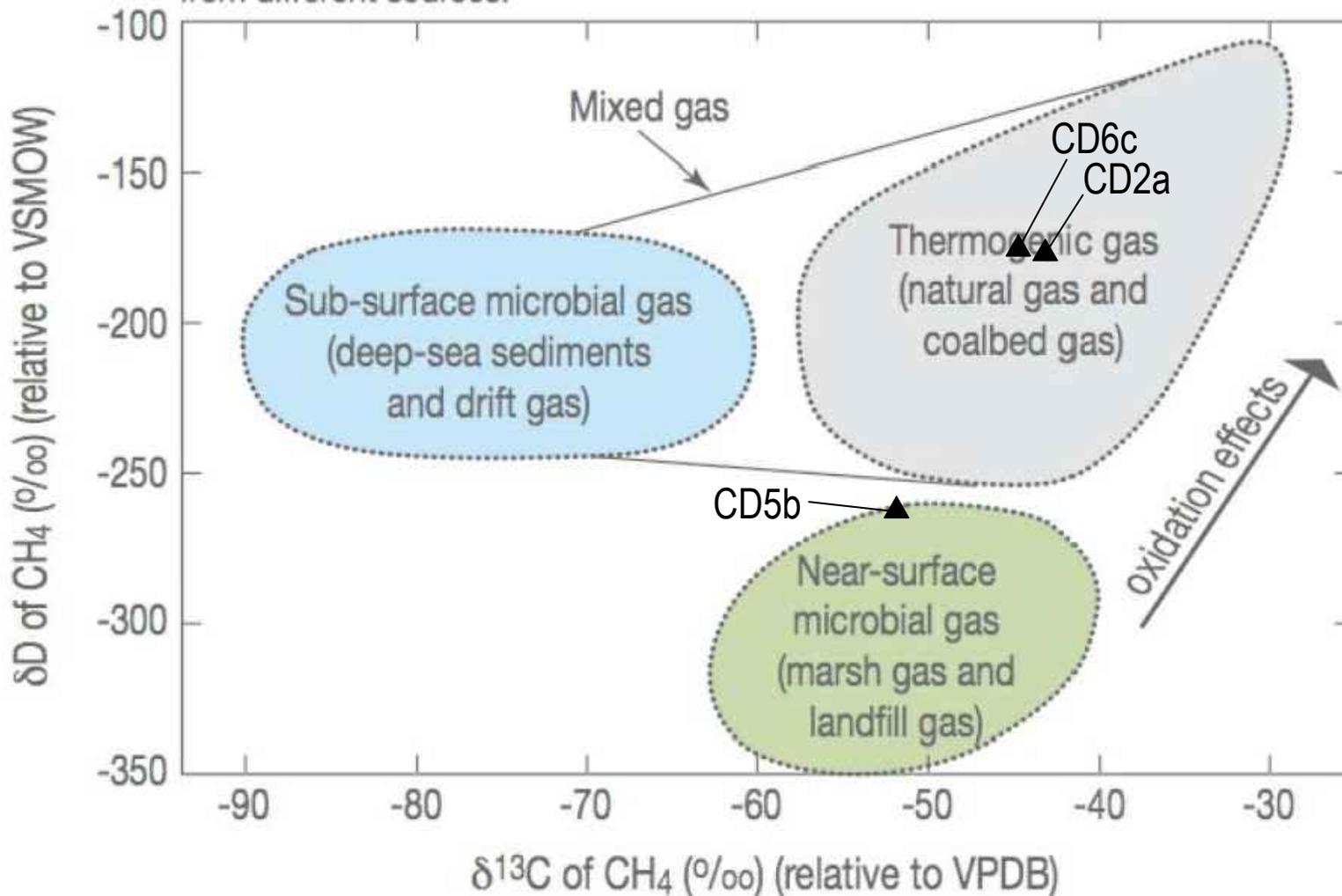


Gas charged flowing well at CD14d



	PREPARED BY: ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, LA 70767	PREPARED FOR: Talbot, Carmouche, Marcello Law Firm 17405 Perkins Road Baton Rouge, la 70810	ELEVATION OF THE TOP OF THE CHICOT AQUIFER AND LOCATIONS OF GAS IN MONITORING WELLS Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA Mermentau Field, Jefferson Davis Parish, LA	FILENAME JOB NO. DIRECTORY	REV # DATE FIGURE NO.
				Sep 2024 52	

Stable carbon and hydrogen isotopic compositional ranges of methanes from different sources.



After Coleman and others (1993) based on the data set of Schoell (1980)



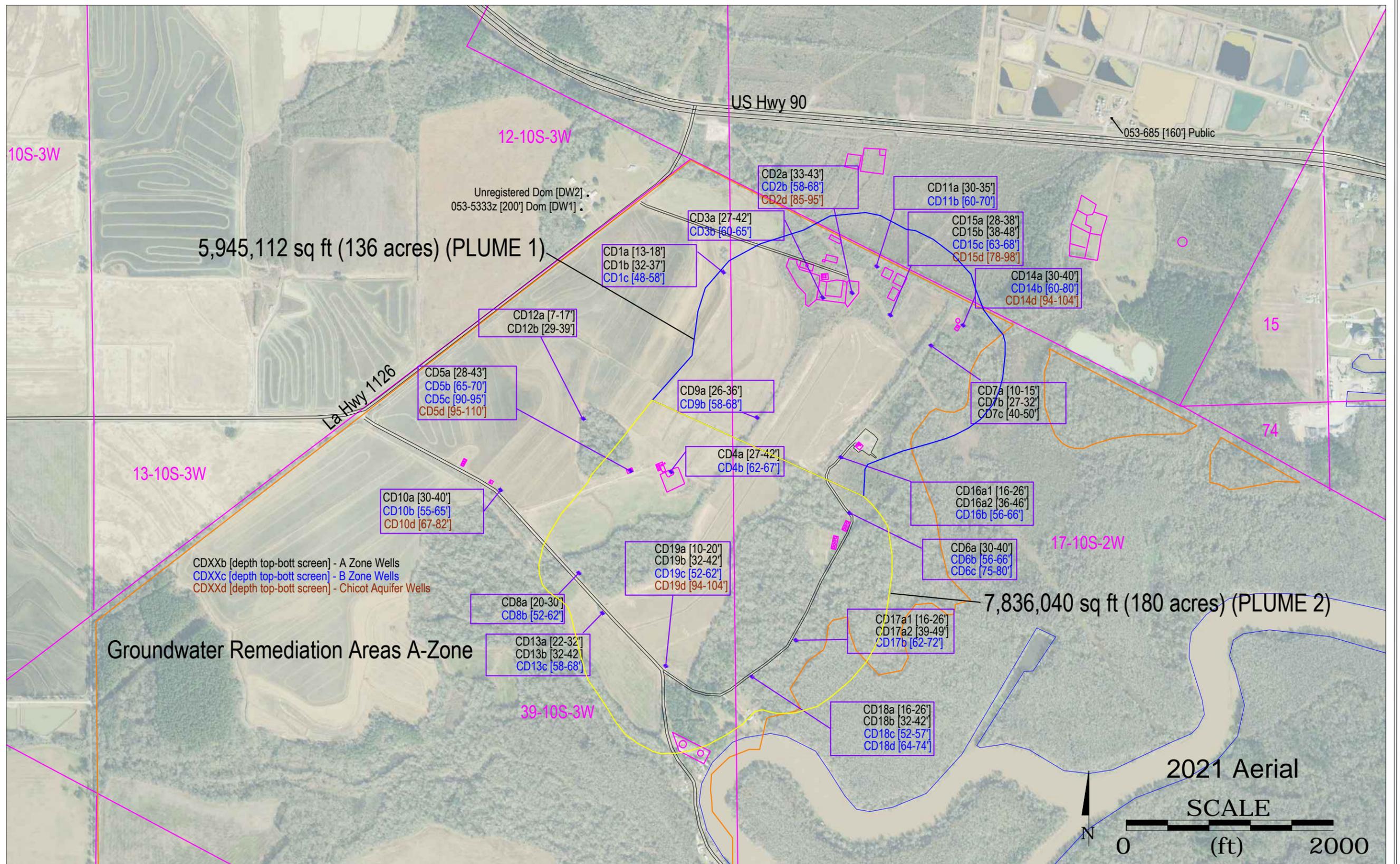
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ISOTECH GAS SAMPLE ISOTOPE CROSSPLOT  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE: Oct 2024
DIRECTORY	FIGURE NO.
	53

Castex-ICON Report-000073

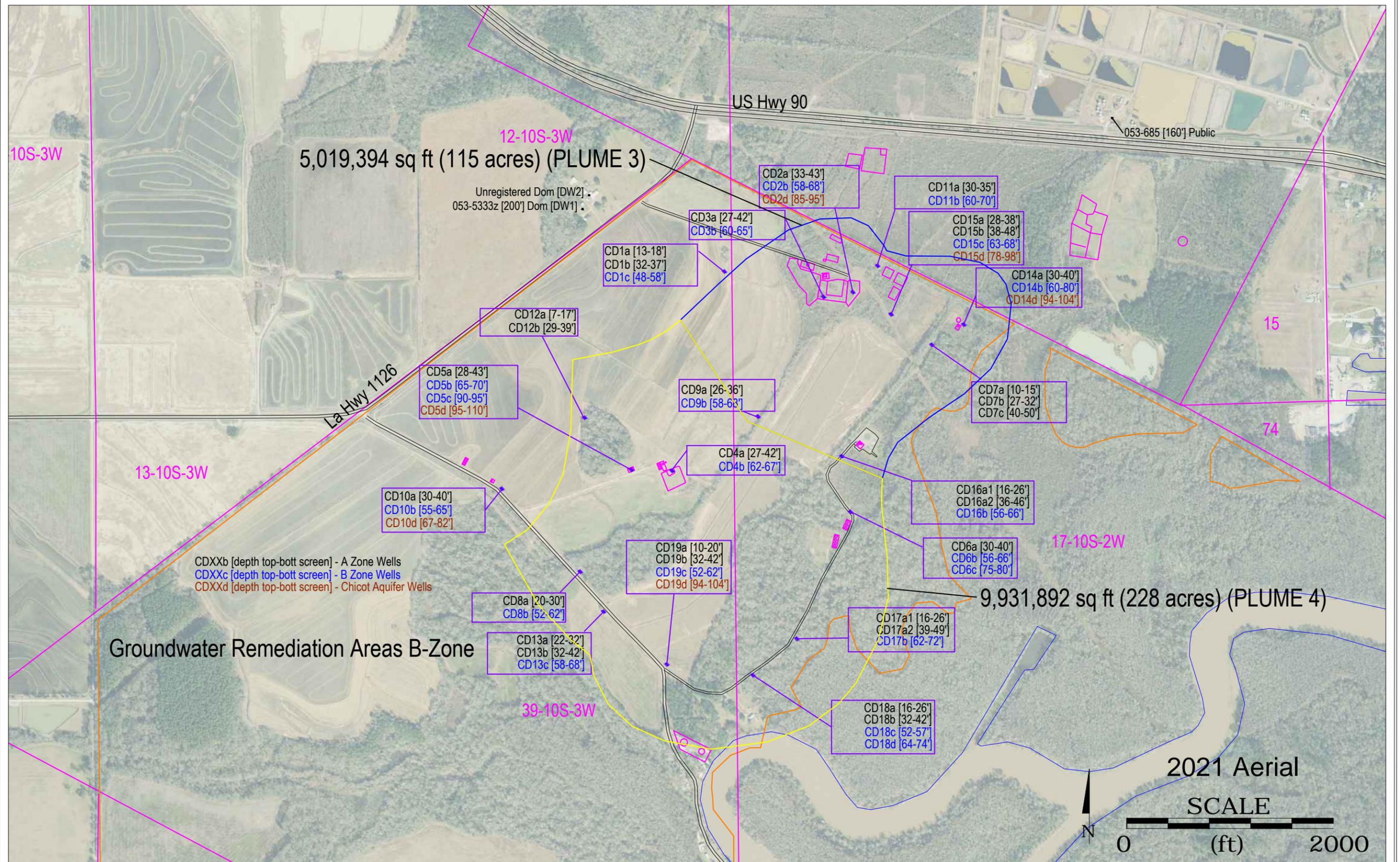


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GROUNDWATER REMEDIATION AREAS A-ZONE  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 54

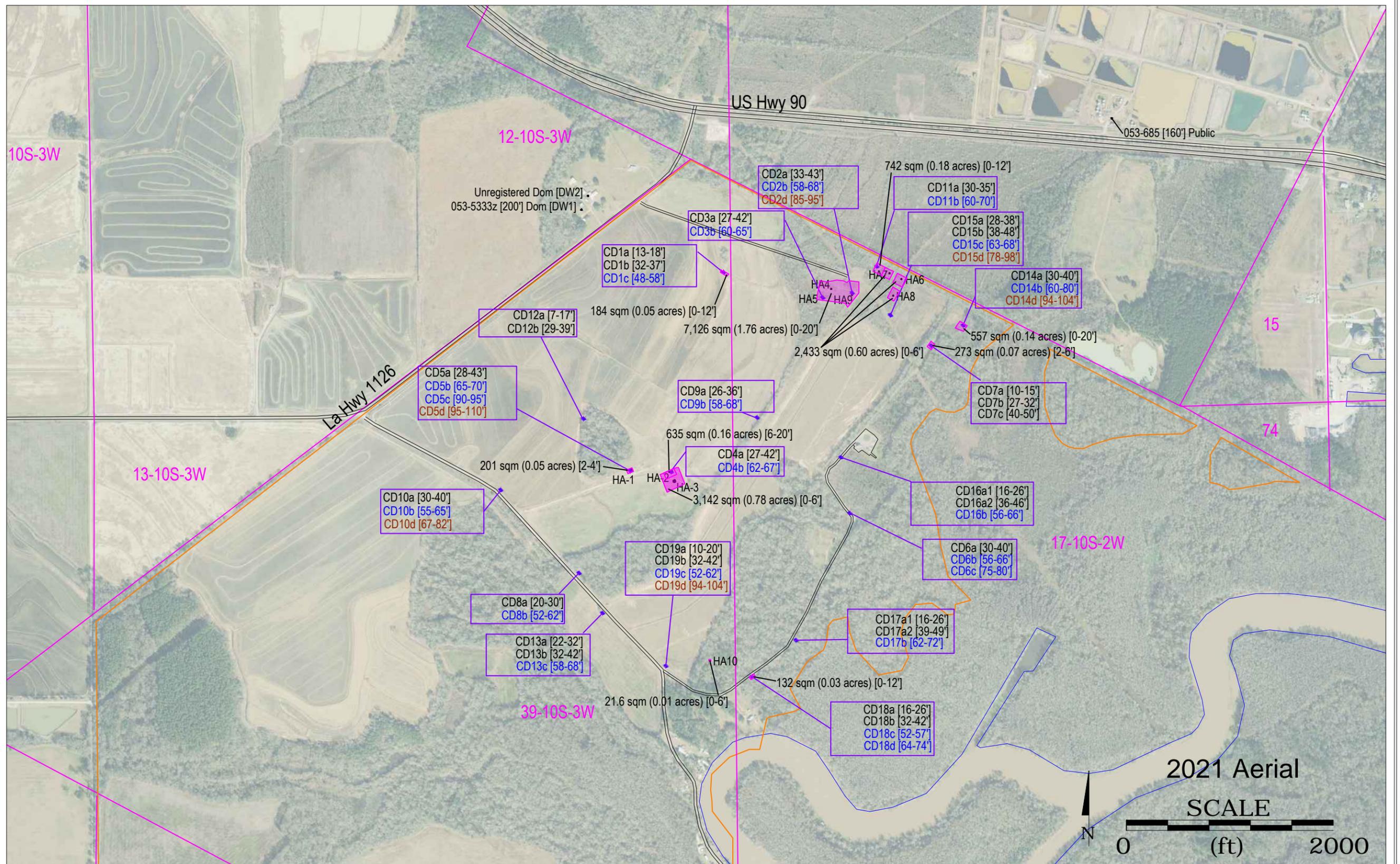


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GROUNDWATER REMEDIATION AREAS B-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 55



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**SOIL REMEDIATION AREAS**  
 Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
 Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE Sep 2024
DIRECTORY	FIGURE NO. 56

**Table 1**  
**Soil Background Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
HA-1 (CD-5)	0-2'	29-Jun-21	5.95	402	559	<0.460	13.2	18.0	<3.68	31.5	11.5	<0.107	22.8	0.30	2.03	na	na	2.05	1.02	0.31	1.66	na	na	na	na	15.7
HA-1 (CD-5)	2-4'	29-Jun-21	4.97	517	759	<0.494	12.4	13.7	<3.95	21.7	17.3	<0.105	34.7	0.34	6.04	na	na	3.08	0.50	0.57	2.25	na	na	na	na	18.5
HA-1 (CD-5)	4-6'	29-Jun-21	5.92	356	506	<0.458	14.3	13.5	<3.66	20.9	28.5	<0.0995	41.1	0.32	7.90	na	na	2.91	0.60	0.32	1.97	na	na	na	na	20.5
CD-6	0-4'	13-Apr-22	4.86	263	418	<0.500	12.8	11.7	na	24.3	19.6	<0.107	37.1	0.30	5.20	na	7.75	4.29	0.37	0.28	2.45	na	na	na	na	19.0
CD-6	6-8'	13-Apr-22	4.41	262	417	<0.483	16.6	12.0	na	50.4	46.6	<0.109	40.7	0.37	5.95	na	18.9	4.94	0.47	0.33	3.12	na	na	na	na	17.4
CD-6	10-12'	13-Apr-22	9.02	229	389	<0.497	19.2	14.3	na	55.8	58.6	<0.0928	55.7	0.32	5.63	na	31.1	3.93	0.47	0.51	2.74	na	na	na	na	21.7
CD-8	2-4'	21-Apr-22	4.30	266	351	<0.498	14.0	14.9	na	23.4	19.2	<0.0992	46.5	0.28	0.49	na	24.4	0.740	1.55	0.55	0.76	na	na	na	na	22.6
CD-8	4-6'	21-Apr-22	4.98	527	544	<0.499	9.94	12.5	na	25.5	23.9	<0.105	44.0	0.43	0.71	na	63.6	1.03	2.10	0.65	1.21	na	na	na	na	15.5
CD-8	8-10'	21-Apr-22	5.79	349	435	<0.499	10.3	7.64	na	24.4	37.3	<0.104	30.9	0.27	0.90	na	18.2	1.08	1.25	0.52	1.01	na	na	na	na	16.2
CD-8	18-20'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.23	na	3.81	9.03	na	na	na	na	na	na	na	na	25.2
CD-9	2-4'	27-Apr-22	3.63	257	590	<0.477	10.5	10.2	na	21.4	16.5	<0.0992	30.3	0.33	3.41	na	7.99	3.00	0.73	0.43	2.29	na	na	na	na	17.2
CD-9	6-8'	27-Apr-22	3.19	187	481	<0.500	10.0	8.09	na	20.8	16.8	<0.100	24.0	0.16	2.99	na	14.8	2.32	0.26	0.20	1.11	na	na	na	na	91.7
CD-9	10-12'	27-Apr-22	6.86	260	389	<0.498	11.9	8.55	na	28.3	33.5	<0.0988	29.5	0.29	1.94	na	34.6	2.32	0.55	0.40	1.60	na	na	na	na	14.9
CD-10	2-4'	4-May-22	3.77	240	305	<0.500	12.2	16.3	na	13.5	15.8	<0.101	26.2	0.33	1.88	na	10.8	2.97	0.67	0.39	2.17	na	na	na	na	12.6
CD-10	6-8'	4-May-22	2.15	184	351	<0.495	10.5	8.05	na	18.4	20.5	<0.0986	28.1	0.39	2.96	na	28.8	3.16	0.70	0.42	2.37	na	na	na	na	16.6
CD-10	8-10'	4-May-22	4.84	265	425	<0.501	17.0	10.1	na	31.1	41.4	<0.0956	44.8	0.21	2.90	na	34.3	2.47	0.30	0.20	1.23	na	na	na	na	21.3
CD-11	2-4'	2-May-22	2.54	185	265	<0.500	14.6	13.0	na	17.7	16.9	<0.101	34.7	0.85	2.78	na	125	6.07	0.90	0.63	5.30	na	na	na	na	15.8
CD-11	4-6'	2-May-22	3.19	260	467	<0.497	13.5	12.4	na	23.7	19.9	<0.101	35.9	0.96	7.00	na	208	7.92	0.74	0.54	6.35	na	na	na	na	13.4
CD-11	10-12'	2-May-22	6.51	304	694	<0.502	24.5	15.5	na	61.9	61.1	<0.0997	46.1	0.84	5.91	na	181	6.05	0.92	0.63	5.32	na	na	na	na	21.8
		Mean	4.83	295	464		13.7	12.2		28.6	28.1							0.396	3.70		3.35					
		Std Dev	1.69	100.7	129		3.72	3.02		13.5	15.1							0.227	2.29		1.91					
		Mean + 2 Stdev	8.21	497	721		21.2	18.3		55.6	58.3							0.849	8.27		7.17					

**Table 2**  
**Soil Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)	
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO			
Calculated Background			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	-	-	-	-	65	180	-	-		
HA-1 (CD-5)	0-2'	29-Jun-21	5.95	402	559	<0.460	13.2	18.0	<3.68	31.5	11.5	<0.107	22.8	0.30	2.03	na	na	2.05	1.02	0.31	1.66	na	na	na	na	15.7	
HA-1 (CD-5)	2-4'	29-Jun-21	4.97	517	759	<0.494	12.4	13.7	<3.95	21.7	17.3	<0.105	34.7	0.34	6.04	na	na	3.08	0.50	0.57	2.25	na	na	na	na	18.5	
HA-1 (CD-5)	4-6'	29-Jun-21	5.92	356	506	<0.458	14.3	13.5	<3.66	20.9	28.5	<0.0995	41.1	0.32	7.90	na	na	2.91	0.60	0.32	1.97	na	na	na	na	20.5	
HA-2 (CD-4)	0-2'	29-Jun-21	6.90	4,640	39,100	<0.472	45.5	69.7	<3.78	218	33.2	<0.105	33.5	2.46	25.5	na	na	19.5	1.31	0.52	18.7	na	22.7	29.0	na	18.8	
HA-2 (CD-4)	2-4'	29-Jun-21	5.64	4,180	30,800	<0.479	37.6	52.4	<3.83	162	30.1	<0.108	35.2	3.64	39.7	na	na	31.2	1.19	0.52	28.9	na	1,300	<100	na	19.9	
HA-2 (CD-4)	4-6'	29-Jun-21	4.67	1,510	2,920	<0.492	13.4	15.5	<3.94	105	19.3	<0.101	40.2	4.42	33.2	na	na	36.5	1.31	0.64	36.0	na	123	<15.0	na	18.1	
HA-3	0-2'	29-Jun-21	5.48	313	478	<0.461	11.1	10.2	<3.69	140	28.8	<0.104	39.8	0.91	22.5	na	na	8.94	0.740	0.45	6.89	na	na	na	na	20.4	
HA-3	2-4'	29-Jun-21	7.31	365	621	<0.474	12.3	12.6	<3.79	163	41.5	<0.0983	36.5	5.24	29.8	na	na	67.4	0.620	<0.05	38.4	na	na	na	na	20.3	
HA-3	4-6'	29-Jun-21	5.36	495	860	<0.456	11.6	12.2	<3.65	147	27.0	<0.0977	41.5	2.07	46.3	na	na	19.7	0.930	0.44	16.3	na	na	na	na	18.6	
HA-4	0-2'	29-Jun-21	5.84	3,640	19,100	<0.472	29.1	22.6	<3.87	187	65.8	<0.102	34.8	2.36	12.2	na	na	12.0	3.14	0.94	17.1	na	na	na	na	24.2	
HA-4	2-4'	29-Jun-21	5.43	1,330	2,330	<0.469	18.9	15.5	<3.76	101	36.9	<0.104	38.9	2.01	22.6	na	na	15.1	1.31	0.69	15.0	na	na	na	na	21.9	
HA-4	4-6'	29-Jun-21	5.21	1,530	2,480	<0.476	18.5	14.6	<3.81	132	36.8	<0.0981	40.2	3.65	32.8	na	na	24.0	1.83	0.90	28.1	na	na	na	na	22.7	
HA-5 (CD-3)	0-2'	29-Jun-21	7.46	3,320	4,850	<0.491	96.7	33.7	<3.93	511	173	0.186	43.4	1.28	4.30	na	na	4.72	3.16	1.10	6.89	na	na	na	na	29.7	
HA-5 (CD-3)	2-4'	29-Jun-21	6.55	4,230	30,700	0.734	73.3	55.2	<3.96	354	187	0.233	33.1	1.14	3.40	na	na	4.75	2.55	1.32	6.60	na	768	545	0.920	27.1	
HA-5 (CD-3)	4-6'	29-Jun-21	5.26	3,640	11,700	0.518	31.6	41.6	<3.90	112	99.9	0.189	38.1	5.40	13.0	na	na	12.9	14.2	0.65	35.2	na	2,310	258	3.27	37.0	
HA-6	0-2'	30-Jun-21	6.99	3,460	13,700	0.586	102	38.8	<3.73	555	190	0.117	23.1	1.07	1.10	na	na	1.74	5.39	1.83	3.31	na	na	na	na	16.1	
HA-6	2-4'	30-Jun-21	4.12	552	1,050	<0.469	10.9	12.6	<3.75	27.9	15.9	<0.0973	35.8	1.18	6.91	na	na	6.82	1.48	1.10	7.74	na	na	na	na	17.1	
HA-6	4-6'	30-Jun-21	3.15	527	699	<0.485	9.90	12.5	<3.88	31.8	17.6	<0.103	33.1	0.700	9.05	na	na	5.25	1.07	0.62	4.83	na	na	na	na	13.9	
HA-7	0-2'	30-Jun-21	5.12	3,080	12,600	<0.498	31.1	33.5	<3.99	113	92.6	0.109	32.3	0.710	1.06	na	na	2.05	3.37	1.33	3.14	na	na	na	na	17.4	
HA-7	2-4'	30-Jun-21	4.22	454	823	<0.499	9.93	13.7	<3.99	23.9	15.0	<0.105	35.5	0.90	8.16	na	na	5.93	1.23	0.85	6.04	na	na	na	na	15.6	
HA-7	4-6'	30-Jun-21	3.96	548	812	<0.489	9.62	11.8	<3.91	25.2	17.1	<0.102	31.4	0.86	8.28	na	na	5.68	1.19	0.82	5.69	na	na	na	na	16.7	
HA-8	0-2'	30-Jun-21	5.33	4,620	22,200	0.625	63.4	50.3	<3.94	178	188	0.289	27.4	0.510	0.640	na	na	1.12	2.93	0.85	1.53	na	na	na	na	16.6	
HA-8	2-4'	30-Jun-21	3.89	493	988	<0.470	9.88	10.5	<3.76	32.0	14.9	<0.104	29.2	0.570	4.55	na	na	3.37	1.19	0.70	3.27	na	na	na	na	17.8	
HA-8	4-6'	30-Jun-21	3.36	355	451	<0.486	8.25	9.05	<3.88	23.9	15.9	<0.103	27.1	1.06	8.95	na	na	6.19	1.36	0.89	6.57	na	na	na	na	15.5	
HA-9 (CD-2)	0-2'	30-Jun-21	4.95	2,630	4,240	<0.490	18.8	23.0	<3.92	129	92.3	<0.109	20.5	3.01	17.3	na	na	18.8	2.58	0.94	25.0	na	na	na	na	15.9	
HA-9 (CD-2)	2-4'	30-Jun-21	4.27	2,420	4,280	<0.472	12.8	18.3	<3.77	93.0	15.7	<0.102	33.9	3.31	28.9	na	na	21.8	1.60	0.79	23.8	na	na	na	na	16.4	
HA-9 (CD-2)	4-6'	30-Jun-21	2.57	183	342	<0.475	6.97	14.6	<3.80	39.1	13.3	<0.0974	31.7	3.80	44.0	na	na	25.5	1.72	0.94	29.4	na	na	na	na	15.7	
HA-10	0-2'	2-Aug-24	3.67	1,050	1,760	<0.492	13.9	11.2	na	31.4	19.6	<0.0979	37.4	0.51	7.26	na	75.4	7.47	0.51	0.39	5.01	na	<20.0	<20.0	na	17.4	
HA-10	2-4'	2-Aug-24	3.52	248	421	<0.488	12.7	10.5	na	21.8	20.9	<0.107	25.8	1.36	23.9	na	256	15.2	0.75	0.89	13.7	na	<20.0	<20.0	na	15.7	
HA-10	4-6'	2-Aug-24	2.94	268	351	<0.488	12.5	10.7	na	21.9	20.5	<0.0952	30.1	1.08	23.4	na	251	12.0	0.69	0.64	9.77	na	<19.9	<19.9	na	14.1	
CD-1	0-2'	23-Feb-22	4.54	5,590	13,000	<0.463	9.53	15.6	na	38.1	12.8	<0.0962	14.5	0.330	0.52	na	31.9	0.81	1.50	0.60	0.83	na	na	na	na	9.50	
CD-1	4-6'	23-Feb-22	3.77	172	1,050	<0.492	10.6	9.27	na	14.5	12.7	<0.107	27.2	0.580	4.49	na	117	4.57	0.660	0.46	3.43	na	na	na	na	13.7	
CD-1	10-12'	23-Feb-22	7.74	325	1,460	<0.472	15.5	13.1	na	28.2	43.7	<0.102	36.6	0.370	2.50	na	34.6	2.02	0.940	0.630	1.79	na	na	na	na	19.1	
CD-1	22-24'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.380	na	2.81	na	na	na	na	na	na	na	na	na	24.0	
CD-1	36-38'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.340	na	3.16	na	na	na	na	na	na	na	na	na	na	22.2
CD-1	46-48'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.590	na	na	na	na	na	na	na	na	na	na	na	na	26.1
CD-1	56-58'	24-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.620	na	4.06	na	na	na	na	na	na	na	na	na	na	22.3
CD-2	14-16'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	16.3	na	na	na	7,120	na	na	na	na	na	na	na	na	21.9
CD-2	28-30'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	20.5	na	na	na	3,680	na	na	na	na	na	na	na	na	22.5
CD-2	38-40'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	27.1	na	na	na	3,860	na	na	na	na	na	na	na	na	21.7
CD-2	46-48'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	12.0	na	na	na	1,550	na	na	na	na	na	na	na	na	20.1
CD-2	52-54'	4-Mar-22	na	na	na	na	na	na	na	na	na	na	na	5.72	na	na	na	1,560	na	na	na	na	na	na	na	na	29.7
CD-2	60-62'	4-Mar-22	na	na	na	na	na	na	na	na	na	na	na	4.44	na	na	na	694	na	na	na	na	na	na	na	na	26.1
CD-3	18-20'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	4.92	na	na	na	2,440	na	na	na	na	na	na	na	na	22.3
CD-3	28-30'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	28.7	na	na	na	4,170	na	na	na	na	na	na	na	na	20.6
CD-3	44-46'	8																									

**Table 2**  
**Soil Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluable Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
<b>Calculated Background</b>			<b>8.21</b>	<b>497</b>	<b>721</b>	<b>-</b>	<b>21.2</b>	<b>18.3</b>	<b>-</b>	<b>55.6</b>	<b>58.3</b>	<b>-</b>	<b>-</b>	<b>0.849</b>	<b>8.27</b>	<b>-</b>	<b>7.17</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>65</b>	<b>180</b>	<b>-</b>	<b>-</b>	
CD-3	64-66'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	2.35	na	na	365	na	na	na	na	na	na	na	na	23.2
CD-4	8-10'	9-Mar-22	3.60	329	424	<0.478	8.15	5.47	na	28.8	18.0	<0.106	18.4	23.9	28.4	1,210	4,320	25.4	44.7	24.0	149	na	na	na	na	17.9
CD-4	22-24'	9-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.54	na	na	704	na	na	na	na	na	na	na	na	22.7
CD-4	32-34'	9-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.60	na	na	76.6	na	na	na	na	na	na	na	na	21.9
CD-4	46-48'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	3.79	na	na	812	na	na	na	na	na	na	na	na	24.0
CD-4	56-58'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	6.35	na	na	1,880	na	na	na	na	na	na	na	na	30.7
CD-4	66-68'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.810	na	na	77.1	na	na	na	na	na	na	na	na	27.7
CD-5	26-28'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.820	na	na	155	na	na	na	na	na	na	na	na	28.7
CD-5	38-40'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.08	na	na	186	na	na	na	na	na	na	na	na	20.9
CD-5	52-54'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.830	na	na	145	na	na	na	na	na	na	na	na	19.9
CD-5	56-58'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	9.34	na	na	2,500	na	na	na	na	na	na	na	na	17.3
CD-5	60-62'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	18.3	na	na	5,340	na	na	na	na	na	na	na	na	24.5
CD-5	68-70'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	17.9	na	na	5,290	na	na	na	na	na	na	na	na	25.6
CD-5	70-72'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	8.26	na	na	2,190	na	na	na	na	na	na	na	na	28.9
CD-5	72-74'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	3.16	na	na	782	na	na	na	na	na	na	na	na	25.2
CD-5	88-90'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.680	na	na	20.7	na	na	na	na	na	na	na	na	25.8
CD-5	94-96'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.610	na	na	15.5	na	na	na	na	na	na	na	na	25.5
CD-6	0-4'	13-Apr-22	4.86	263	418	<0.500	12.8	11.7	na	24.3	19.6	<0.107	37.1	0.300	5.20	na	7.75	4.29	0.37	0.28	2.45	na	na	na	na	19.0
CD-6	6-8'	13-Apr-22	4.41	262	417	<0.483	16.6	12.0	na	50.4	46.6	<0.109	40.7	0.370	5.95	na	18.9	4.94	0.47	0.33	3.12	na	na	na	na	17.4
CD-6	10-12'	13-Apr-22	9.02	229	389	<0.497	19.2	14.3	na	55.8	58.6	<0.0928	55.7	0.320	5.63	na	31.1	3.93	0.47	0.51	2.74	na	na	na	na	21.7
CD-6	28-30'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.730	na	na	26.2	na	na	na	na	na	na	na	na	23.1
CD-6	52-54'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.620	na	na	10.1	na	na	na	na	na	na	na	na	20.6
CD-6	76-78'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.510	na	na	na	na	na	na	na	na	na	na	na	17.4
CD-7	2-4'	19-Apr-22	3.02	403	417	<0.499	10.8	11.8	na	25.5	19.5	<0.106	34.4	0.980	12.0	na	193	9.55	0.68	0.50	7.32	na	na	na	na	14.7
CD-7	4-6'	19-Apr-22	3.21	296	388	<0.500	11.2	12.6	na	24.7	23.4	<0.0979	35.7	1.06	11.5	na	252	11.0	0.71	0.57	8.79	na	na	na	na	14.6
CD-7	8-10'	19-Apr-22	5.51	226	296	<0.500	14.2	15.5	na	30.5	40.2	<0.0961	42.8	0.720	10.6	na	156	7.72	0.53	0.57	5.72	na	na	na	na	19.9
CD-7	26-28'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.250	na	na	7.20	na	na	na	na	na	na	na	na	23.4
CD-7	36-38'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.350	na	na	9.28	na	na	na	na	na	na	na	na	22.7
CD-7	58-60'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.630	na	na	28.5	na	na	na	na	na	na	na	na	26.5
CD-8	2-4'	21-Apr-22	4.30	266	351	<0.498	14.0	14.9	na	23.4	19.2	<0.0992	46.5	0.280	0.49	na	24.4	0.740	1.55	0.55	0.76	na	na	na	na	22.6
CD-8	4-6'	21-Apr-22	4.98	527	544	<0.499	9.94	12.5	na	25.5	23.9	<0.105	44.0	0.430	0.71	na	63.6	1.03	2.10	0.65	1.21	na	na	na	na	15.5
CD-8	8-10'	21-Apr-22	5.79	349	435	<0.499	10.3	7.64	na	24.4	37.3	<0.104	30.9	0.270	0.90	na	18.2	1.08	1.25	0.52	1.01	na	na	na	na	16.2
CD-8	18-20'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.230	na	na	3.81	na	na	na	na	na	na	na	na	25.2
CD-8	48-50'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.530	na	na	12.6	na	na	na	na	na	na	na	na	25.3
CD-8	62-64'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.570	na	na	40.0	na	na	na	na	na	na	na	na	25.0
CD-9	2-4'	27-Apr-22	3.63	257	590	<0.477	10.5	10.2	na	21.4	16.5	<0.0992	30.3	0.330	3.41	na	7.99	3.00	0.73	0.43	2.29	na	na	na	na	17.2
CD-9	6-8'	27-Apr-22	3.19	187	481	<0.500	10.0	8.09	na	20.8	16.8	<0.100	24.0	0.160	2.99	na	14.8	2.32	0.26	0.20	1.11	na	na	na	na	91.7
CD-9	10-12'	27-Apr-22	6.86	260	389	<0.498	11.9	8.55	na	28.3	33.5	<0.0988	29.5	0.290	1.94	na	34.6	2.32	0.55	0.40	1.60	na	na	na	na	14.9
CD-9	22-24'	27-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.260	na	na	3.23	na	na	na	na	na	na	na	na	26.4
CD-9	56-58'	28-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.610	na	na	9.41	na	na	na	na	na	na	na	na	30.8
CD-9	58-60'	28-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.490	na	na	22.2	na	na	na	na	na	na	na	na	23.3
CD-10	2-4'	4-May-22	3.77	240	305	<0.500	12.2	16.3	na	13.5	15.8	<0.101	26.2	0.330	1.88	na	10.8	2.97	0.67	0.39	2.17	na	na	na	na	12.6
CD-10	6-8'	4-May-22	2.15	184	351	<0.495	10.5	8.05	na	18.4	20.5	<0.0986	28.1	0.390	2.96	na	28.8	3.16	0.70	0.42	2.37	na	na	na	na	16.6
CD-10	8-10'	4-May-22	4.84	265	425	<0.501	17.0	10.1	na	31.1	41.4	<0.0956	44.8	0.210	2.90	na	34.3	2.47	0.30	0.20	1.23	na	na	na	na	21.3
CD-10	28-30'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.320	na	na	3.51	na	na	na	na	na	na	na	na	22.2
CD-10	52-54'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.630	na	na	4.23	na	na	na	na	na	na	na	na	24.4
CD-10	60-62'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.410	na	na	17.4	na	na	na	na	na	na	na	na	21.0
CD-11	2-4'	2-May-22	2.54	185	265	<0.500	14.6	13.0	na	17.7	16.9	<0.101	34.7	0.850	2.78	na	125	6.07	0.90	0.63	5.30	na	na	na	na	15.8
CD-11	4-6'	2-May-22	3.19	260	467	<0.497	13.5	12.4	na	23.7	19.9	<0.101	35.9	0.960	7.00	na	208	7.92	0.74	0.54	6.35	na	na	na	na	13.4

**Table 2**  
**Soil Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
<b>Calculated Background</b>			<b>8.21</b>	<b>497</b>	<b>721</b>	-	<b>21.2</b>	<b>18.3</b>	-	<b>55.6</b>	<b>58.3</b>	-	-	<b>0.849</b>	<b>8.27</b>	-	<b>7.17</b>	-	-	-	-	<b>65</b>	<b>180</b>	-	-	
CD-11	10-12'	2-May-22	6.51	304	694	<0.502	24.5	15.5	na	61.9	61.1	<0.0997	46.1	0.840	5.91	na	181	6.05	0.92	0.63	5.32	na	na	na	na	21.8
CD-11	28-30'	2-May-22	na	na	na	na	na	na	na	na	na	na	na	1.08	na	21.0	110	na	na	na	na	na	na	na	na	21.7
CD-11	58-60'	3-May-22	na	na	na	na	na	na	na	na	na	na	na	0.740	na	9.72	47.5	na	na	na	na	na	na	na	na	34.9
CD-11	64-66'	3-May-22	na	na	na	na	na	na	na	na	na	na	na	0.780	na	na	53.9	na	na	na	na	na	na	na	na	25.1
CD-14	2-4'	10-Jun-22	5.46	457	3,400	<0.466	17.2	14.7	na	34.0	22.8	<0.108	44.6	5.20	14.8	na	1260	17.4	5.18	3.68	36.7	na	na	na	na	21.0
CD-14	4-6'	10-Jun-22	4.22	595	751	<0.500	16.0	11.5	na	30.8	35.6	<0.108	48.6	3.97	5.50	na	963	5.49	9.63	8.13	16.4	na	na	na	na	16.9
CD-14	6-8'	10-Jun-22	3.76	294	715	<0.497	14.5	10.5	na	31.4	37.0	<0.107	48.8	2.39	2.63	na	440	2.51	8.58	5.75	6.71	na	na	na	na	17.4
CD-14	8-10'	10-Jun-22	4.49	649	11,500	<0.500	22.8	15.4	na	54.3	59.2	<0.107	60.9	1.97	3.32	na	558	3.91	5.69	3.36	8.32	na	na	na	na	23.0
CD-14	26-28'	10-Jun-22	na	na	na	na	na	na	na	na	na	na	na	2.69	na	181	694	na	na	na	na	na	na	na	na	21.9
CD-14	64-66'	10-Jun-22	na	na	na	na	na	na	na	na	na	na	na	7.85	na	na	1100	na	na	na	na	na	na	na	na	25.3
CD-16	10-12'	10-Jun-24	7.06	722	4,450	<0.481	22.1	12.9	na	52.6	53.6	<0.107	36.2	0.77	6.1	na	114	3.43	1.61	1.04	3.95	na	na	na	na	20.0
CD-16	14-16'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	0.44	na	5.50	36.9	na	na	na	na	na	na	na	na	20.5
CD-16	54-56'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	0.97	na	8.13	64.3	na	na	na	na	na	na	na	na	26.6
CD-17	8-10'	14-Jun-24	3.25	397	942	<0.496	15.5	10.8	na	31.3	32.6	<0.107	33.4	1.57	18.8	na	289	12.8	0.680	0.800	11.00	na	na	na	na	16.2
CD-17	14-16'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	1.53	na	69.7	255	na	na	na	na	na	na	na	na	19.8
CD-17	60-62'	17-Jun-24	na	na	na	na	na	na	na	na	na	na	na	1.02	na	55.7	130	na	na	na	na	na	na	na	na	25.0
CD-18	0-4'	23-Jul-24	5.09	479	868	<0.494	14.1	11.2	na	43.4	39.9	<0.103	33.0	0.53	16.5	na	75.3	6.45	0.510	0.420	4.40	na	na	na	na	16.1
CD-18	6-8'	23-Jul-24	3.91	845	1,580	<0.488	13.1	10.7	na	74.7	29.2	<0.107	28.6	0.44	3.37	na	16.5	1.87	2.05	0.740	2.21	na	na	na	na	18.0
CD-18	10-12'	23-Jul-24	9.85	475	809	<0.495	17.8	15.6	na	57.1	55.4	<0.0988	39.5	1.21	13.4	na	233	7.34	1.67	1.29	8.96	na	na	na	na	18.7
CD-18	14-16'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.50	na	32.9	79.3	na	na	na	na	na	na	na	na	22.7
CD-18	26-28'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.66	na	na	49.0	na	na	na	na	na	na	na	na	21.1
CD-18	56-58'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.52	na	16.1	27.7	na	na	na	na	na	na	na	na	21.7
CD-19	0-4'	29-Jul-24	4.74	212	243	<0.458	11.6	14.7	na	13.1	63.8	<0.0993	32.2	0.49	3.43	na	42.2	5.46	0.68	0.44	4.09	na	na	na	na	19.5
CD-19	6-8'	29-Jul-24	3.77	298	377	<0.493	14.4	14.2	na	29.2	33.7	<0.101	39.2	0.33	14.5	na	59.7	4.29	0.43	0.55	2.99	na	na	na	na	16.9
CD-19	8-10'	29-Jul-24	<1.97	203	192	<0.493	11.7	7.46	na	26.5	29.9	<0.102	30.6	0.52	11.2	na	41.5	5.94	0.67	0.56	4.64	na	na	na	na	16.8
CD-19	22-24'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	1.13	na	na	186	na	na	na	na	na	na	na	na	20.1
CD-19	30-32'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.84	na	49.2	115	na	na	na	na	na	na	na	na	23.7
CD-19	46-48'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.49	na	25.5	28.9	na	na	na	na	na	na	na	na	30.2
CD-19	66-68'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.66	na	na	30.6	na	na	na	na	na	na	na	na	27.4
CD-19	78-80'	30-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.47	na	6.63	15.2	na	na	na	na	na	na	na	na	24.0

**Table 3**  
**Background Groundwater Data Summary**  
 Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;  
 Mermentau West; Jefferson Davis Parish  
 Prepared for Mudd, Bruchhaus, & Keating, LLC

Sample ID	Zone	Screened Interval (ft. bgs)	Date	Metals (mg/L)													TDS (mg/L)	Chlorides (mg/L)	Bromide (mg/L)	Bicarbonate	TPH-D (mg/L)	TPH-O (mg/L)	TPH-G (mg/L)	BTEX (Ug/L)				Radionuclides (pCi/L)			Apparent Age (yrs)	
				Arsenic	Barium	Cadmium	Calcium	Chromium	Iron	Lead	Magnesium	Manganese	Potassium	Sodium	Strontium	Zinc								Mercury	Benzene	Ethylbenzene	Toluene	Xylenes	RA-226	RA-228		Combined Ra-226/228
10 WRIR 03-4050	A	19.4-29.4'	9-Feb-00	0.002	0.037	0.001	91.0	0.002	0.01	0.001	60	0.22	3.6	220	NA	0.002	0.0003	1,180	140	0.3	666	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
21 WRIR 03-4050	A	18-23'	10-May-00	0.001	0.016	0.001	81.0	0.001	0.01	0.001	25	0.002	0.7	93	0.02	0.005	0.0003	578	120	0.8	388	NA	NA	NA	NA	NA	NA	NA	NA	NA	19	
24 WRIR 03-4050	B	64-74'	21-Sep-00	0.004	0.22	0.001	48	0.001	0.08	0.001	15	0.4	1.7	62	0.29	0.001	0.0003	381	81	0.3	256	NA	NA	NA	NA	NA	NA	NA	NA	31		

Mean	0.002	0.091	0.001	73	0.001	0.033	0.001	33	0.21	2.0	125	0.16	0.003	0.0003	713	114	0.47	437
Std Dev	0.002	0.112	0.000	23	0.001	0.040	0.000	24	0.20	1.5	84	0.19	0.002	0.0000	416	30	0.29	209
Mean + 2 Stdev	0.005	0.315	0.001	118	0.002	0.114	0.001	81	0.61	4.9	292	0.54	0.007	0.0003	1546	174	1.04	855

Non-Detected, Reporting Limit used as Proxy for Value  
 Estimated Concentration  
 NA Not Analyzed

Sample ID	Zone	Screened Interval (ft. bgs)	Date	Metals (mg/L)													TDS (mg/L)	Chlorides (mg/L)	Bromide (mg/L)	Bicarbonate	TPH-D (mg/L)	TPH-O (mg/L)	TPH-G (mg/L)	BTEX (Ug/L)				Radionuclides (pCi/L)			Apparent Age (yrs)
				Arsenic	Barium	Cadmium	Calcium	Chromium	Iron	Lead	Magnesium	Manganese	Potassium	Sodium	Strontium	Zinc								Mercury	Benzene	Ethylbenzene	Toluene	Xylenes	RA-226	RA-228	
36 WRIR 03-4122	Chicot	220-230	12-Jul-00	0.0009	0.301	0.001	60.0	0.0008	0.66	0.001	17	0.325	1.7	63	0.235	0.028	0.0003	440	107	0.39	261	NA	NA	NA	NA	NA	NA	NA	NA	NA	
38 WRIR 03-4122	Chicot	86-96	21-Jul-00	0.0005	0.587	0.001	43.0	0.0008	1.16	0.001	12	0.053	2.2	90	0.46	0.004	0.0003	422	101	0.18	276	NA	NA	NA	NA	NA	NA	NA	NA		
49 WRIR 03-4122	Chicot	190-200'	26-Sep-00	0.0009	0.396	0.001	59.0	0.0008	2.19	0.001	19	0.09	2.2	60	0.367	0.308	0.0003	410	35	0.09	395	NA	NA	NA	NA	NA	NA	NA	NA		
50 WRIR 03-4122	Chicot	140-145'	14-Nov-00	0.0012	0.116	0.00004	13.0	0.0008	2.62	0.00008	5.6	0.369	1.5	38	0.07	0.003	NA	198	29	0.32	121	NA	NA	NA	NA	NA	NA	NA	51		
53 WRIR 03-4122	Chicot	160-170'	20-Nov-00	0.0004	0.281	0.00004	42.0	0.0008	1.81	0.00026	9.6	0.154	1.4	49	0.177	0.112	NA	317	50	0.19	231	NA	NA	NA	NA	NA	NA	NA	51		
57 WRIR 03-4122	Chicot	179-185'	10-Jan-01	0.0003	0.282	0.00004	45.0	0.0008	1.79	0.00008	11	0.131	1.5	47	0.179	0.007	NA	306	49	0.19	239	NA	NA	NA	NA	NA	NA	NA	NA		

Mean	0.0007	0.327	0.0005	44	0.0008	1.71	0.0006	12	0.187	1.8	57.8	0.248	0.077	0.0003	349	62	0.23	254
Std Dev	0.0004	0.156	0.0005	17	0.0000	0.70	0.0005	5	0.129	0.4	18.2	0.142	0.121	0.0000	93	34	0.11	88
Mean + 2 Stdev	0.0014	0.639	0.0016	78	0.0008	3.11	0.0015	22	0.446	2.5	94.2	0.532	0.318	0.0003	534	129	0.44	430

Non-Detected, Reporting Limit used as Proxy for Value  
 Estimated Concentration  
 NA Not Analyzed





**TABLE 5  
 POTENTIOMETRIC DATA SUMMARY  
 Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;  
 Mermentau West; Jefferson Davis Parish  
 Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Screened Interval (ft. bgs.)	Zone	TDS (mg/L)	Ground Elevation (Feet NAVD88)	TOC Elevation (Feet NAVD88)	Mid-Screen Elevation (ft NAVD88)	6-Jun-22			8-Sep-22			3-Jul-24		
							DTW (ft btoc)	GW Elevation	EFWH	DTW (ft btoc)	GW Elevation	EFWH	DTW (ft btoc)	GW Elevation	EFWH
CD1A	13-18	A	370	12.46	12.39	-3.04	14.72	-2.33	-2.33	7.52	4.87	4.87	9.52	2.87	2.87
CD1B	32-37	A	388	12.56	12.52	-21.94	15.05	-2.53	-2.53	7.92	4.60	4.60	10.02	2.50	2.5
CD1C	48-58	B	413	12.47	12.51	-40.53	37.96	-25.45	-25.45	33.96	-21.45	-21.45	36.24	-23.73	-23.73
CD2A	33-43	A	20,300	7.74	9.71	-30.26	17.33	-7.62	-7.34	16.37	-6.66	-6.37	18.61	-8.90	-8.64
CD2B	58-68	B	4,060	7.88	9.73	-55.12	28.09	-18.36	-18.31	27.72	-17.99	-17.94	29.43	-19.70	-19.66
CD3A	27-42	A	35,800	6.60	8.48	-27.90	15.48	-7.00	-6.52	13.64	-5.16	-4.64	16.08	-7.60	-7.13
CD3B	60-65	B	6,020	6.52	8.31	-55.98	28.86	-20.55	-20.46	28.1	-19.79	-19.70	29.92	-21.61	-21.52
CD4A	27-42	A	1,080	6.32	7.95	-28.18	18.23	-10.28	-10.29	17.69	-9.74	-9.75	14.03	-6.08	-6.1
CD4B	62-67	B	2,020	6.33	8.05	-58.17	39.02	-30.97	-30.97	37.65	-29.60	-29.60	37.65	-29.60	-29.6
CD5A	28-43	A	835	8.84	10.54	-26.66	19.81	-9.27	-9.27	19.9	-9.36	-9.36	14.85	-4.31	-4.31
CD5B	65-70	B	21,300	8.82	10.37	-58.68	61.4	-51.03	-50.93	58.31	-47.94	-47.80	60.75	-50.38	-50.27
CD5C	90-95	B	855	8.87	10.72	-83.63	65.52	-54.80	-54.83	61.98	-51.26	-51.26	Plugged		
CD6A	30-40	A	845	7.89	10.22	-27.11	19.75	-9.53	-9.55	18.2	-7.98	-7.98	18.7	-8.48	-8.48
CD6B	56-66	B	436	7.79	10.26	-53.21	23.24	-12.98	-13.03	21.75	-11.49	-11.49	22.19	-11.93	-11.93
CD6C	75-80	B	GAS	7.92	8.19	-72.08	GAS	#VALUE!		18.96	-10.77		GAS		
CD7A	10-15	A	dry	8.13	10.39		DRY	#VALUE!		16.2	-5.81		DRY		
CD7B	27-32	A	579	8.49	10.53	-21.01	16.92	-6.39	-6.41	16.43	-5.90	-5.9	17.52	-6.99	-6.99
CD7C	40-50	A	450	8.07	10.27	-36.93	16.34	-6.07	-6.07	16.4	-6.13	-6.13	17.57	-7.30	-7.3
CD8A	20-30	A	432	1.81	1.94	-23.19	9.23	-7.29	-7.29	8.9	-6.96	-6.96	8.18	-6.24	-6.24
CD8B	52-62	B	1,070	1.77	3.63	-55.23	55.9	-52.27	-52.27	51.65	-48.02	-48.03	54.44	-50.81	-50.81
CD9A	26-36	A	534	4.28	5.29	-26.72	13.46	-8.17	-8.17	14.42	-9.13	-9.13	Plugged		
CD9B	58-68	B	387	4.42	6.61	-58.58	29.99	-23.38	-23.38	28.97	-22.36	-22.36	Plugged		
CD10A	30-40	A	309	13.62	14.57	-21.38	12.38	2.19	2.19	13.16	1.41	1.41	8.55	6.02	6.02
CD10B	55-65	B								dry	#VALUE!		Plugged		
CD10C	67-82	Chicot	245	13.57	15.86		>33	#VALUE!		66.94	-51.08	-51.08	Plugged		
CD11A	30-35	A	825	8.68	9.77	-23.82	15.67	-5.90	-5.92	15.53	-5.76	-5.76	18.33	-8.56	-8.56

**TABLE 5  
POTENTIOMETRIC DATA SUMMARY**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;  
Mermentau West; Jefferson Davis Parish  
Prepared for Mudd, Bruchhaus, & Keating, LLC

Boring ID	Screened Interval (ft. bgs.)	Zone	TDS (mg/L)	Ground Elevation (Feet NAVD88)	TOC Elevation (Feet NAVD88)	Mid-Screen Elevation (ft NAVD88)	6-Jun-22			8-Sep-22			3-Jul-24		
							DTW (ft btoc)	GW Elevation	EFWH	DTW (ft btoc)	GW Elevation	EFWH	DTW (ft btoc)	GW Elevation	EFWH
CD11B	60-70	B	395	8.84	10.65	-56.16	31.16	-20.51	-20.51	30.74	-20.09	-20.09	32.46	-21.81	-21.81
CD12A	7-17'	A	242	13.19	15.08	1.19				8.10	6.98	6.98	5.00	10.08	10.08
CD12B	29-39'	A	351	13.33	14.82	-20.67				7.97	6.85	6.85	5.02	9.80	9.8
CD13A	22-32'	A	675	8.62	9.76	-18.38				17.95	-8.19	-8.19	16.49	-6.73	-6.73
CD13B	32-42'	A	790	8.30	9.77	-28.70				17.87	-8.10	-8.10	16.46	-6.69	-6.69
CD13C	58-68'	B	562	8.62	9.92	-54.38				44.68	-34.76	-34.76	45.48	-35.56	-35.56
CD14A	30-40'	A	682	8.44	9.73	-26.56				15.85	-6.12	-6.12	16.88	-7.15	-7.15
CD14B	60-80'	B	12,900												
CD14D	94-104	Chicot	gas	nm	nm										
CD15A	28-38'	A	925	7.84	9.75	-25.16				17.06	-7.31	-7.31	18.86	-9.11	-9.11
CD15B	38-48'	A	780	8.33	10.06	-34.67				17.1	-7.04	-7.04	18.91	-8.85	-8.85
CD15C	63-68'	B	433	8.10	9.77	-57.40				24.62	-14.85	-14.85	26.26	-16.49	-16.49
CD15D	78-98'	Chicot	gas	nm	nm										
CD16A1	16-26'	A	626	8.59	10.09	-12.41							18.6	-8.51	-8.51
CD16A2	36-46'	A	673	9.14	10.54	-31.86							18.53	-7.99	-7.99
CD16B	56-66'	B	361	9.42	10.55	-51.58							27.5	-16.95	-16.95
CD17A1	16-26'	A	975	8.60	10.35	-12.40							19.15	-8.8	-8.8
CD17A2	39-49'	A	835	8.47	11.11	-35.53							19.9	-8.79	-8.79
CD17B	62-72'	B	621	8.09	8.94	-58.91							33.3	-24.36	-24.36

**Table 6**  
**Slug Test Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Well	Hvorslev k (ft/day)	Bouwer & Rice k (ft/day)	Arithmetic Average k (cm/sec)	Arithmetic Average k (ft/day)	Arithmetic Average k (m/day)
<b>A-ZONE</b>					
CD-2A Falling Head Test #1	0.5037	0.2251			
CD-2A Falling Head Test #2	0.5245	0.2217			
CD-2A Falling Head Test #3	<u>0.5397</u>	<u>0.2239</u>			
Arith Avg:	<b>0.5226</b>	<b>0.2236</b>	<b>1.32E-04</b>	<b>0.3731</b>	<b>0.114</b>
CD-3A Falling Head Test #1	0.4414	0.1713			
CD-3A Falling Head Test #2	0.4317	0.1623			
CD-3A Falling Head Test #3	<u>0.4537</u>	<u>0.1701</u>			
Arith Avg:	<b>0.4423</b>	<b>0.1679</b>	<b>1.08E-04</b>	<b>0.3051</b>	<b>0.093</b>
CD-4A Falling Head Test #1	0.4012	0.2897			
CD-4A Falling Head Test #2	0.3857	0.2959			
CD-4A Falling Head Test #3	<u>0.3961</u>	<u>0.2851</u>			
Arith Avg:	<b>0.3943</b>	<b>0.2902</b>	<b>1.21E-04</b>	<b>0.3423</b>	<b>0.104</b>
CD-10A Falling Head Test #1	0.2967	0.1312			
CD-10A Falling Head Test #2	0.2720	0.1423			
CD-10A Falling Head Test #3	<u>0.2825</u>	<u>0.1381</u>			
Arith Avg:	<b>0.2837</b>	<b>0.1372</b>	<b>7.43E-05</b>	<b>0.2105</b>	<b>0.064</b>
		<b>Geometric Mean:</b>	<b>1.06E-04</b>	<b>0.3009</b>	<b>0.092</b>
<b>B-ZONE</b>					
CD-1C Falling Head Test #1	0.4461	0.2584			
CD-1C Falling Head Test #2	0.4696	0.2468			
CD-1C Falling Head Test #3	<u>0.4587</u>	<u>0.2687</u>			
Arith Avg:	<b>0.4581</b>	<b>0.2580</b>	<b>1.26E-04</b>	<b>0.3581</b>	<b>0.109</b>
CD-2B Falling Head Test #1	0.2569	0.1359			
CD-2B Falling Head Test #2	0.2528	0.1293			
CD-2B Falling Head Test #3	<u>0.2434</u>	<u>0.1328</u>			
Arith Avg:	<b>0.2510</b>	<b>0.1327</b>	<b>6.77E-05</b>	<b>0.1919</b>	<b>0.058</b>
CD-2B Constant Pumping Half Ellipsoid Hydraulic Conductivity			<b>1.45E-04</b>	<b>0.4113</b>	<b>0.125</b>
6/28/22 Pumped 65 minutes					
CD-6B Constant Pumping Half Ellipsoid Hydraulic Conductivity			<b>3.23E-05</b>	<b>0.0914</b>	<b>0.028</b>
6/28/22 Pumped 42 minutes					
CD-9B Constant Pumping Half Ellipsoid Hydraulic Conductivity			<b>4.06E-04</b>	<b>1.1504</b>	<b>0.351</b>
6/29/22 Pumped 55 minutes					
		<b>Geometric Mean:</b>	<b>9.25E-05</b>	<b>0.3123</b>	<b>0.080</b>

**Table 7**  
**Soil and Equipment Radionuclide Data Summary**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Area ID	AOI	Date	Field Screening (µR/hr)	Radionuclides (pCi/g)		UTM / NAD83		COMMENTS
				Ra-226	Ra-228	X	Y	
R-1 (0-6")	Background	9-Jun-22	10	3.64	1.43	536112	3338930	Background reading in the native woods was 10 µR/hr at the surface. Taken south of La Hwy 3166
R-1 (6-12")	Background	9-Jun-22	15	2.00	1.60	536112	3338930	After sampling the hole read 15 µR/hr at 6" and 16 µR/hr at 12".
R-1 (12-18")	Background	9-Jun-22	16	4.44	1.53	536112	3338930	After sampling the hole read 16 µR/hr at 18".
R-2 (0-6")	sn200772 / sn208588 / TB	9-Jun-22	23	18.89	1.94	537009	3339021	R-2 was reading 23 µR/hr at the surface. Taken from a pile of scale. 2'x1' area reading greater than 20 µR/hr.
R-2 (6-12")	sn200772 / sn208588 / TB	9-Jun-22	19	4.84	1.18	537009	3339021	After sampling the hole read 22 µR/hr at 6" and 19 µR/hr at 12".
R-3 (0-6")	sn82022 / sn139607	9-Jun-22	43	36.23	3.03	537064	3339078	R-3 was reading 43 µR/hr at the surface. Taken from a pile of scale. 14'x10' area reading greater than 20 µR/hr.
R-3 (6-12")	sn82022 / sn139607	9-Jun-22	24	2.05	1.75	537064	3339078	After sampling the hole read 29 µR/hr at 6" and 24 µR/hr at 12".
R-3 (12-18")	sn82022 / sn139607	9-Jun-22	20	6.06	1.76	537064	3339078	After sampling the hole read 20 µR/hr at 18".
R-4 (0-6")	sn229984 / TB	9-Jun-22	800	56.22	61.28	537136	3339304	Sample on limestone road in front of well head. Highest reading 800 µR/hr. Refusal @ 4". 11'x6' area > 20 µR/hr.
R-5 (0-6")	sn229984 / TB	9-Jun-22	250	18.68	27.48	537122	3339282	Sample taken at the end of active separator. 8'x7' area > 20 µR/hr. Highest reading 250 µR/hr. Refusal @ 6"
R-6	sn229984 / TB	9-Jun-22	30	ns	ns	537122	3339285	R-6 was reading 30 µR/hr at the surface. 4'x3' area reading greater than 20 µR/hr. Not sampled
R-7	sn229984 / TB	9-Jun-22	26	ns	ns	537140	3339290	R-7 was reading 26 µR/hr at the surface. 6" spot reading greater than 20 µR/hr. Not sampled
R-8	sn229984 / TB	9-Jun-22	40	ns	ns	537138	3339295	R-8 was reading 40 µR/hr at the surface. 6" spot reading greater than 20 µR/hr. Not sampled
R-9	sn229984 / TB	9-Jun-22	32	ns	ns	537104	3339316	R-9 was reading 32 µR/hr at the surface. 1'x1' spot reading greater than 20 µR/hr. Not sampled
R-10a	sn229984 / TB	9-Jun-22	120	ns	ns	537144	3339302	R-10a was reading 120 µR/hr at the surface. 6" spot under flowline reading greater than 20 µR/hr. Not sampled
R-10b	sn229984 / TB	9-Jun-22	40	ns	ns	537143	3339306	R-10b was reading 40 µR/hr at the surface. 1'x1' area reading greater than 20 µR/hr. Not sampled. 7' from well head.
E-1	sn200772 / sn208588 / TB	9-Jun-22	200	ns	ns	537002	3339033	85' of active flowline reading over 100 µR/hr. Highest reading 200 µR/hr.
E-2	sn229984 / TB	9-Jun-22	1700	ns	ns	537126	3339311	26 pieces of tubing stacked at the tank battery. Highest reading 1500 µR/hr.
E-3	sn229984	9-Jun-22	290	ns	ns	537139	3339309	Flange coming form well head. Highest reading 290 µR/hr.
E-4	sn229984 / TB	9-Jun-22	120	ns	ns	537126	3339288	1 piece of cut flowline 2.5' long. Highest reading 120 µR/hr.
E-5	sn229984 / TB	9-Jun-22	470	ns	ns	537122	3339282	An active separator at tank battery. Highest reading 470 µR/hr. (R-5 sample taken at the end of the separator.)

ns = not sampled  
nm = not measured

Limits of radiation according to LAC 33:XV.1404 state 'NORM, NORM waste, and NORM contaminated material are exempt from the requirements of these regulations if they contain, or are contaminated at , concentrations of : '  
Equipment, which contains NORM, is exempt from the requirements of these regulations, except LAC 33:XV.1410, if the maximum radiation exposure level does not exceed 50 microroentgens per hr at any accessible point.

Limits of radiation according to LAC 33:XV.1404 state 'NORM, NORM waste, and NORM contaminated material are exempt from the requirements of these regulations if they contain radium-226 and radium-228 at concentrations less than the limits specified below, in sample averaged over 100 square meters, with no single non-composited sample exceeding 60 pCi/g:

5 picocuries per gram or less of radium-226 or radium-228, above background', averaged over the first 15 centimeters, and 15 pCi/g above background averaged over each subsequent 15 centimeters thick layer of soil.

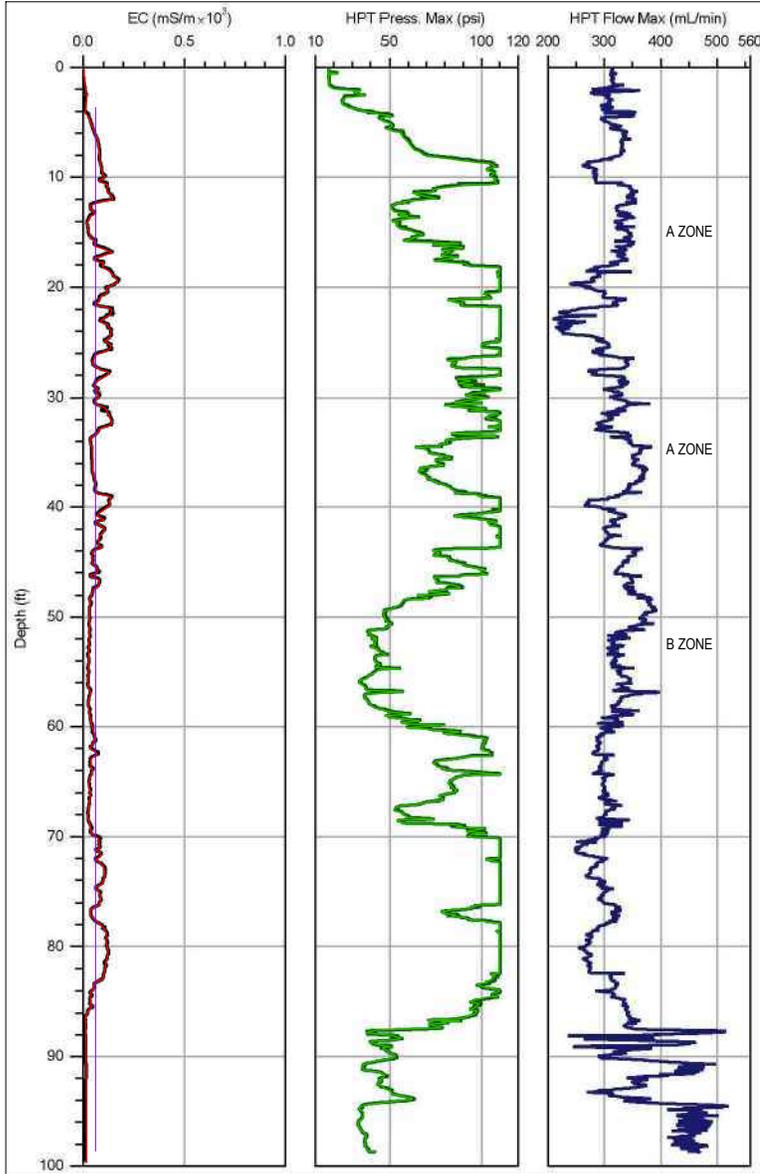
OR

30 pCi/g or less of radium-226 or radium-228, averaged over 15 centimeter depth increments, providede the total effective dose equivalent (from the contaminated land) to individual members fo the public (continually present) does not exceed 0.1 rem (100 mrem) in a year.

Once land has become regulated under the above criteria, it must be remediated to raduim-226 and radium-228 activity levels of less than 5pCi/g above background, before it can be released for unrestricted use.

**APPENDIX A**  
**BORING LOGS**

# CD-1



Depth (ft)	EC (mS/m/cm)	SAR (meq)	ESP (%)	Field EC (mS)	Field EC (mS)	PID (ppm)	Core Recovery	Description	
0	0.33	0.81	0.52	0.20	0.0			SILT (0-1'), lt brn, dry, friable;	
4				0.48	0.0			Silty CLAY (1-2.6'), brn, firm; CLAY (2.6-3'), brn, red stain, firm	
8	0.58	4.57	4.49	0.59	0.0			CLAY, brn w/ heavy red staining (4.4-6'), lt grey and tan w/orange staining (4.5-7.5'), very firm	
12				1.26	0.0			Silty CLAY to CLAY, grey and orange/brn, blk mottling, very firm	
16	0.37	2.02	2.50	1.96	0.0			Silty CLAY (12-12.7'), grey/lt brn, soft, damp; SILT (12.7-15.5'), lt brn, wet; CLAY (15.5-16'), soft, lt brn	
20				1.72	0.0			CLAY, red/brn and grey, firm; Clayey SILT (0.6-1.4'), lt brn, damp	
24				2.20	0.0			CLAY, grey, very firm, lt brn (0-1')	
28				1.80	0.1			CLAY, grey and lt brn, very firm, shell hash (1.4-1.8')	
32	0.38	na	na	1.59	0.0			CLAY, grey, firm, shell hash (0.8-1.5')	
36				2.02	0.0			CLAY (0-2'), grey and red/brn, very firm; Clayey SILT, red/brn, moist	
40				1.78	0.2			Clayey SILT (0-1.3'), red/brn, soft, damp; CLAY, red/brn, very firm	
44				1.36	0.0			Clayey SILT (0-1.4')(1.7-2.2'), brnish grey, moist; CLAY, red/brn, firm	
48				1.77	0.0			CLAY, grey and red/brn, firm, Ca nodule at 0.5'	
52				0.76	0.0			CLAY (0-2.5'), lt brn/grey, firm; SILT, red/brn, wet	
56				0.59	0.0			SILT, red/brn, wet; Clayey SILT/Silty CLAY (3.2-3.7'), brn, soft	
60	0.34	na	na	0.82	0.0			Clayey SILT (0-1.2'), brn, wet; Silty CLAY, brn, soft	
64				1.75	0.0			CLAY, brn and soft (0-1'), grey and very firm (1-3')	
68				1.41	0.0			CLAY, grey, soft	
72				1.39	0.0			CLAY, grey, firm, brn (3-4')	
76				1.15	0.0			CLAY, grey and brn, soft to firm; SILT (3.5-3.8'), brn, moist	
80				0.59	na	na	0.87	0.0	CLAY (0-2'), grey, firm; Clayey SILT (2-3'), grey, wet; SILT, grey, wet
84				0.65				SILT, grey, wet	
88				0.43				SILT, grey, wet	
92				0.40				SILT, grey, wet	
96				0.34				SILT, grey, wet	
100	0.62	na	na	0.73				SILT (0-1.5'), brn/grey, wet; Clayey SILT, grey/brn, wet	
				0.64				Clayey SILT (58-59.5'), grey, wet; CLAY/Silty CLAY, grey, soft	

HPT/Conductivity Probe to 98' bgs.  
Sample to 60' bgs.

CD-1a Set 3/4" pvc well to 18' bgs. Screened 13-18' bgs. Filter sock over screen.

Native material to 46' bgs. Bentonite pellets to 12' bgs. Grout to surface.

CD-1b Set 3/4" pvc well to 37' bgs. Screened 32-37' bgs. Filter sock over screen.

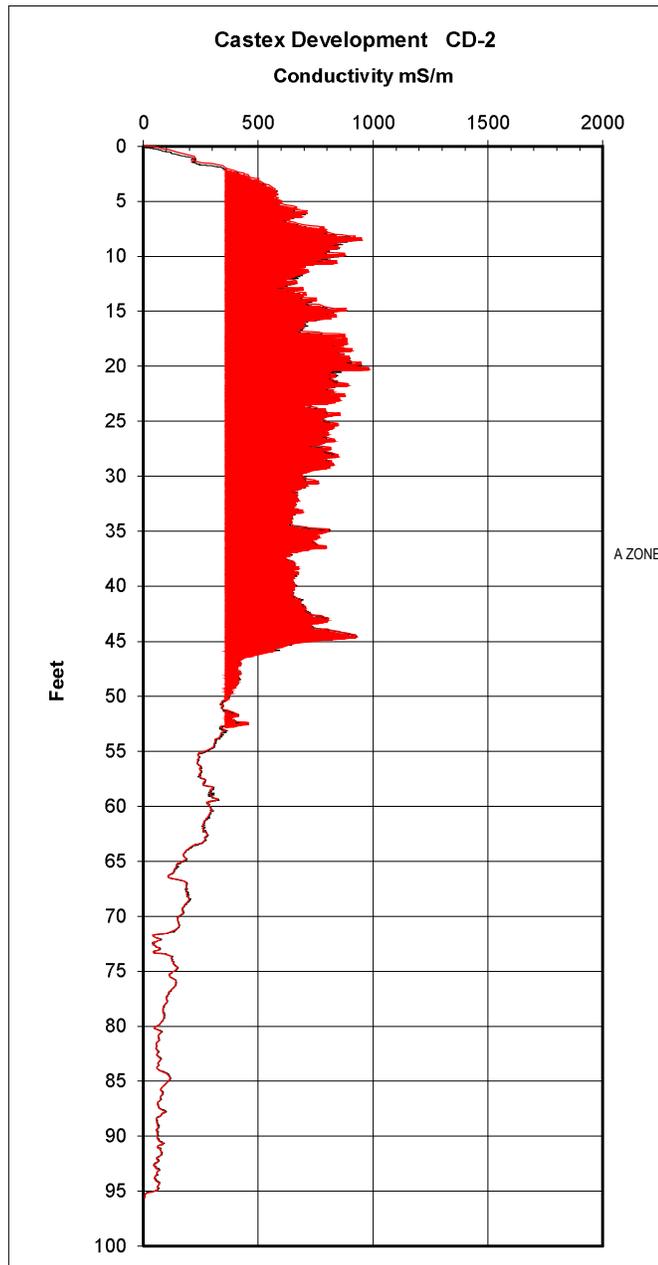
Native material to 31' bgs. Bentonite pellets to 27' bgs. Grout to surface.

CD-1c Set 3/4" pvc well to 58' bgs. Screened 48-58' bgs. Filter sock over screen.

Native material to 46' bgs. Bentonite pellets to 43' bgs. Grout to surface.



		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536696 N 3339801
Cond Log Date	24FEB22	TEMPORARY WELL DATA	Riser Stickup: All Flush
Core Sample Date	24/25FEB22	TD (BGS): 18', 37', 58'	Screened Interval (BGS): 13-18', 32-37', 48-58'



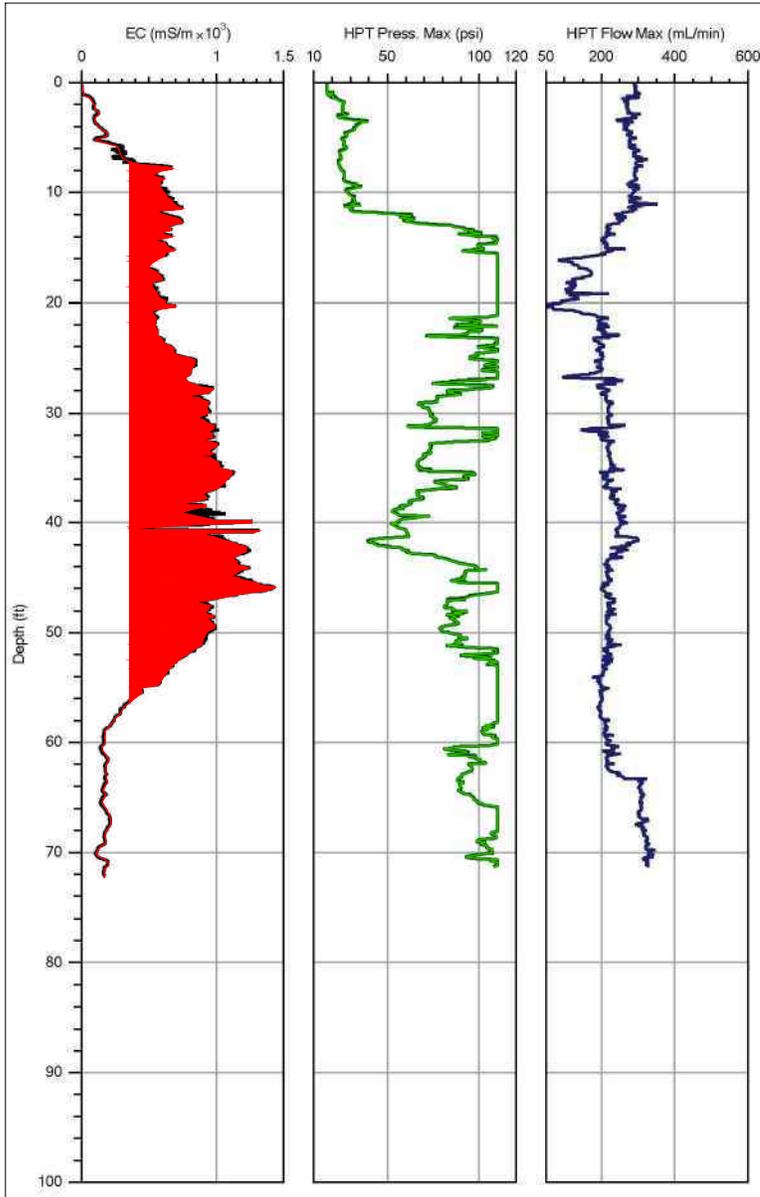
Interpreted Lithology	Well Construction CD-2a	Well Construction CD-2b	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery		
				3.01	18.8	17.3		0.4		CLAY, brown, firm, orange staining (0-1.5')	0
				3.31	21.8	28.9		0.4		CLAY, gray, orange staining, black mottling, very firm to stiff	4
				3.80	25.5	44.0		0.5		CLAY, gray and red/brown, orange staining, stiff, Ca @ 11.8'	8
								0.3			12
								0.9			16
				16.3	na	na		0.6		CLAY, gray/orange/brown, stiff, Ca @ 12.1' & 14.6'	20
								0.5			24
								0.9		CLAY, gray, orange staining, micro silt lenses throughout, stiff	28
								0.3			32
								1.7		SAA (0-2'), Silty CLAY (2-2.7'), gray, firm; CI SILT (2.7-3.5')bm, moi	36
								0.5		Clayey SILT (0-2.4), lt brown, damp; silty Clay (2.4-2.7), soft, bm	40
								0.8		CLAY, gray, firm, red/bm (1.3-2'); clayey SILT (0.4-1.3'), bm, damp	44
								0		CLAY, gray, stiff, orange staining; Clayey SILT (1.8-2.1) bm, damp	48
				20.5	na	na		0.2		CLAY (0-0.8'), orange, gray, soft; SILT, bm/gray, wet	52
								0.0		SILT, gray/bm, wet; CLAY (2.8-3.8'), gray, firm	56
								0.0		Silty CLAY, gray, firm, Clayey SILT lens (1.1-1.7') gray, moist	60
								0.0		Silty CLAY, gray; clayey SILT (0-1') damp	64
								3.3		SILT, gray (0-0.6'), bm (1.1-3.8), wet; CLAY (0.6-1.1')	68
				27.1	na	na		0.8		SILT, brown, wet	72
								0.0		SILT, brown, wet, some Clay (3.5-4')	76
								0.3		SILT, bm, wet; CLAY (2-3.5') gray, firm	80
								1.1		CLAY, gray, firm, organics (0-1'), SILT (3.6-4'), brown, wet	84
				12.0	na	na		1.8		SILT, brown, wet	88
								0.3		SAA	92
								0		SAA (50-51'); Silty CLAY (51-52'), gray, soft	96
				5.72	na	na		0		Silty CLAY, gray, soft; CLAY (0.7-2.5'), gray, firm	100
								0		CLAY, gray, firm	
								0		SILT, gray, wet; Clayey SILT (0-2')	
				4.44	na	na		0		Clayey SILT (0-2.3) gray, wet (0-1'), moist (1-2.3'); Silty Clay, gray	
								0		SILT, gray, wet	
								0		SILT, gray, wet	
								0		SILT, gray, wet	

Conductivity Probe to 95' bgs.  
 Sample to 68' bgs.  
 CD-2a Set 3/4" pvc well to 43' bgs. Screened 33-43' bgs. Filter sock over screen. Native material to 36' bgs. Filter sand to 32' bgs. Bentonite pellets to 29' bgs. Grout to surface.  
 CD-2b Set 3/4" pvc well to 68' bgs. Screened 58-68' bgs. Filter sock over screen. Native material to 56' bgs. Bentonite pellets to 53' bgs. Grout to surface.

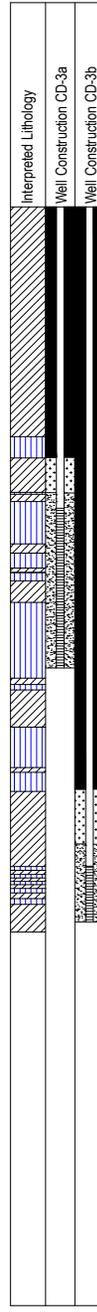


		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0537075 N 3339740
Cond Log Date	2MAR22	TEMPORARY WELL DATA	Riser Stickup: 2', 1.9'
Core Sample Date	3/4MAR22	TD (BGS): 43', 68'	Screened Interval (BGS): 33-43', 58-68'

# CD-3



Depth (ft)	EC (mS/m x 10 <sup>3</sup> )	SAR (meq)	ESP (%)	Field EC (mS)	PD (ppm)	Core Recovery
0	1.28	4.72	4.30		0	Silty CLAY, lt brown, soft; black 1-1.3, HC odor
4	1.14	4.75	3.40			
8	5.40	12.9	13.0		25.1	Silty CLAY, lt brown and black, soft, HC odor
12					0.2	Silty CLAY (8-9), gray, soft, HC odor; CLAY (9-9.7), gray, orange mottling, firm
16					0	CLAY, gray & orange, very firm to stiff
20	4.92	na	na		0	CLAY, gray w/ orange staining, stiff, micro silt lenses throughout
24					0	Silty CLAY, (0-1.3'), gray, firm, shell @ (0.4'); CI SILT, lt brn, moist
28					0	Clay Silt (0-0.6), lt brown damp; CLAY, gray, firm; soft (1.3-1.9)
32					0	Silty CLAY, gray & orange, firm
36					0	CLAY (0-0.5)(0.8-1.7), gray, firm; SILT(0.5-0.8)(1.7-2.2) brn, wet
40					0	SILT, brown, wet
44	28.7	na	na		0	SILT (0-1)(2.4-2.7) brn/gray, wet; CLAY (1-2.4) gray, firm
48					0	SILT, gray, wet; Clay lens (1.8-2.1), gray, soft
52					0	Silty CLAY, gray, soft
56					0	SILT, brown, wet
60					0	SILT, brown, wet
64					0	SILT, brown, wet
68					0	CI SILT(0-1) brn, moist; CLAY(1-2.4), gray firm; SILT(2.4-2.6), Clay
72	24.9	na	na		0	CLAY, gray, firm
76					0	Silty CLAY, gray, soft to firm; SILT (2-2.4), brown, wet
80					0	SILT, brownish gray, wet
84					0	SILT, brn(0-2) gray(2-3.2), wet; CLAY(3.2-3.5) firm, CI Silt (3.5-4)
88	24.1	na	na		0	SILT (0-2), brn/gray, wet; CLAY (2-4), gray, firm
92					0	CLAY, gray, firm, organics (0-2)
96					0	CLAY, gray, firm, organics
100					0	CLAY, gray, firm
	4.31	na	na		0	CI SILT (0-1.7)(2.2-2.5)(3-3.8) gray, moist to wet; Silty CLAY, gray, soft
					0	CI SILT (0-1.3)(1.5-2.1)(2.5-2.7)(2.9-3.3), gray, wet; Silty Clay, soft, gray
	2.35	na	na		0	Silty CLAY, gray, soft; CLAY (1.6-4), gray, firm



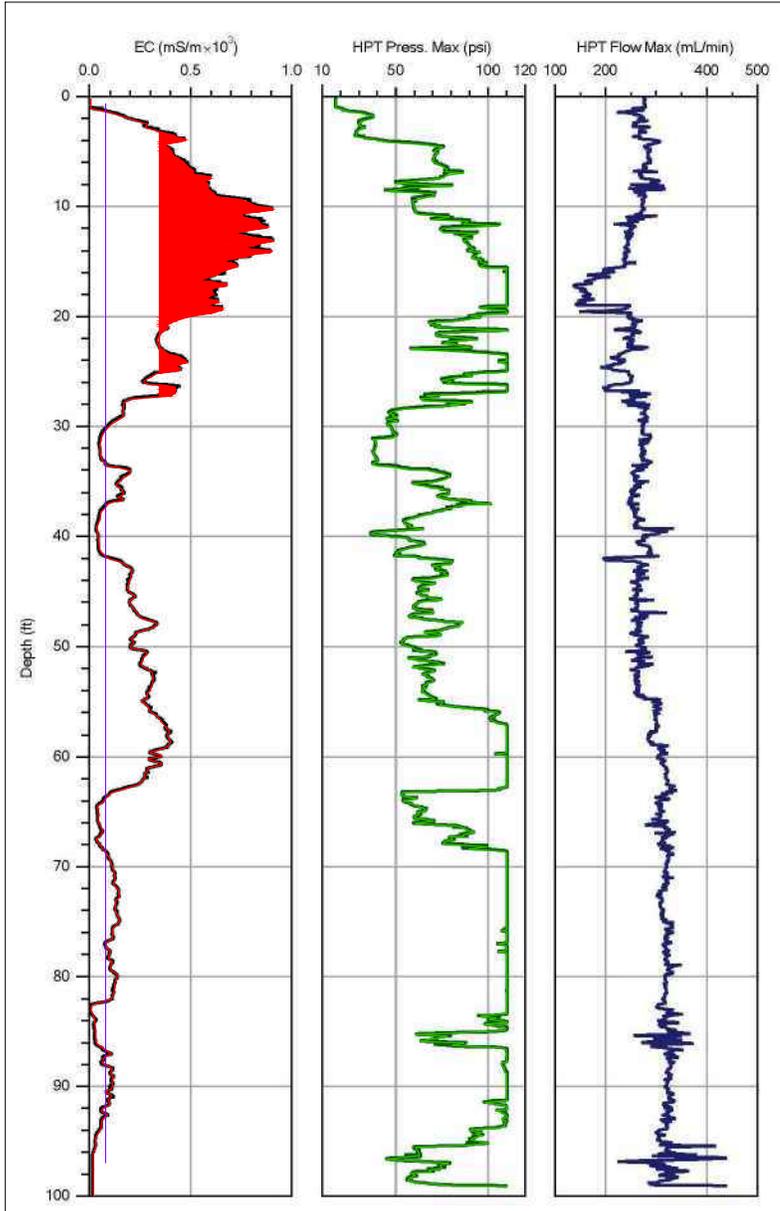
HPT conductivity Probe to 71' bgs.  
 Sample to 66' bgs.

CD-3a Set 3/4" pvc well to 42' bgs. Screened 27-42' bgs. Filter sock over screen.  
 Native material to 27' bgs. Filter sand to 26' bgs. Bentonite pellets to 23' bgs. Grout to surface.

CD-3b Set 3/4" pvc well to 65' bgs. Screened 60-65' bgs. Filter sock over screen.  
 Native material to 60' bgs. Filter sand to 58'. Bentonite pellets to 54' bgs. Grout to surface.



ICON		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536988 N 3339726
Cond Log Date	8MAR22	TEMPORARY WELL DATA	Riser Stickup: 1.8', 1.8'
Core Sample Date	8MAR22	TD (BGS): 42', 65'	Screened Interval (BGS): 27-42', 60-65'



# CD-4

Interpreted Lithology	Well Construction CD-4a	Well Construction CD-4b	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
			2.46	19.5	25.5		0		0 Silty CLAY, brn, firm; blk & HC odor (2-2.2')
			3.64	31.2	39.7		0		4 CLAY, grey, orange staining, brn mottles (0-2), very firm to stiff, HC odor (0-1')
			4.42	36.5	33.2		0		8 CLAY(8-8.4') gry,firm; SILT(8.4-9.2'), lt brn,wet; Silty CLY(9.2-10.2') , gry, soft; CLAY(10.2-11.6'), gry & lt brn, firm to very firm
			23.9	25.4	28.4		0		12 CLAY, grey, & orange, very firm to stiff
							0		16 CLAY, grey, orange staining, stiff, micro silt lenses throughout
							0		20 CLAY(0-0.2')(1.5-3'), firm; Clayey SILT(2-3'), grey, firm; Clayey SILT Clayey SILT, lt brn, moist to wet
			1.54	18.3	40.9		0		24 CLAY, reddish brn & grey, firm
							0		28 CLAY(0-0.2')(1.5-3'), firm; Clayey SILT(0.2-1.5'), brn, moist to wet
							0		32 CLAY(0-0.3')(2-2.3'),grey, firm; SILT(0.3-2')(2.3-3.5'), brn, wet
			1.60	na	na		0		36 SILT, brn, wet
							0		40 SILT, brn, wet
							0		44 SILT, brn, wet
							0		48 SILT, brn, wet; CLAY(3.6-3.8'), grey,soft
							0		52 Silty CLAY(0-1.3')(1.9-2.5'); Clayey SILT (1.3-1.9'); SILT (2.5-2.7')
							0		56 SILT, brn, wet
							0		60 SILT, brn, wet
							0		64 SILT, brn, wet; CLAY(2.5-3.7'), grey, soft to firm, wood @ 3.2'
							0		68 CLAY, grey, soft
			3.79	na	na		0		72 Silty CLAY(0-0.7')(1-2')(2.5-3'); Clayey SILT (0.7-1')(2-2.5'), brn, wet
							0		76 Silty CLAY, grey, soft to firm
							0		80 SILT, brn, wet; Silty CLAY (3.7-4')
							0		84 Silty CLAY, grey, soft to firm
							0		88 Silty CLAY, grey, soft to firm
							0		92 CLAY, grey, firm
			6.35	na	na		0		96 CLAY, grey, firm, wood frags @ 0.7', 3.2', 3.8'
							0		100 wood (0-0.3'); CLAY, grey, firm
							0		CLAY, grey, firm
							0		CLAY(0-0.5'), grey, soft; Clayey SILT to SILT, grey,wet
							0		SILT, grey,wet
			0.81	na	na		0		SILT, grey,wet; CLAY(2.4'), grey, firm

HPT/Conductivity Probe to 99' bgs.  
Sample to 68' bgs.

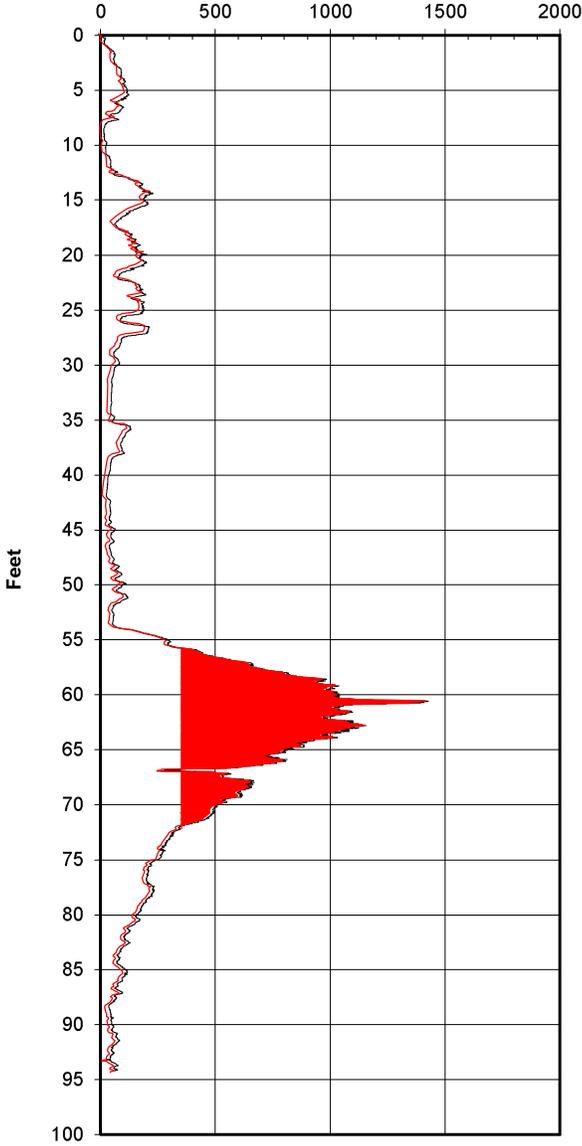
CD-4a Set 3/4" pvc well to 42' bgs. Screened 27-42' bgs. Filter sock over screen.  
Native material to 28' bgs. Filter sand to 26' bgs. Bentonite pellets to 23' bgs. Grout to surface.

CD-4b Set 3/4" pvc well to 67' bgs. Screened 62-67' bgs. Filter sock over screen.  
Native material to 62' bgs. Filter sand to 61'. Bentonite pellets to 58' bgs. Grout to surface.



		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536541 N 3339214
Cond Log Date	09MAR22	TEMPORARY WELL DATA	Riser Stickup: 1.6', 1.7'
Core Sample Date	10MAR22	TD (BGS): 42', 67'	Screened Interval (BGS): 27-42', 62-67'

**Castex Development CD-5**  
**Conductivity mS/m**



Conductivity Probe to 94' bgs.  
Sample to 72' bgs.

CD-5a Set 3/4" pvc well to 43' bgs. Screened 28-43' bgs. Filter sock over screen. Native material to 29' bgs. Filter sand to 27' bgs. Bentonite pellets to 24' bgs. Grout to surface.

CD-5b Set 3/4" pvc well to 70' bgs. Screened 65-70' bgs. Filter sock over screen. Native material to 64.5' bgs. Filter sand to 64'. Bentonite pellets to 61' bgs. Grout to surface.

CD-5c Set 3/4" pvc well to 95' bgs. Screened 90-95' bgs. Filter sock over screen. Native material to 78' bgs. Bentonite pellets to 75' bgs. Grout to surface.



# CD-5

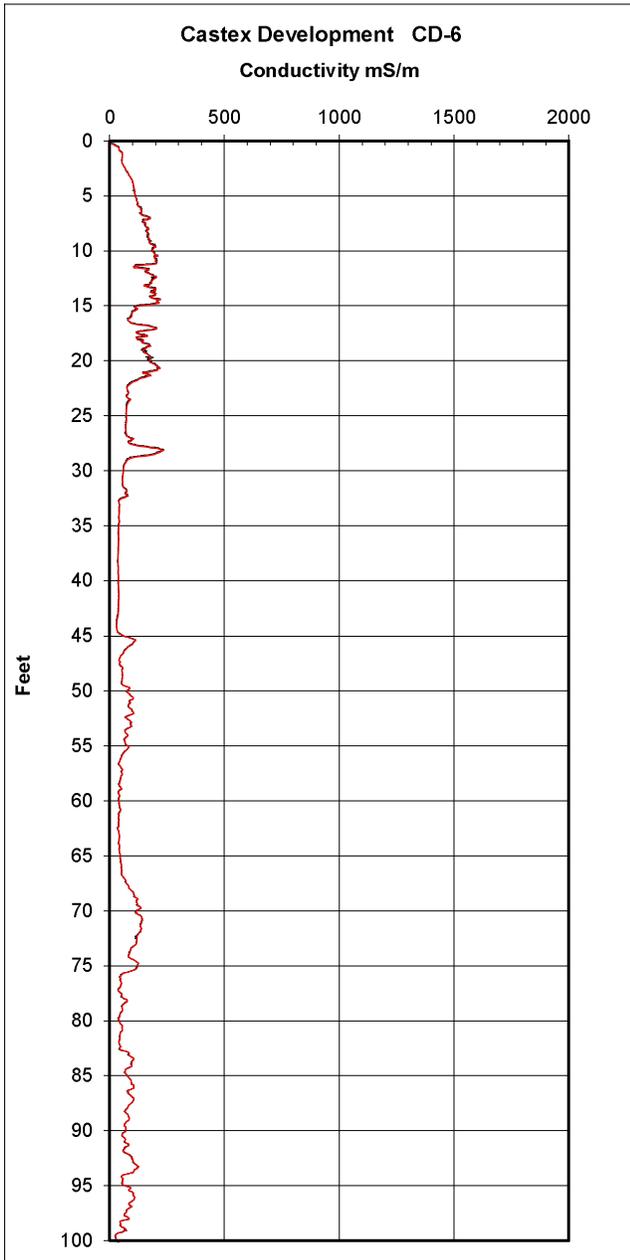
Interpreted Lithology	Well Construction CD-5a	Well Construction CD-5b	Well Construction CD-5c	Well Construction CD-5d	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PD (ppm)	Core Recovery	
					0.30	2.05	2.03		1.0	CLAY, lt brown, firm, orange staining	0
					0.34	3.08	6.04				4
					0.32	2.91	7.90		0.5	SAA (4-7.2); Silty CLAY (7.2-7.6), lt brown, firm	8
									0.9	Silty CLAY (8-10.3), firm, gray; SILT (10.3-11.3), lt brown, damp	12
									0.6		16
									0.8	SILT (12-12.4) brown, moist; CLAY, gray & orange, firm to very firm	20
									0.9		24
									1.1	CLAY, lt brn/orange, firm; CI SILT (1-2.6), lt brn, moist	28
									1.0	CLAY, gray, orange stain, very firm, micro silt lenses through out	32
									0.9	CLAY, gray, orange staining, very firm; CI SILT (3.3-3.8) brn, damp	36
									0.8	Silty CLAY (22-22.7) brn, soft; CLAY (22.7-24) brn, very firm	40
									1.0	CLAY, gray & redish brown, very firm; SILT (2.6-3.1) brn, wet	44
					0.82	na	na		0.9	SILT (0-0.6) brn wet; CLAY (6-2.4) gray very firm; Silt, brn, wet	48
									1.1	SILT, brown, wet, clayey(2.6-3.4)	52
									0.7	SILT, brown, wet	56
									1.1	SILT, brown, wet	60
									1.1	SILT, brn, wet; CLAY(3.5-3.8) gray, soft to firm	64
									1.0	CLAY, gray, soft, silty (2-3.3)	68
					1.08	na	na		0.9	CLAY (0-0.7) gray, soft; SILT brown, wet	72
									0.7	SILT, brn, wet	76
									1.5	SILT, brn, wet; Silty CLAY (3.1-3.8) brn/gray, soft to firm	80
									0.7	Alt SILT & Silty CLAY, gray&brn, soft to firm	84
									0.7	SILT, brn (0-3), gray (3-4), wet	88
									0.7	Silty CLAY, gray, soft; SILT lens (49.4-49.7) brn, wet	92
									0.8	Silty CLAY to CLAY, gray, soft to firm; CI SILT (0.7-1.5) brn, wet	96
					0.83	na	na		0.5	SILT, gray, wet	100
									0.8	SILT, gray, wet; Clayey SILT (3-3.5) brn, wet	104
					9.34	na	na		1.1	SILT, gray (0-2) brn(2-3) wet; CLAY (3-3.8), gray, firm, organics	108
									2.3	CLAY, gray, red/brn staining, firm, organics	
					18.3	na	na		1.0	CLAY, gray, firm, organics	
									0.8	CLAY, gray, firm, organics	
									1.5	CLAY, gray, firm, organics (0-2); SILT (3.5-4) gray, wet	
									0.6	SILT, gray, wet, dry (0.4-1.4)	
					17.9	na	na		0.6	Silty CLY(0-1)(1.6-2.2) gry, soft; SILT (1-1.6)(2.2-2.8) gray, wet; CLY	
					8.26	na	na		0.6	CLAY, gray, firm	
					3.16	na	na			CLAY, gray, stiff, wood at 2.4'	
										CLAY, gray, wood at 0.2' and 2.6', md stiff; Silty CLAY at 2.5', md stiff	
										Silty CLAY to CI, SILT, gray, md soft, damp at btm 1'	
										Alt Silty CLAY and CI, SILT, gray, md stiff, damp	
										Clayey SILT to Silty CLAY, gray, md soft to md stiff at btm	
										CLAY, gray, md soft	
										Silty CLAY w/damp Silt lenses, md soft	
										CLAY, gray, massive, stiff	
					0.68	na	na			CLAY, gray, stiff, SILT lenses throughout; SILT at 2.9', wet	
										CLAY, gray; Alt CI, SILT and saturated SILT at 0.6', soft	
										CI, SILT/Silty CLAY, gray, soft, damp	
					0.61	na	na			Silty CLAY to CLAY, gray, md stiff	

**ICON** SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM

Project No. 9403-016-0100 Location (UTM NAD83): 15R E 0536421 N 3339217

Cond Log Date 15MAR22 TEMPORARY WELL DATA Riser Stickup: 1.7', 1.5', 1.9'

Core Sample Date 15MAR22 TD (BGS): 43', 70', 95', 110' Screened Interval (BGS)28-43', 65-70', 90-95', 95-110'



Well Construction	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	Soil Description	Depth (ft)
Well Construction CD-6a	0.30	4.29	5.20		na		Silty CLAY, brn, dry, fissile; CLAY @ 0.7', brn w/ red/orange stain, md stiff	0
Well Construction CD-6b	0.37	4.94	5.95		na		CLAY, lt brn to grey w/ orange stain, md stiff, blk concretions in top half, Ca nodules @ 3.2' & brn	4
Well Construction CD-6c	0.32	3.93	5.63		na		CLAY, red/brn & gray w/ minor blk stain, Ca throughout, stiff	8
					na		CLAY, grey w/ orange/brn stain throughout, Ca nodules	12
					na		CLAY, grey w/ orange stain, stiff, Sandy SILT lenses @ 0.2'-1', 1.3'	16
					na		CLAY, grey w/ orange stain, stiff, Clayey SILT, lenses throughout	20
					na		CLAY, gry w/ orange & blk stain, Ca, stiff Clayey Sandy SILT @ 2.9'	24
					na		Fine Sandy SILT w/ some fine Sand, clay w/ green stain, damp, soft	28
					na		Clayey SILT w/ some fine Sand, grey damp to wet, shell frags, soft	32
	0.73	na	na		na		CLAY, grey/green, stiff, Clayey SILT @ 0.4', wet, soft	36
					na		SILT, grey, saturated; Clayey SILT/Silty CLAY @ 2.8', grey w/ green	40
					na		SILT, brn, micaceous, saturated	44
					na		SILT, brn, micaceous, saturated	48
					na		SILT, brn, micaceous, saturated	52
					na		SILT, brn, micaceous, saturated	56
					na		SILT, brn, micaceous, saturated	60
					na		SILT, brn, micaceous, saturated	64
					na		SILT, brn, micaceous, saturated; CLAY @ 2.3'; grey, stiff, Ca nodules	68
					na		Clayey SILT to SILT, grey, soft, wet	72
					na		Alternating SILT & Silty CLAY, grey/brn, soft	76
					na		Silty CLAY, grey, minor blk stain, md soft	80
	0.62	na	na		na		CLAY, grey, stiff, Clayey SILT @ 2.2', grey, damp	84
					na		Alternating Silty CLAY & damp Clayey SILT, grey, md soft	88
					na		SILT w/ some Clay, grey, wet, soft	92
					na		Clayey SILT, grey, wet, soft	96
					na		Clayey SILT, grey, wet, soft	100
					na		SILT, grey, wet; Clayey SILT @ 3.6'; grey, damp	
					na		Clayey SILT, grey, soft, wet; Silty CLAY @ 2.2', minor orange stain	
					na		Clayey SILT, grey, soft; Silty CLAY @ 1.8', grey, md soft	
					na		CLAY, grey, md stiff, massive, wood @ 3.3'	
					na		CLAY, grey, stiff	
					na		CLAY, grey, stiff	
					na		CLAY, grey, stiff	
	0.51	na	na		na		Fine Silty SAND, grey, dry; CLAY @ 2.1', grey, stiff	



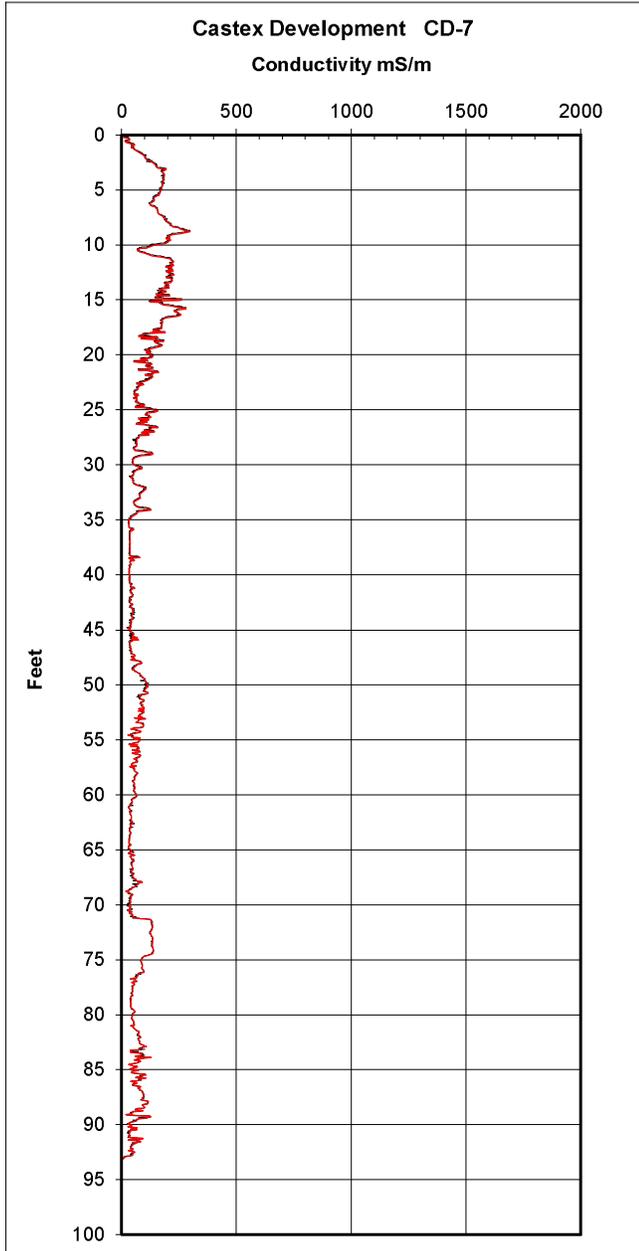
Conductivity Probe to 100' bgs.  
 Sample to 78' bgs.

CD-6a Set 3/4" pvc well to 40' bgs. Screened 30-40' bgs. Filter sock over screen. Native material to 28' bgs. Bentonite pellets to 25' bgs. Grout to surface.

CD-6b Set 3/4" pvc well to 66' bgs. Screened 56-66' bgs. Filter sock over screen. Native material to 56' bgs. Filter sand to 55' bgs. Bentonite pellets to 52' bgs. Grout to surface.

CD-6c Set 3/4" pvc well to 80' bgs. Screened 75-80' bgs. Filter sock over screen. Native material to 75' bgs. Filter sand to 74'. Bentonite pellets to 71' bgs. Grout to surface.

SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM			
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 537068 N 3339093
Cond Log Date	12APR22	TEMPORARY WELL DATA	Riser Stickup: 2.3', 2.4', flush
Core Sample Date	12APR22	TD (BGS):	40', 66', 80' Screened Interval (BGS): 30-40', 56-66', 75-80'



# CD-7

Interpreted Lithology	Well Construction CD-7a	Well Construction CD-7b	Well Construction CD-7c	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				0.98	9.55	12.0		0.0		0
										4
				1.06	11.0	11.5		0.0		8
										12
				0.72	7.72	10.6		0.0		16
										20
										24
										28
				0.25	na	na		0.0		32
										36
										40
										44
										48
										52
										56
										60
				0.63	na	na		0.0		64
										68
										72
										76
										80
										84
										88
										92
										96
										100

Conductivity Probe to 93' bgs.  
 Sample to 66' bgs.

CD-7a Set 3/4" pvc well to 15' bgs. Screened 10-15' bgs. Filter sock over screen.  
 Native material to 15' bgs. Filter sand to 9' bgs. Bentonite pellets to 6' bgs. Grout to surface.

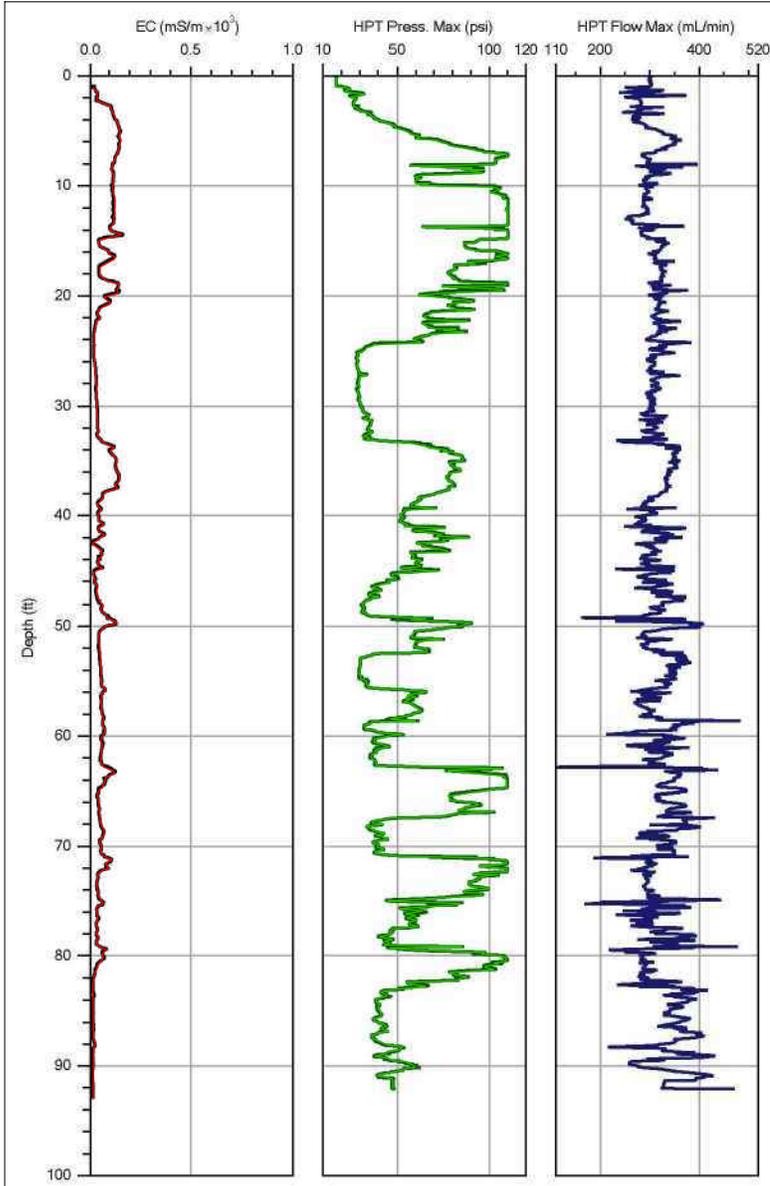
CD-7b Set 3/4" pvc well to 32' bgs. Screened 27-32' bgs. Filter sock over screen.  
 Native material to 27' bgs. Filter sand to 26' bgs. Bentonite pellets to 23' bgs. Grout to surface.

CD-7c Set 3/4" pvc well to 50' bgs. Screened 40-50' bgs. Filter sock over screen.  
 Native material to 40' bgs. Filter sand to 39' bgs. Bentonite pellets to 36' bgs. Grout to surface.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM			
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0537308 N 3339585
Cond Log Date	18APR22	TEMPORARY WELL DATA	Riser Stickup: 2.3', 2', 2.2'
Core Sample Date	19APR22	TD (BGS):	15', 32', 50'
		Screened Interval (BGS):	10-15', 27-32', 40-50'

# CD-8



Depth (ft)	Well Construction CD-8a	Well Construction CD-8b	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery
0								Silty CLAY, brn, organics, Ca nodules 0.6-1.3' (~1" thick); CLAY at 1.8', grey w/orange stain, md stiff
4			0.28	0.74	0.28			CLAY, grey w/orange and blk stain, Ca throughout, stiff
8			0.43	1.03	0.43			
12			0.27	1.08	0.90			CLAY, grey w/heavy orange and blk stain, Ca throughout, stiff
16								Silty CLAY, grey w/some green, Ca, md stiff, minor lk and orange stain; CI SILT at 2.2', red/brn, damp
20			0.23	na	na			Silty CLY, brn, Ca; SILT at 0.7', saturated, brn; CLY at 2.5', gry, stiff CLY, gry, stiff, Ca, minor orange stain, damp CI. SILT lens 1.3-1.5'
24								SILT, brn, saturated, Clay lens at 0-0.3', 2-2.1', w/Ca, stiff
28								SILT, brn, saturated
32								SILT, brn, saturated
36								SILT, brn, saturated
40								SILT, brn, saturated; Silty CLY at 1.6', brn, soft; CLY at 2', grey/brn
44								CLAY, brn and grey, organics, soft
48								Silty CLAY, gry and brn, stiff; CI SILT at 1.7', moist, soft; SILT btm 1'
52			0.53	na	na			Alt. CI SILT and Silty CLAY, brn and grey, damp
56								SILT brn, wet; Silty CLY at 0.8', brn, md soft; SILT at 1.7', dmp to dry
60								SILT brn, dry; CLAY at 0.6', gry, wet Silt lenses; SILT at 1.9', dry, brn
64								SILT, brn, damp; CLAY at 0.5', grey w/damp Silt lenses; SILT at 1.7'
68								SILT, brn, wet
72								SILT, gry/brn, saturated; CLY at 0.8', gry; SILT at 2.3', brn, saturated
76								SILT, brn, saturated
80								SILT, brn, saturated
84								SILT, brn, saturated; CI SILT at 2.1', grey, soft; SILT at 3.3', brn
88								SILT, brn, saturated
92								SILT w/ some Clay, saturated
96								SILT, brn, saturated
100			0.57	na	na			SILT, brn, wet; CLAY at 1'; Silt lenses throughout, md stiff

Conductivity Probe to 93' bgs.  
 Sample to 64' bgs.

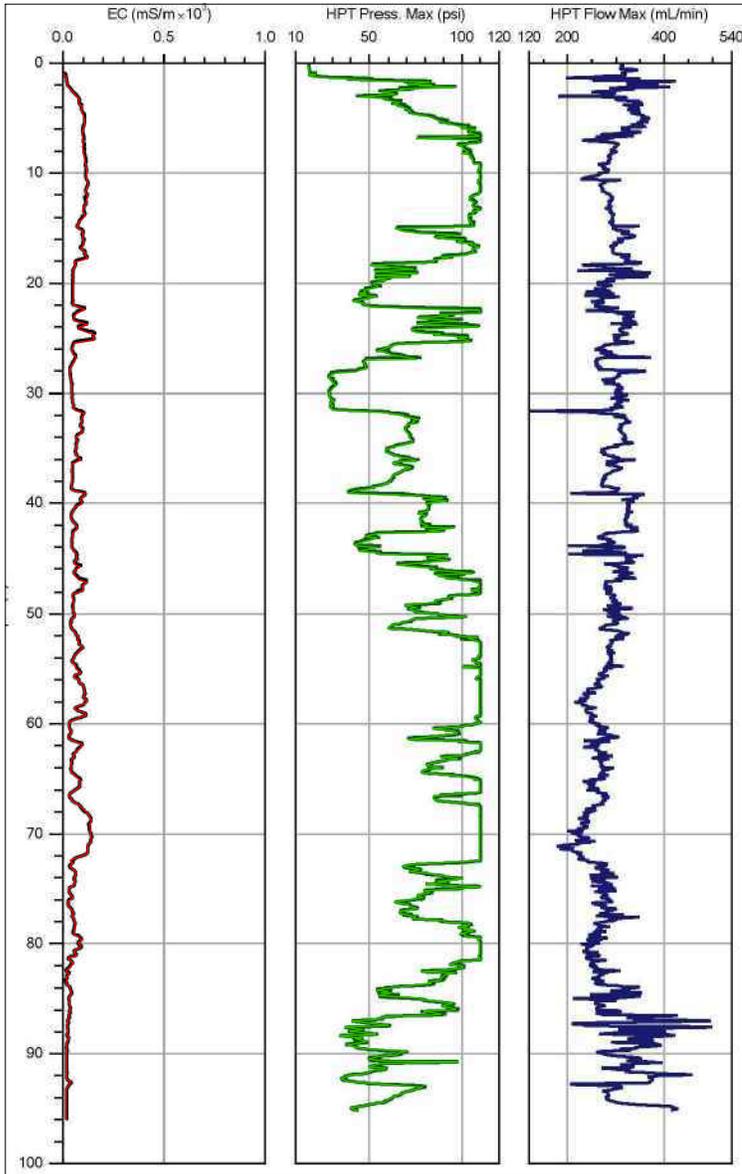
CD-8a Set 3/4" pvc well to 30' bgs. Screened 20-30' bgs. Filter sock over screen. Native material to 20' bgs. Filter sand to 19' bgs. Bentonite pellets to 16' bgs. Grout to surface.

CD-8b Set 3/4" pvc well to 62' bgs. Screened 52-62' bgs. Filter sock over screen. Native material to 55' bgs. Filter sand to 50' bgs. Bentonite pellets to 47' bgs. Grout to surface.



ICON		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536270 N 3338917
Cond Log Date	20APR22	TEMPORARY WELL DATA	Riser Stickup: flush, 1.9'
Core Sample Date	21APR22	TD (BGS):	30', 62' Screened Interval (BGS): 20-30', 52-62'

# CD-9



Interpreted Lithology	Well Construction CD-9a	Well Construction CD-9b	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	Depth (ft)
				0.33	3.00	3.40		na	Silty CLAY, bn, dry, minor orange stain, stiff; Clay at 1.6', grey w/orange stain, md stiff	0
				0.16	2.32	2.99		na	Silty CLAY, grey w/orange stain, minor blk stain, stiff	4
				0.29	2.32	1.94		na	Silty CLAY, grey w/orange and brown stain, stiff	8
								na	Silty CLAY, light grey w/orange stain, md stiff; Clayey SILT at 2.5', grey, md stiff	12
								na	Silty CLAY, grey w/minor orange stain, md stiff; Clayey SILT lens 1.7-1.9'	16
								na	Silty CLAY, grey w/minor orange stain, md stiff; SILT w/some Clay, grey, bn, damp	20
								na	SILT w/some Clay, red/bn, wet, Clay lens 1.6-1.7' (grey md stiff, damp)	24
				0.26	na	na		na	SILT, bn, saturated; CLAY at 1.2', grey, dry Silt lenses throughout, stiff	28
								0.59	CLAY, grey/bn, w/vertical SILT lens, stiff; SILT at 0.6', saturated, bn, Clayey lens	32
								na	SILT, bn, saturated	36
								0.56	SILT, bn, saturated	40
								1.02	SILT, bn, saturated; CLAY at 2.4', grey, md soft, some Silt	44
								0.69	CLAY w/Silt, grey, md, soft; SILT at 2', bn, wet	48
								0.60	Alt wet SILT and Cl. SILT, bn, soft	52
								1.09	SILT, bn, saturated	56
								0.59	Silty CLAY, grey, soft; SILT w/some Clay at 1.7'; grey, damp	60
								na	SILT, bn, saturated, color change to grey at 1.9', Cl SILT lenses at btm	64
								na	SILT, grey/bn, saturated, Clay lens at 2.4-2.7', md soft	68
								na	Alt wet SILT and soft Clayey SILT, grey, bn	72
								na	Silty CLAY, grey, md stiff, damp, Cl SILT lenses at btm 0.5'	76
								na	Alt Cl. SILT and Silty CLAY, grey/bn, damp; SILT at 3.2', saturated	80
								na	SILT w/some Clay, grey/bn, wet; Silty CLAY at 1.3' w/wet Silt lenses, grey, md soft	84
								na	Silty CLAY, grey, damp, Cl. Silt lenses in btm half, soft	88
								na	Silty CLAY, grey, md soft, minor blk stain, wet, Cl. SILT lens at 2.1-2.2'	92
				0.61	na	na		na	CLAY, grey, md soft, wood/peat throughout	96
				0.49	na	na		na	CLAY, grey, md stiff, wood layer at 0.2-0.4'; Silty SAND at 0.4', grey, saturated	100

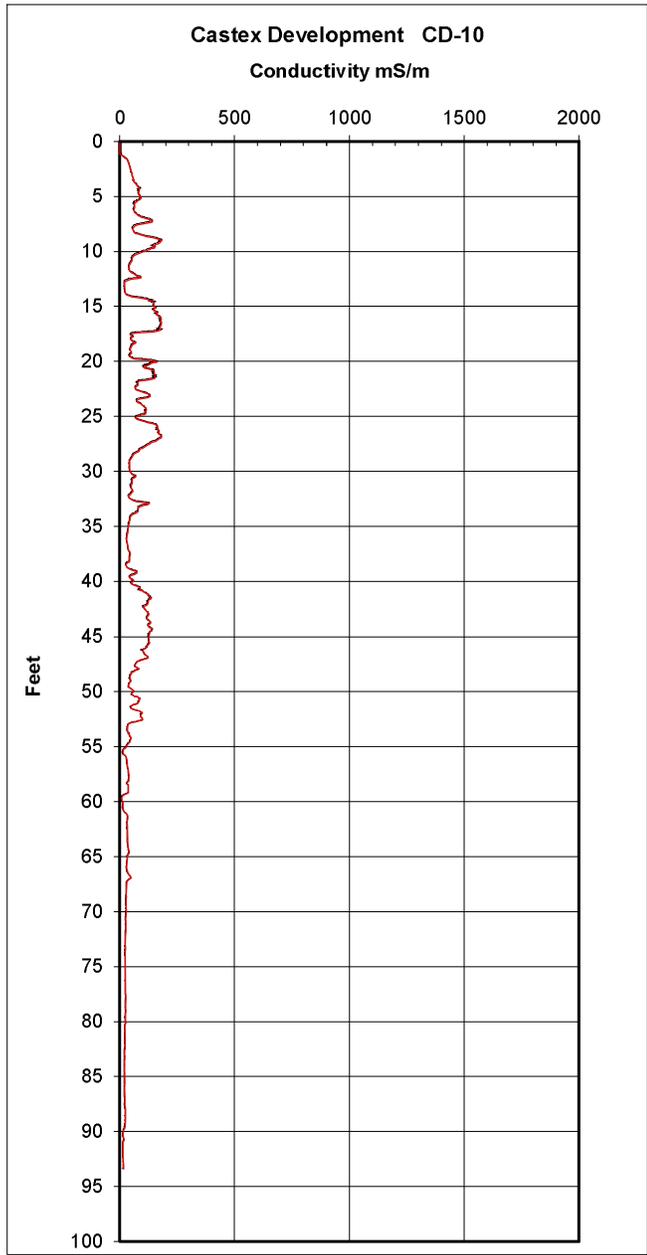
Conductivity Probe to 95' bgs.  
Sample to 60' bgs.

CD-9a Set 3/4" pvc well to 36' bgs. Screened 26-36' bgs. Filter sock over screen.  
Native material to 24' bgs. Bentonite pellets to 21' bgs. Grout to surface.

CD-9b Set 3/4" pvc well to 68' bgs. Screened 58-68' bgs. Filter sock over screen.  
Native material to 48' bgs. Bentonite pellets to 44' bgs. Grout to surface.



ICON		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 536795 N 3339374
Cond Log Date	27APR22	TEMPORARY WELL DATA	Riser Stickup: 1', 2.2'
Core Sample Date	27/28APR22	TD (BGS):	36', 68'
			Screened Interval (BGS): 26-36', 58-68'



Interpreted Lithology	Well Construction CD-10c temp	Well Construction CD-10b	Well Construction CD-10a	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				0.85	2.97	1.88				0
				0.96	3.16	2.96				4
				0.84	2.47	2.90				8
										12
										16
										20
										24
										28
				1.08	na	na				32
										36
										40
										44
										48
										52
				0.74	na	na				56
										60
				0.78	na	na				64
										68
										72
										76
										80
										84
										88
										92
										96
										100

# CD-10

Conductivity Probe to 93' bgs.  
Sample to 62' bgs.

- CD-10a Set 3/4" pvc well to 40' bgs. Screened 30-40' bgs. Filter sock over screen. Native material to 28' bgs. Bentonite pellets to 25' bgs. Grout to surface.
- CD-10b Set 3/4" pvc well to 65' bgs. Screened 55-65' bgs. Filter sock over screen. Native material to 51' bgs. Bentonite pellets to 48' bgs. Grout to surface.
- CD-10d temp Set 3/4" pvc well to 82' bgs. Screened 67-82' bgs. Filter sock over screen.



**ICON** SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM

Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536039 N 3339161
Cond Log Date	29APR22	TEMPORARY WELL DATA	Riser Stickup: 1', 2.3'
Core Sample Date	04MAY22	TD (BGS): 40', 65', 82'	Screened Interval (BGS): 30-40', 55-65', 67-82'

# CD-11

▼11a

▼11b

A ZONE

A ZONE

A ZONE

A ZONE

B ZONE

Interpreted Lithology	Well Construction CD-	Well Construction CD-	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				0.85	6.07	2.78		0.0	Silty CLAY, bm w/heavy red stain, stiff; CLAY at 2.2', grey w/red stain, stiff	0
				0.96	7.92	7.00		na	CLAY, grey w/heavy red and blk stain, v. stiff, Silt (dry) lenses top half	4
								na		8
				0.84	6.05	5.91		na	CLAY, grey w/heavy orange and blk stain, v stiff, Cl. SILT lens at 0.4-0.8', soft and damp	12
								na	CLAY, grey w/minor orange and blk stain, stiff, dry Silt lenses throughout	16
								na	CLAY, grey w/minor orange and blk stain, stiff, dry Silt lenses throughout	20
								na	CLAY, grey w/heavy orange and blk stain, stiff, damp Silt lenses throughout	24
								na	CLAY, grey w/orange stain, stiff, dry Silt lenses, shell frags at 2', Cl. SILT at 2.6', soft, damp	28
								na	SILT w/some Clay, bm, wet, shell frags	32
								na	Cl. SILT, brn, damp, soft, shell frags	36
				1.08	na	na		na	CLAY, grey w/red/bm stain, Ca, damp Silt lenses at 0.4' and 1.3', stiff	40
								na	CLAY, grey, stiff; SILT at 1', grey/bm, saturated	44
								na	SILT w/some Clay, grey, wet	48
								na	SILT, grey, saturated	52
								na	SILT, grey, saturated	56
								na	Cl. SILT, grey, soft, wet SILT lenses; CLAY at 2.9', grey, md soft	60
								na	CLAY, grey, md soft, Cl. SILT lens at 1.4-1.8', damp Silt at btm 1"	64
								na	SILT, grey/bm, saturated	68
								na	Cl. SILT/Silty CLAY, grey/bm, damp; CLAY at 1.3', grey, soft; Cl. SILT at 2.4', wet	72
								na	CLAY w/some SILT, grey, soft, peat	76
								na	SILT w/Cl. SILT lenses, grey/bm, soft, wet	80
								na	SILT w/some Clay, grey, wet	84
								na	SILT, grey, saturated (potentially slough)	88
								na	SILT, grey/bm, saturated; Cl. SILT/SI CLAY at 1', grey, damp; CLAY at 1.8', grey, md stiff	92
								na	CLAY, grey, md soft, organics	96
								na	Alternating wet Cl. SILT and md soft Silty CLAY, grey	100
				0.74	na	na		na	CLAY, organics, grey, wood at 2.9', md soft	
								na	Cl. SILT w/wet SILT lenses, grey, soft	
								na	SILT/Cl. SILT, grey, wet, soft	
				0.78	na	na		na	SILT/Cl. SILT, grey, wet, soft	

No Conductivity Probe  
Sample to 66' bgs.

CD-11a Set 3/4" pvc well to 35' bgs. Screened 30-35' bgs. Filter sock over screen. Native material to 28' bgs. Bentonite pellets to 25' bgs. Grout to surface.

CD-11b Set 3/4" pvc well to 70' bgs. Screened 60-70' bgs. Filter sock over screen. Native material to 55' bgs. Bentonite pellets to 51' bgs. Grout to surface.



SAND



Silty SAND; Sandy SILT



SILT; Clayey SILT

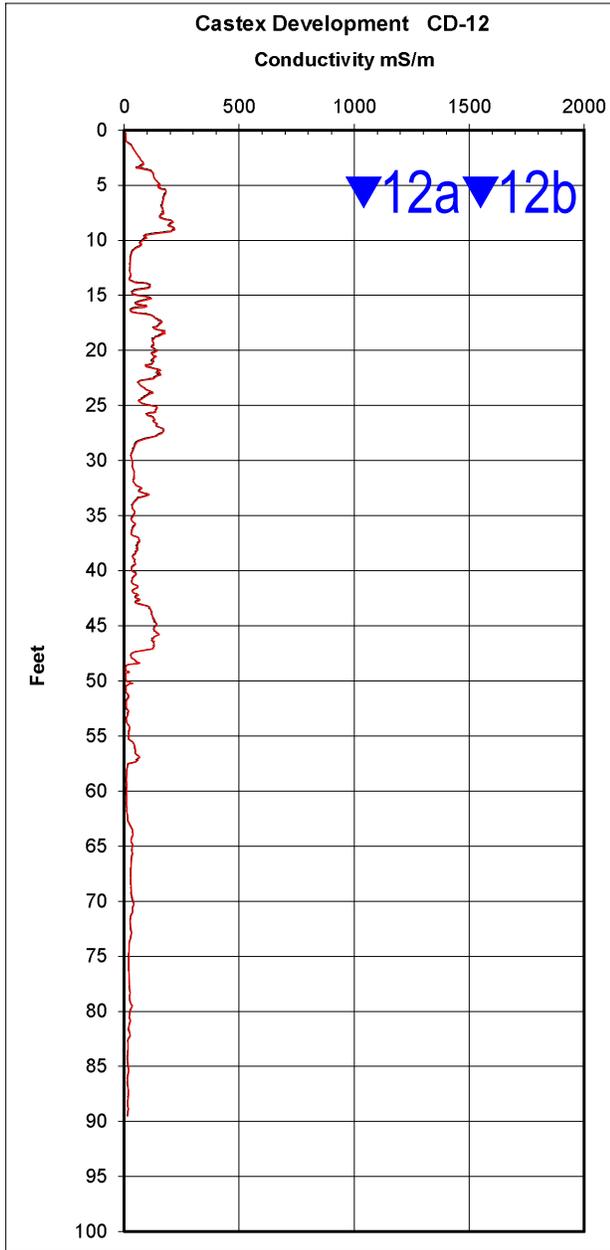


Silty CLAY; CLAY



## SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM

Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0537143 N 3339818
Cond Log Date	na	TEMPORARY WELL DATA	Riser Stickup: 1.1', 1.8'
Core Sample Date	02MAY22	TD (BGS): 35', 70'	Screened Interval (BGS): 30-35', 60-70'



Interpreted Lithology	Well Construction CD-12a	Well Construction CD-12b	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				aaa	aaa	aaa		na	SILT (0-1'), brown, dry;	0
								na	CLAY (1-3'), red/brown to brown, stiff	4
								na	CLAY, grey w/orange mottling, stiff, red bottom 7"	8
								na	CLAY (0-1.6'), w/ some Silt, grey, stiff;	12
								na	SILT (1.6-4'), brown, soft, wet, Clayey toward btm	16
								na	SAND, brown, very fine, wet; CLAY lens at (1.5-1.8') & (2.1-2.4')	20
								na	CLAY, grey, stiff; SAND (0.3-1'), wet, very fine	24
								na	CLAY, grey, stiff Ca nodules	28
								na	CLAY, grey w/some orange	32
								na	CLAY (0-1.6'), grey, stiff; Silty CLAY, grey, w/red	36
								na	Silty CLAY, red/brown, med soft	40
								na	CLAY, red/brown, stiff	44
								na	CLAY (0-1'), red/brown, stiff;	48
								na	Clayey SILT to fine SAND, red/brown, w/grey, soft, wet	52
								na	SILT, grey, soft, wet	56
								na	Clayey SILT, grey, soft, wet	60
								na	SILT, brown, wet, soft	64
								na	SAND, very fine, grey, wet; CLAY (3.5-4'), grey, med soft	68
								na	Clayey SILT, grey, soft, wet	72
										76
										80
										84
										88
										92
										96
										100

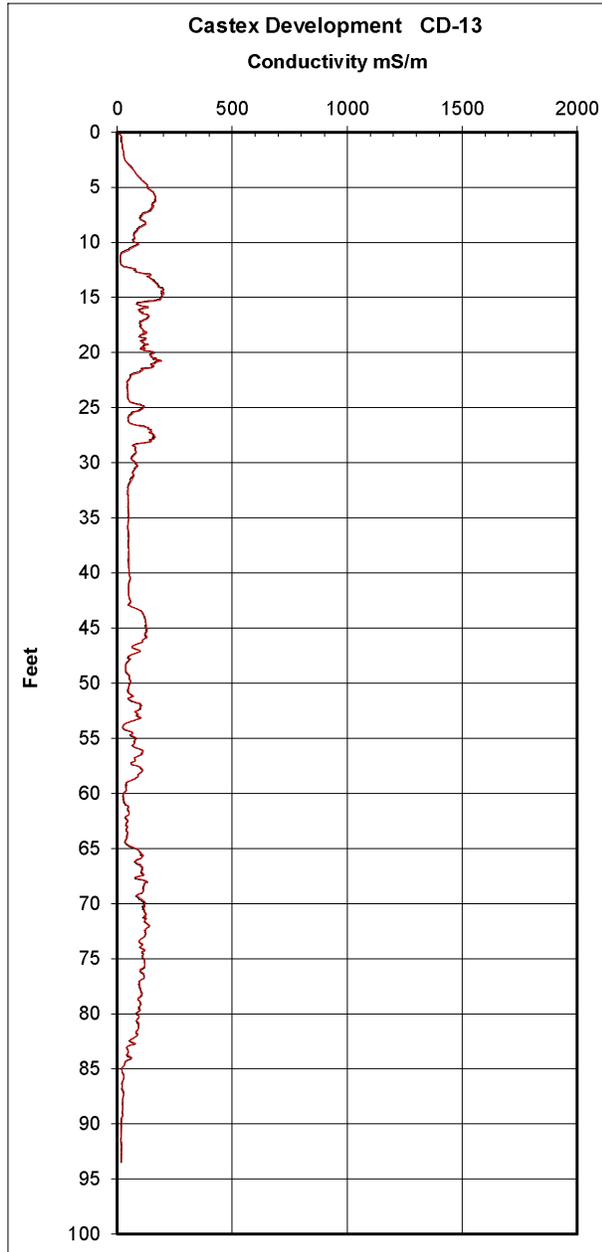
Conductivity Probe to 88' bgs.  
 Sample to 40' bgs.

CD-12a Set 3/4" pvc well to 17' bgs. Screened 7-17' bgs. Filter sock over screen.  
 Native material to 11' bgs. Filter sand to 6' bgs. Bentonite pellets to 3' bgs. Grout to surface.

CD-12b Set 3/4" pvc well to 39' bgs. Screened 29-39' bgs. Filter sock over screen.  
 Native material to 28' bgs. Bentonite pellets to 23' bgs. Grout to surface.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No. 9403-016-0100	Location (UTM NAD83): 15R E 0536283 N 3339370
Cond Log Date 06JUN22	TEMPORARY WELL DATA
Core Sample Date 06JUN22	TD (BGS): 17', 39'      Riser Stickup: 1.9', 1.5' Screened Interval (BGS): 7-17', 29-39'



Interpreted Lithology	Well Construction CD-13c	Well Construction CD-13b	Well Construction CD-13a	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
					aaa	aaa	aaa		na		0
									na	Silty CLAY (0-2'), brown, stiff, rootlets; CLAY, brown, stiff	4
									na		8
									na	CLAY (0-2.9'), light brown, black nodules, stiff; Silty CLAY, light brown, med soft	12
									na	Clayey SILT (0-2'), med soft, light brown, damp; SAND, very fine, damp	16
									na	Silty CLAY (0-1'), brown, med soft; CLAY, light, brown, stiff, Ca nodules	20
									na	Silty CLAY, light brown, stiff, Ca nodule at btm	24
									na	CLAY w/ Silt lenses throughout, damp, stiff, light brown w/orange	28
									na	CLAY, grey w/orange, stiff, Ca nodules, Silty CLAY (2.1-3.2')	32
									na	SILT, brown, soft, wet	36
									na	SILT, brown, soft, wet, shell frags; Clay lens (1.3-1.9')	40
									na	SILT (0-1.2'), brown, wet; CLAY, grey, stiff	44
									na	Clayey SILT, grey, soft, damp	48
									na	SILT, grey, wet, trace Clay top (0-0.4')	52
									na	SILT, brown, wet, trace Sand bottom	56
									na	SILT, brown, wet	60
									na	SILT, brown, wet	64
									na	SILT, brown, wet	68
									na	SILT (0-2.1'), brown, wet; CLAY, grey, med soft	72
									na	CLAY, grey, med soft, om at 3.8'	76
									na	CLAY, grey, wood, med soft, SILT lens at (1.6-1.9'), wet (2.8-3')	80
									na	SILT, brown, wet	84
									na	Clayey SILT (0-2.5'), grey, soft, damp; Silty CLAY, grey w/red/brown, med soft	88
									na	Silty CLAY, grey, med soft; SAND bottom 2", grey, damp	92
									na	Silty CLAY, grey, w/red/brown, med soft; SAND top 2", damp	96
									na	CLAY (0-2'), grey, med soft; Silty CLAY, grey, wood, soft	100
									na	Silty CLAY (0-1'), grey, med soft; Clayey SILT w/Sand, wet, grey, soft	
									na	SAND (0-2.2'), very fine, grey, wet; Clayey SILT, grey, damp	
									na	Clayey SILT, grey, soft, wet w/trace Sand	
									na	Clayey SILT (0-2.2'), grey, soft, wet w/trace Sand; CLAY, grey, med soft, wood	

Conductivity Probe to 94' bgs.  
 Sample to 66' bgs.

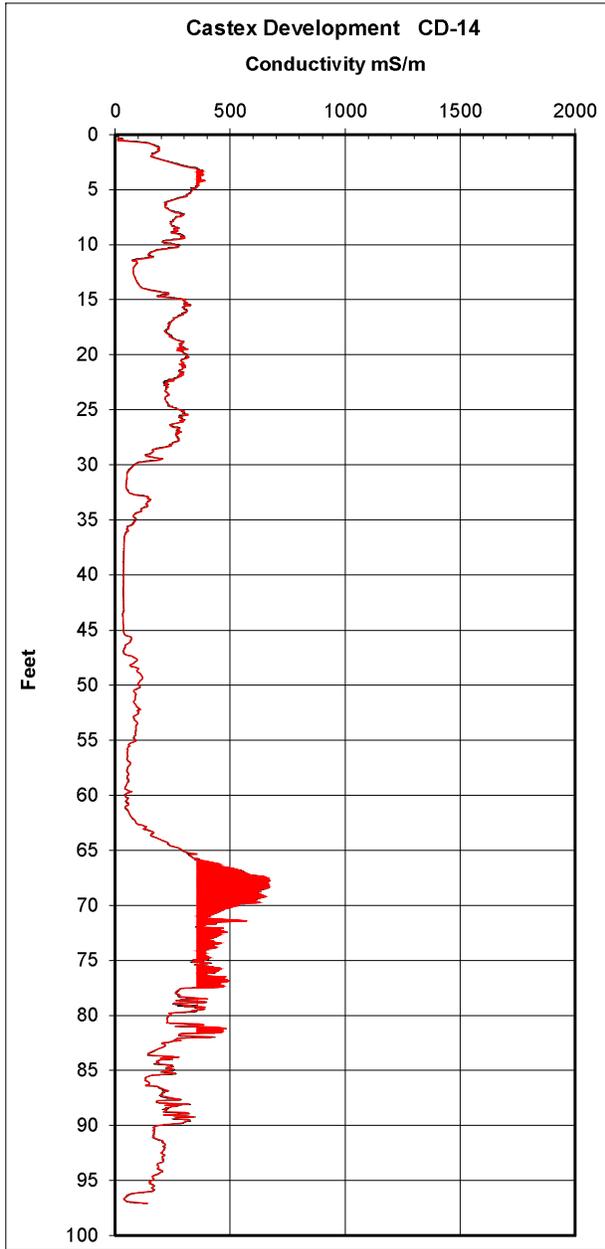
CD-13a Set 3/4" pvc well to 42' bgs. Screened 22-32' bgs. Filter sock over screen. Native material to 27' bgs. Filter sand to 21' bgs. Bentonite pellets to 18' bgs. Grout to surface.

CD-13b Set 3/4" pvc well to 42' bgs. Screened 32-42' bgs. Filter sock over screen. Native material to 30' bgs. Bentonite pellets to 22' bgs. Grout to surface.

CD-13c Set 3/4" pvc well to 68' bgs. Screened 58-68' bgs. Filter sock over screen. Native material to 57' bgs. Bentonite pellets to 54' bgs. Grout to surface.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM			
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 536340 N 3338800
Cond Log Date	07JUN22	TEMPORARY WELL DATA	Riser Stickup: 1.1', 1.5', 1.3'
Core Sample Date	08JUN22	TD (BGS):	22', 42', 68' Screened Interval (BGS): 22-32', 32-42', 58-68'

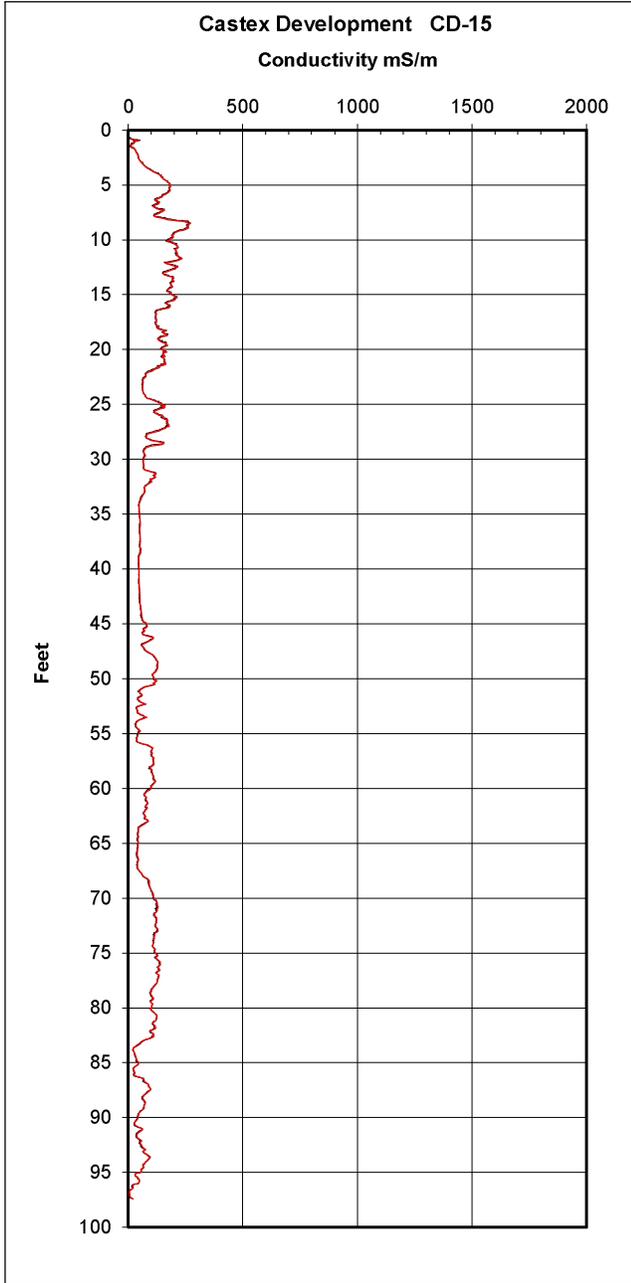


Interpreted Lithology	Well Construction CD-14b temp	Well Construction CD-	No well set	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery		
								na		Silty CLAY, red/brown, stiff to medium soft	0
				5.20	17.4	14.8		na			4
				3.97	5.49	5.50				CLAY, light brown w/ red & orange, stiff, trace silt towards bottom	8
				2.39	2.51	2.63				CLAY, red/brown w/ gray, stiff, Ca nodules, stiff; SAND (2.9-3.4') & SAND bottom 2', wet	12
				1.97	3.91	3.32				Silty SAND (0-2.3') very fine, wet, tan, black top 5"; CLAY, gray/brown, med soft	16
										Silty CLAY, light brown w/ gray, stiff	20
										Silty CLAY, light brown med soft, shell frags	24
										Silty CLAY, gray w/ brown, stiff, shell frags	28
										Silty CLAY (0-1.7') gry, med soft; Clayey SILT, gry/bm, damp, soft	32
										Clayey SILT (0-1.2') bm, damp, shell frags; Silty CLAY, gry w/ red	36
				2.69	na	na				CLAY, red/brown w/ gray, stiff, silt lens @ 0.7'	40
										CLAY (0-0.5')(1.5-1.8') gray, stiff; Clayey SILT(0.6-1.5'); SILT btm 2"	44
										SILT, gray to brown, wet, shell frags @ top	48
										SILT (0-3.1') gray/brown, wet; CLAY, gray to brown, very stiff	52
										CLAY (0-0.9') gry/bm, stiff; Silty CLAY(0.9-2.7') gry; SILT btm 1"	56
										SILT, brown, wet	60
										SILT, brown, wet	64
										SILT, brown, wet	68
										SILT, brown, wet	72
										SILT, brown, wet, trace cly @ top & bottom	76
										CLAY, gray, soft; silt lens @ 1.8' (1") damp	80
										CLAY, gray, soft, wood	84
										CLAY, gray, wood, med soft	88
										CLAY, gray, wood, med soft, trace silt bottom 5"	92
										Clayey SILT, soft, gray, moist, wood	96
										Clayey SILT, soft, gray, wet	100
										SILT, wet, gray	
										SILT, wet, gray, w/ clay lens @ 0.4' & 1'	
				7.85	na	na				SILT, wet, gray	
										Flowin bottom 4 barrels full of sand	

Conductivity Probe to 97' bgs.  
 Sample to 66' bgs.  
 CD-14a Set 3/4" pvc well to 40' bgs. Screened 30-40' bgs. Filter sock over screen. Native material to 28' bgs. Bentonite pellets to 25' bgs. Grout to surface.  
 CD-14b Set 3/4" pvc temp well to 80' bgs. Screened 60-80' bgs. Filter sock over screen.



ICON		SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 537403 N 3339645
Cond Log Date	09JUN22	TEMPORARY WELL DATA	Riser Stickup: 1.3'
Core Sample Date	10JUN22	TD (BGS): xx	Screened Interval (BGS): xx



Conductivity Probe to 97' bgs.  
Sample to 72' bgs.



		Well Construction				EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
Interpreted Lithology	Well Construction CD-15 Temp	Well Construction CD-15c	Well Construction CD-15b	Well Construction CD-15a	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery		
					aaa	aaa	aaa		na	na	CLAY, brown, stiff, rootlets @ top	0
									na	na		4
									na	na	CLAY (0-2), light brown w/ orange, stiff; Silty CLAY, light brown, w/ orange, stiff	8
									na	na	CLAY, gray w/ red & orange, stiff, Ca nodules @ 3'	12
									na	na	CLAY, gray w/ red & orange, stiff	16
									na	na	Silty CLAY, gray w/ orange @ top, stiff	20
									na	na	Silty CLAY, gray w/ orange, stiff	24
									na	na	Silty CLAY, stratified gray & orange, stiff, shell frags @ bottom	28
									na	na	Clayey SILT, gray to brown, soft, moist, shell frags	32
									na	na	Clayey SILT (5"), gray to brown ; CLAY, gray w/ red/brown, stiff	36
									na	na	CLAY, stratified gray & red/brown, stiff, SILT bottom 3" damp	40
									na	na	SILT, brown, wet; clay (0.7-1') gray, stiff	44
									na	na	SILT, brown, wet; Silty CLAY (3.2-4') gray/brown, stiff	48
									na	na	Clayey SILT, gray to brown, Sandy bottom 4"	52
									na	na	SILT, brown, wet	56
									na	na	SILT, brown, wet	60
									na	na	SILT, brown, wet	64
									na	na	SILT, brown, wet	68
									na	na	SILT, brown, wet	72
									na	na	CLAY, gray, med soft; SILT lens (1.2-1.6'), wet, brown	76
									na	na	CLAY, gray, med soft	80
									na	na	Silty CLAY, gray, soft; SILT @ (1-1.7') & (2-2.4')	84
									na	na	SILT, brown, wet, clay lenses throughout	88
									na	na	SILT, brown, wet	92
									na	na	CLAY, gray, med soft, OM, wood	96
									na	na	CLAY, gray, med soft, OM, wood	100
									na	na	Silty CLAY, gray, med soft	
									na	na	Silty CLAY, gray, med soft	
									na	na	SILT, brown to gray, wet, trace clay @ bottom	
									na	na	SILT, gray, soft, wet	
									na	na	CLAY, gray, stiff	
									na	na	CLAY, gray, stiff, w/ wood @ bottom	

- CD-15a Set 3/4" pvc well to 38' bgs. Screened 28-38' bgs. Filter sock over screen. Native material to 28' bgs. Filter sand to 27' bgs. Bentonite pellets to 24' bgs. Grout to surface.
- CD-15b Set 3/4" pvc well to 48' bgs. Screened 38-48' bgs. Filter sock over screen. Native material to 33' bgs. Bentonite pellets to 17' bgs. Grout to surface.
- CD-15c Set 3/4" pvc well to 68' bgs. Screened 63-68' bgs. Filter sock over screen. Native material to 62' bgs. Bentonite pellets to 59' bgs. Grout to surface.
- CD-15 Set 3/4" pvc temp well to 98' bgs. Screened 78-98' bgs. Filter sock over screen. Pull and plug well.

SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM			
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 537188 N 3339674
Cond Log Date	14APR22	TEMPORARY WELL DATA	Riser Stickup: 1.9', 1.7', 1.7'
Core Sample Date	15APR22	TD (BGS):	38', 48', 98' Screened Interval (BGS): 28-38', 38-48', 78-98'

# CD-16

Interpreted Lithology	Well Construction CD-16B	Well Construction CD-16 (A2)	Well Construction CD-16 (A1)	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				aaa	aaa	aaa				0
										4
										8
										12
										16
										20
										24
										28
										32
										36
										40
										44
										48
										52
										56
										60
										64
										68
										72
										76
										80
										84
										88
										92
										96
										100

Silty CLAY, brown (0-0.4'), med stiff; CLAY (0.4-1.7') stiff, red to brn  
 Silty CLAY, brown to gry, stiff, black stain throughout, ca nod @ 2.9'  
 CLAY, red to gray, v. stiff, Ca @ 2.4' & 3.3'  
 CLAY, gray w/ red & black stains, gravel @ 0.2' & 2.7'  
 Clayey SILT, damp 0-1.5', brn to gry, orange stain, silt lenses 3-3.7'  
 CLAY, gry, silt lenses throughout, orange stains, shell @ 2.9', v. stiff  
 SILT, brown, soft, damp, shells 0.3'  
 SILT, brown, soft, damp  
 SILT(0-3.0') brown, soft, damp, shell @ 0.7'; CLAY, gray, 3.0-3.1'  
 CLAY(0-2.2') gray, stiff, red stain; SILT, gray, wet, trace clay, sat.  
 SILT, gray, soft, saturated  
 Silty CLAY, saturated (0-1') gray; CLAY (1-2.1') gry; Silty CLAY, gry  
 SILT, saturated, gray, soft  
 SILT (0-0.7') saturated, gray, soft; CLAY 0.7-3.9', gray, med soft  
 SILT, saturated, gray, soft  
 Silty CLAY, gray, orange stain, soft  
 CLAY, silt lenses, red stain, med soft, gray  
 CLAY, gray, med stiff, red stain, trace silt  
 Silty CLAY(0-3') gray, soft, damp, wood @ 1.8'; SILT, gray, soft, wet  
 SILT, gray, soft, wet

No Conductivity Probe.  
 Sample to 60' bgs.  
 CD-16 A1 Set 3/4" pvc well to 26' bgs. Screened 16-26' bgs. Filter sock over screen.  
 Native material to 24' bgs. Filter sand to 15' bgs. Bentonite pellets to 12' bgs. Grout to surface.  
 CD-16 A2 Set 3/4" pvc well to 46' bgs. Screened 36-46' bgs. Filter sock over screen.  
 Native material to 33' bgs. Bentonite pellets to 30' bgs. Grout to surface.  
 CD-16B Set 3/4" pvc well to 66' bgs. Screened 56-66' bgs. Filter sock over screen.  
 Native material to 56' bgs. Filter sand to 52'. Bentonite pellets to 50' bgs. Grout to surface.



<b>ICON</b>		<b>SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM</b>	
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 537042 N 3339257
Cond Log Date	-	TEMPORARY WELL DATA	Riser Stickup: 1.5', 1.4', 1.1'
Core Sample Date	10JUN24	TD (BGS): 16', 66'	Screened Interval (BGS): 16-26', 56-66'

# CD-17

Interpreted Lithology	Well Construction CD-17B	Well Construction CD-17A2	Well Construction CD-17A1	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	PID (ppm)	Core Recovery	
				aaa	aaa	aaa		na		0
								na	Silty CLAY(0-0.9') gray, soft, orange staining; CLAY(0.9-2.2'), gray, med soft, orange stains	4
								na	CLAY, gray, very stiff, orange & black stain, silt lenses 2.0-2.1'	8
								na	CLAY(0-2.9') gray, very stiff, trace silt; SILT, gray, brown, stiff, dry	12
								na	CLAY, gry, stiff, orange stain, silt lens 2.1-2.3', pebbles 0.4', 1.0', 2.9'	16
								na	Clayey SILT(0-0.7')gry, soft, SILT (0.7-1.5') red; CLAY,gray, orange	20
								na	Silty CLAY, gray, soft, silt lenses throughout, orange stain	24
								na	CLAY, gray, med stiff, orange stain, silt lenses	28
								na	CLAY(0-1.7') gray, soft, trace silt; Clayey SILT(1.7-3.0'), gray, moist	32
								na	SILT, gray, damp, soft	36
								na	SILT, gray, damp, soft, w/ shells throughout	40
								na	CLAY, stiff, gray, trace silt	44
								na	SILT, trace clay, shells, wet, soft	48
								na	SILT, trace clay, shells, wet, soft, satruated 0-1.9', damp 1.9-4.0'	52
								na	SILT, trace clay, shells, wet, soft, satruated	56
								na	SILT, trace clay, shells, wet, soft, satruated	60
								na	SILT, trace clay, shells, wet, soft, satruated	64
								na	SILT, trace clay, shells, wet, soft, satruated	68
								na	SILT, trace clay, shells, wet, soft, satruated; CLAY(3.3-3.8')gry, soft	72
								na	SILT (0-1.6'), gray, soft; CLAY(1.6-2.7') gray, trace silt; SILT(2.7-4')	76
								na	SILT(0-0.6'), gray, saturated; CLAY, gray, wood @ 2.2', silty @ btm	80
								na	Silty CLAY, gray, soft, coarsing upwards	84
								na	CLAY, trace silt, soft, damp, wood @ 3.1'	88
								na	Clayey SILT(0-1.7') gray, damp, soft; Silty CLAY (1.7-4') gray	92
								na	Silty CLAY, gray, soft, wood @ 1.1'	96
								na	Silty CLAY, gray, soft, coarsing upwards	100
								na	CLAY, gray, soft	
								na	Silty CLAY, gray, soft, silt lens	
								na	Silty CLAY, gray, soft, damp, silt lens 2.9-3.2'	
								na	SILT, gray, 0-1.9, soft, saturated; Silty CLAY(1.9-3') gray, damp	

No Conductivity Probe.  
 Sample 0-48' bgs on 14JUN24. Sample 48-68' on 17JUN24.

CD-17A1 Set 3/4" pvc well to 26' bgs. Screened 16-26' bgs. Filter sock over screen. Native material to 26' bgs. Filter sand to 15'bgs. Bentonite pellets to 12' bgs. Grout to surface.

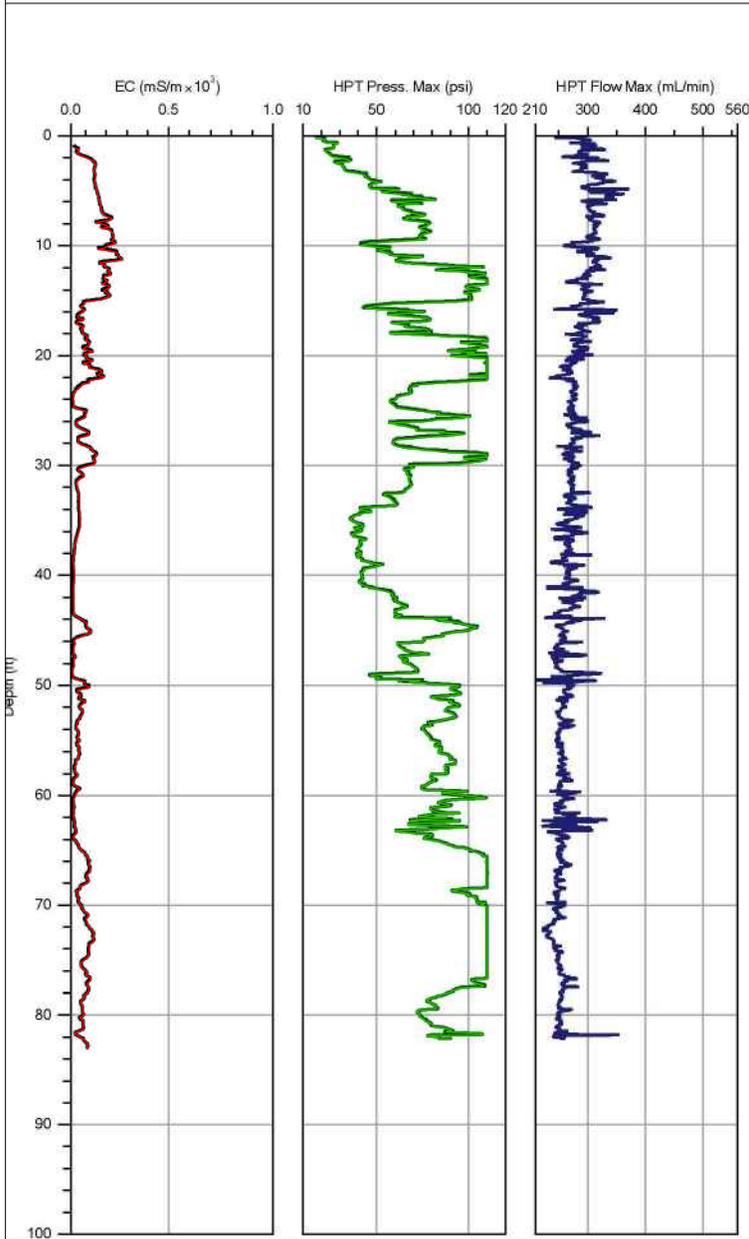
CD-17A2 Set 3/4" pvc well to 49' bgs. Screened 39-49' bgs. Filter sock over screen. Native material to 31' bgs. Filter sand to 30'. Bentonite pellets to 28' bgs. Grout to surface.

CD-17B Set 3/4" pvc well to 72' bgs. Screened 62-72' bgs. Filter sock over screen. Native material to 66' bgs. Filter sand to 55'. Bentonite pellets to 52' bgs. Grout to surface.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No. 9403-016-0100	Location (UTM NAD83): 15R E 536910 N 3338718
Cond Log Date	TEMPORARY WELL DATA
Core Sample Date see above	Riser Stickup: 1.7', 2.6', 0.9'
	Screened Interval (BGS): 16-26', 39-49', 62-72'

# CD-18



Interpreted Lithology	Well Construction CD-18D	Well Construction CD-18C	Well Construction CD-18B	Well Construction CD-18A	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	Pocket Penetrometer (kg/cm <sup>2</sup> )	Core Recovery	Depth (ft)
					aaa	aaa	aaa	1.38	0.5		0
								1.81	1.7		4
								2.72	1.9		8
								2.52	2.4		12
								2.85	2.0		16
								2.68	2.0		20
								2.20	1.7		24
								0.66	0.4		28
								2.09	1.3		32
								2.17	1.4		36
								0.75	0.1		40
								0.82	1.4		44
								1.76	1.0		48
								1.54	0.7		52
								0.77	0.1		56
								0.92	-		60
								0.98	-		64
								0.79	-		68
								0.61	-		72
								0.56	-		76
								0.93	0.1		80
								0.65	0.1		84
								0.49	-		88
								0.55	0.8		92
								1.05	0.3		96
								0.54	-		100
								0.49	-		
								0.98	0.1		
								0.57	-		
								0.62	0.4		
								0.60	-		

Conductivity Probe to 82' bgs.  
 Sample to 64' bgs.  
 CD-18A Set 3/4" pvc well to 26' bgs. Screened 16-26' bgs. Filter sock over screen.  
 Native material to 24' bgs. Filter sand to 15' bgs. Bentonite pellets to 12' bgs. Grout to surface.  
 CD-18B Set 3/4" pvc well to 42' bgs. Screened 32-42' bgs. Filter sock over screen.  
 Native material to 32' bgs. Filter sand to 31'. Bentonite pellets to 28' bgs. Grout to surface.  
 CD-18C Set 3/4" pvc well to 57' bgs. Screened 52-57' bgs. Filter sock over screen.  
 Native material to 52' bgs. Filter sand to 51'. Bentonite pellets to 48' bgs. Grout to surface.  
 CD-18D Set 3/4" pvc well to 74' bgs. Screened 64-74' bgs. Filter sock over screen.  
 Native material to 63' bgs. Filter sand to 62'. Bentonite pellets to 59' bgs. Grout to surface.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM			
Project No.	9403-016-0100	Location (UTM NAD83):	15R E 0536780 N 3338612
Cond Log Date	25JUL24	TEMPORARY WELL DATA	Riser Stickup: A: 1.98' B: 2.05' C: 1.75' D: 2.02'
Core Sample Date	23JUL24	TD (BGS): 26', 42', 57', 74'	Screened Interval (BGS): 16-26', 32-42', 52-57', 64-74'

# CD-19

Interpreted Lithology	Well Construction CD-19D (temp)	Well Construction CD-19C	Well Construction CD-19B	Well Construction CD-19A	EC (mmhos/cm)	SAR (meq)	ESP (%)	Field EC (mS)	Pocket Penetrometer (kg/cm <sup>2</sup> )	Core Recovery		
					aaa	aaa	aaa	0.77	0.7		Silty CLAY, tan, soft	0
								1.72	4.5		CLAY, gray w/ orange, red, black, very stiff to stiff	4
								2.21	2.7			8
								1.30	2.1		Silty CLAY 0-3.1', gray, stiff to soft; SILT, gray, wet	
								0.40	-			12
								0.90	-		SILT, 0-1.0', gray, wet; Silty CLAY, gray w/red, Ca nod	
								2.15	2.7			16
								1.36	1.6		Silty CLAY, gray, med. soft; Silt lens at 1.4-1.6', wet	
								2.42	1.5		Silty CLAY, gray, med. soft; silt lenses at top (2") and 1.6-1.9', wet	20
								2.70	0.7		Silty CLAY, gray/brown, soft; silt lenses throughout, damp	
								2.18	2.0		Silty CLAY, gray w/orange layers (stratified), shells, silt bottom 2", damp	24
								1.63	-		SILT, brown, wet	
								1.61	-		Clayey SILT, brown to gray, shell fragments, wet	28
								2.55	1.0		SILT, 0-0.7', gray, damp; Silty CLAY, blue/gray, damp, shells	
								1.98	1.0		CLAY 0-1.3', blue/gray, med. soft; Clayey SILT, gray, damp, shells	32
								1.14	-		Silty CLAY, 0-0.6', gray, soft; SILT, brown, wet	
								1.31	-		SILT, brown, wet	36
								1.23	-		SILT, brown, wet	
								1.24	-		SILT, brown, wet	40
								1.00	-		SILT, gray, wet	
								1.01	-		SILT, gray, wet	44
								1.00	0.2		SILT, gray, wet, 0-2.2'; CLAY, gray, soft	
								1.11	0.3		CLAY, gray, soft, wood	48
								1.00	0.7		Silty CLAY, gray soft; Silt lenses at 1.7-2.1', wet	
								1.40	1.0		Silty CLAY, gray/brown, med. soft; Clayey SILT, 2.9-3.7', wet	52
								0.53	-		Clayey SILT, gray/brown, wet	
								0.43	-		Clayey SILT, gray/brown, wet	56
								0.36	-		Clayey SILT, gray/brown, wet	
								0.53	-		Clayey SILT, gray w/ brown, moist	60
								1.01	0.4		Silty CLAY, gray, soft; SILT, bottom 3", wet, gray	
								1.03	-		Clayey SILT, gray, moist	64
								1.11	0.7		Clayey SILT, gray, moist, 0-1.0'; Silty CLAY, gray, soft	
								1.35	0.9		CLAY, 0-2.4', gray, soft; Clayey SILT, gray, wet, wood	68
								0.41	-		Clayey SILT, gray, wet; clay lens at 3.6-3.8'	
								0.35	-		Sandy SILT, gray, wet, clay lens at 2-2.2', more sand at bottom	72
								1.24	0.7		CLAY, gray, soft, wood	
								1.00	1.1		CLAY, gray, med. soft	76
								1.00	1.2		CLAY, gray, med. soft	
								1.20	1.0		CLAY, gray, soft	80
												84
												88
												92
												96
												100
												104

Sample to 80' bgs.  
 CD-19A Set 3/4" pvc well to 20' bgs. Screened 10-20' bgs. Filter sock over screen. Native material to 18' bgs. Filter sand to 9' bgs. Bentonite pellets to 6' bgs. Grout to surface.  
 CD-19B Set 3/4" pvc well to 42' bgs. Screened 32-42' bgs. Filter sock over screen. Native material to 32' bgs. Filter sand to 31' bgs. Bentonite pellets to 28' bgs. Grout to surface.  
 CD-19C Set 3/4" pvc well to 62' bgs. Screened 52-62' bgs. Filter sock over screen. Native material to 52' bgs. Filter sand to 52'. Bentonite pellets to 46' bgs. Grout to surface.  
 CD-19D Set 3/4" pvc temp well to 104' bgs. Screened 94-104' bgs. Filter sock over screen. 2.25" casing to 94'. Grout to surface after sampling event.



SOIL CONDUCTIVITY PROBE / BORING LOG DIAGRAM	
Project No. 9403-016-0100	Location (UTM NAD83): 15R E 0536526 N 3338644
Cond Log Date -	TEMPORARY WELL DATA Riser Stickup: A: 2.21' B: 2.10' C: 2.05' D: 2.31'
Core Sample Date 29JUL24	TD (BGS): 20', 42', 62', 104' Screened Interval (BGS): 10-20, 32-42, 52-62, 94-104'

## **APPENDIX B**

### **LOGBOOKS**

CASTEX Development

9403-015-0100



*Rite in the Rain.*

ALL-WEATHER

**LEVEL**

Nº 310F



GAM, AC

EM. Michael Goodwin

6.28.21

0930 - on site

- Drone northern section of property

1000 - Rain delay

- calibrating GEM

1032 Start log

↳ 232-@Jn28

- wet, boggy area

1120 END LOG

1216 - Rain Delay

1242 START LOG → 234-Jn28

1315 END LOG

~~1335~~ Rain Delay

1542 Start Log

↳ 235-Jn28

- Northern section

1600 - End log

- process data

- lock equipment

1630 Leaving site

6.29.21<sup>8</sup>

0650 - on site

0748 - Start Log

↳ 236-Jn29

- will hand auger while AC is GEMing

0830 - END log

UTM: 0536423

HA-1 NAD83: 3339220

0	/	1.25	CLAY, brown, stiff, shell frags
2	/	1.32	SAA
4	/	1.92	CLAY, reddish brown, very stiff
6	/		

Time	Sample	- decan
0820	0-2	- fill sample hole w/
0830	2-4	extra cutting
0840	4-6	

Return to site

GAM, AC  
ERM: MG

6.29.21

UTM: 0536542

HA-2 NAD83: 3339215

0	4.40	CLAY, brown, stiff, slight HC odor w/
2		very bottom
4	7.00	CLAY, gray w/ orange & black, HC odor, Ca nod
6	7.02	CLAY, gray w/ orange, very stiff, Ca nod, refusal, slight odor

Time	Sample	HC	- Decen
0940	0-2	↓	- fill sample hole
0945	2-4	↓	w/ extra cuttings
0950	4-6	↓	

UTM: 0536551

HA-3 NAD83: 3339187

0	4.40	CLAY, brown, stiff
2	6.00	Silty CLAY, brown, stiff
4	5.68	CLAY, gray w/ orange, Ca, stiff
6		

Time	Sample	- Decen
1040	0-2	- fill sample hole
1045	2-4	w/ extra cuttings
1050	4-6	

6.29.21

5

1400 - @ location 0536989, 3339013  
↳ 5" of gravel  
↳ 5" CLAY  
↳ Beardmatt  
- Will need geoprob

1130 - START LOG  
↳ 237-29Jn

1240 - END LOG

1430 - Rain delay

1450 - Start log  
↳ 238-29Jn

1505 - END UTM: 0537013

HA-4 NAD83: 3339752

0	2.36	CLAY, gray, stiff
2	4.40	CLAY, light brown, stiff
4	6.30	SAA
6		

Time	Sample	- Decen
1555	0-2	- fill sample cuttings
1600	2-4	w/ extra cuttings
1605	4-6	

GAM, AC  
ERM: MG

6.29.21

UTM: 0536987  
HA-5 NAD83: 3339726

E.C	Depth	Description
0	1.67	Silty CLAY, gray, soft, damp
2	1.95	Silty CLAY, gray w/ black, HC odor, greasy
4	2.42	SAA; stronger odor

Time	Sample	- Decen
1655	0-2	- fill sample hole w/ extra cuttings
1700	2-4 HC atq	
1705	4-6 HC atq	

1720 - Leaving Site



6.30.21

0650 - On site

UTM: 0537220

HA-6 NAD83: 3339781

E.C	Depth	Description
0	0.61	CLAY, brown, stiff
2	1.77	SAA
4	1.80	SAA

Time	Sample	- Decen
0745	0-2	- fill sample hole w/ extra cuttings
0750	2-4	
0755	4-6	

UTM: 0537185

HA-7 NAD83: 3339798

E.C	Depth	Description
0	0.84	Silty CLAY, brown, stiff
2	1.59	CLAY, brown, stiff
4	1.95	CLAY, light brown, stiff

Time	Sample	- Decen
0845	0-2	- fill sample hole w/ extra cuttings
0850	2-4	
0855	4-6	

*Rest on the Rain*

GAM, LC  
8 ELM: MG

6.30.21

UTM .0537196  
HA-8 NAD83: 333732

0	0.78	Silty CLAY, brown, <del>med</del> stiff
2	1.31	CLAY, brown w/ orange, stiff
4	1.47	CLAY, light brown, stiff

Time	Sample	-	Decn
0950	0-2	-	Fill sample hole w/
0955	2-4	-	extra cuttings
1000	4-6	-	

UTM : 0537074  
HA-9 NAD83: 3339737

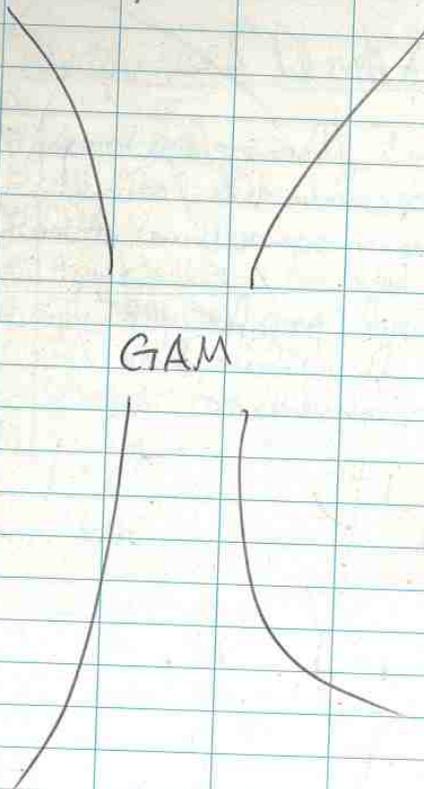
0	1.69	CLAY light brown to brown, stiff
2	7.43	CLAY, brown, stiff
4	7.57	CLAY, gray w/ orange + blk, no odor, stiff

Time	Sample	-	Fill sample hole
1045	0-2	-	w/ extra cuttings
1050	2-4	-	
1055	4-6	-	

6.30.21<sup>9</sup>

1130 - return to all sample locations  
+ grout to surface

1200 - Leaving site



*Plot in the Rain*

CS, CM, JC

2-23-22

830 CS on site,

Meeting w/ Pipeline reps/markings locations

David w/ERM on site

1015 JC & CM on site,

Talked w/ Farmer about possible irrigation lines/access to location/gate combo (front of book)

1100 Unload, prep for HPT, quick lunch  
Test, Pass, string pipe  
Test, Pass, wewer

1240 HPT - CD-1 536696  
3334801

EC (us/m)	Depth (ft)	EC	Depth	EC	Depth
35	@ 24'	48	@ 36'	41	@ 68'
88	@ 28'	81	@ 40'	107	@ 72'
37	@ 12'	48	@ 44'	37	@ 76'
111	@ 16'	30	@ 48'	121	@ 80'
80	@ 20'	27	@ 52'	32	@ 84'
116	@ 24'	32	@ 56'	12	@ 88'
50	@ 28'	55	@ 60'	13	@ 92'
78	@ 32'	30	@ 64'	13	@ 96'
					TD - 12' @ 98'

1325 Pull HPT pipe  
TD - 98'

Trenne pipe to 85', grant hole

1430

### Sampling CD-1

adjacent to probe hole

0	Rec	EC	PSD	Notes	
3	0.20	0	SILT (0-0.2)	lt brn, dry, friable	
4	0.48	0	Silty CLAY (1-2.5)	brn, firm; CLAY (2.5-3)	
3.5	0.59	0	CLAY	brn w/ heavy red staining (2.1-2.6)	
8	1.26	0	lt gray & tan/orange staining (4.6-7.5)	very firm	
24	1.28	0	Silty CLAY to CLAY	gray & orange/brn	
12	1.96	0	blk mottling	very firm	
4	0.88	0	Silty CLAY (12-12.7)	gray/lt brn, soft, damp; SILT (12.7-13.2)	
16	0.50	0.1	(15.5)	lt brn, wet; CLAY (15.5-16)	soft, lt brn
2.5	1.72	0	CLAY	red/brown, gray, firm; Clayey SILT (0.6-1.4)	lt brn, damp
3.5	2.20	0	CLAY	gray, very firm, lt brn (0-1')	
2.7	1.80	0.1	CLAY	gray, lt brn, very firm, blk (1.2-1.8')	
3	1.59	0	CLAY	gray, firm, blk (0.3-1.5')	
2.9	2.02	0	CLAY (0-2')	gray & red brn, very firm; Clayey SILT (2.2-2.9)	soft/brn
2.3	1.78	0.2	Clayey SILT (0-1.3)	red brn, soft, damp; CLAY, red brn, very firm	
2.5	1.36	0	Clayey SILT (0-1.4) & (1.7-2.2)	brn/gray, moist; CLAY (1.4-1.7)	(1.7-2.5)
3.2	1.77	0	CLAY	gray & red brn, firm, fa nodules @ 0.5'	(red brn, firm)
3.3	0.76	0	CLAY (0-2.5)	lt brn/gray, firm; SILT (2.5-3.3)	red brn, wet
3.7	0.59	0	SILT	red brn, wet; Clayey SILT (3.2-3.7)	dry, soft fill in the hole

2-23-22

## Sampling CD-1 cont

36	38	40	44	48	52	56	60
3.8	0.82	0	CLAY, silt (0-1.2), brn, net; sily/clay, brn, soft				
3	1.75	0	CLAY, brn soft (0-1), grey & very firm (1-3)				
3.4	1.41	0	CLAY, grey, <del>very firm</del> soft				
4	1.34	0	CLAY, grey, firm, brn (3-4)				
4	1.15	0	CLAY, grey & brn, soft to firm; silt (3.5-3.8), moist				
3.8	0.87	0	CLAY (0-2), grey, <sup>clayey</sup> silt (2-3), <sup>grey</sup> wet; silt (3-3.8), grey, wet				
3.8	0.65		silt, grey, wet				
1.6	0.43		SA				
3.7	0.40		SA				
3.7	0.34		SA				
3.8	0.73		silt (0-1.5), brn, grey, wet; clayey silt, grey, brn, wet				
2	0.64		CLAY, silt (5.8-59.5), grey, wet; CLAY/sily/clay, grey, soft				

1545

\* Pause @ 48', too many cores, finish tomorrow

Drilling

1615 JC & Cm to Jennings to get wire for trailer  
hydraulics not working1715 leave site, CJ hotel in Jennings  
JC hotel in Scott  
Cm to Hackberry for another job

CS, JC, Cm

2-24-22

700 On site,  
David w/ERMContinue sampling CD-1 from 48'  
\* logged on previous page

CD-1A 13-18

CD-1B Casing 30 32-37

CD-1C Casing 44 48-58

945 CS meet JD in Scott for more MSET

CD-1C set

CD-1A set

SCREEN: 48-58'

SCREEN: 13-18'

1050 PELLETS: 43'

1110 PELLETS: 8'

SAND: -

SAND: -

NATIVE: 46'

NATIVE: 12'

Casing: 40'

1115 lunch, let bent hydrate 2 hrs

1220 set CD-1B

screen 32-37

~~Native~~ Native 31

Sand -

Punt 27

Casing 26.5

Rite in the Rain

2-24-22

1330 Begin Grouting CD-1C+A  
from bent to surface

1430 Clean up, wait to grout CD-1B  
@ 1530

1530 Begin Grouting CD-1B

1600 Mob Geoprobe off levee road  
Scout next location  
Fill water, fuel up geoprobe  
Leave Geoprobe on high ground in case of rain

1630 Leave Site

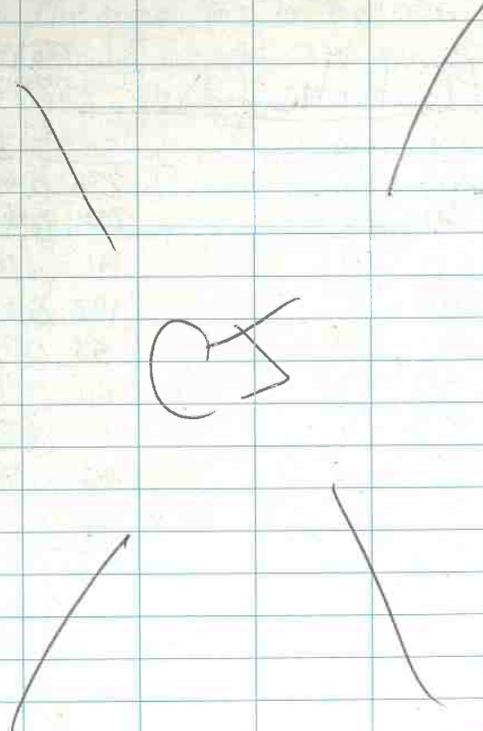
ES, JC, GM

2-25-22<sup>15</sup>

700 On site,  
David v/Ehm

- Site got alot of rain overnight  
too soft to move equipment
- Back monday to retrieve goose-neck

800 off site



*Return the Rain*

16 CS, JC, DW

3-2-22

900 On site

David w/ ERM Email:

dasanguina@dauid.sanguinetti.com

Mob + Set up to EC probe

Test, Wenner, string pipe

Test, Wenner

EC Probe CD-2 537075  
3339740

EC (m/min) Depth	EC	Depth
573 @ 4'	236	@ 56'
804 @ 8'	284	@ 60'
671 @ 12'	191	@ 64'
725 @ 16'	192	@ 68'
925 @ 20'	53	@ 72'
762 @ 24'	141	@ 76'
810 @ 28'	59	@ 80'
663 @ 32'	85	@ 84'
734 @ 36'	79	@ 88'
647 @ 40'	57	@ 92'
800 @ 44'		@ 96'
421 @ 48'		@ 100'
368 @ 52'	TD	- 95'

1130 Pull pipe

3-2-22

17

1150 - Pulled EC pipe + gas shot up after pulling last pipe,

1205 - Gas stopped, not a pipeline, off flow + hand probed to 6' before + after,

1210 Lunch

1310 - Attempt to set well in EC hole

- Ream hole w/ oversized point on 2 1/4" pipe to 76, pull out

- @ Could not get 3/4" past 24'

1515 - Pull 3/4" pipe, recenter w/ 2 1/4" to 72' w/exp point

- keep in place overnight, set temp well in a.m.

1615 Leave site

Write on the Rain

700 On site  
David w/ERM

- Set CD-2 d temp
- Push 2 1/4" to 95'
  - 3/4" PVC well w/ filter sock in pipe.
  - Poured ~3.4 gal of water in pipe
  - Pull pipe to 79'
  - gurgling & gas, well pipe shaking

CD-2 d(temp)

(Pluckering)  
Drw ~ 35' bloc  
rs - 47.75 bloc  
slck - 2.5'

Time Gal Temp pH Cond DRP TO5 Turb

- Water too turbid, clogs check valve w/ sand

1045 - Pull 2 1/4" well stuck, broke off, overdrill - Reenter w/ 2 1/4" w/exp tip + 95' Grout hole as pulling pipe 12 buckets ~ 48 gal

1300 lunch

1400 Move adjacent, start coring

Sampling CD-2 adjacent to probe hole

Sec	Ec	PTD	Description
0	2.5	3.15	0.4 CLAY, brn, firm, orange staining (0-1.5)
		6.24	0.4
4	4	5.53	0.5 CLAY, grey, orange staining, blk mottling, very firm to stiff
		10.95	0.38
8	4	11.04	0.9 CLAY, grey & red/brn, orange staining, stiff, Ca @ 11.8'
		12.25	0.64
12	4	11.05	0.5 CLAY, grey/orange/brn, stiff, Ca @ 12.1 & 14.6'
		12.50	0.04
16	4	9.06	CLAY, grey, orange staining, micro-bit lenses throughout, stiff
		10.92	0.3
20	3.5	11.06	1.7 SAA (0-2'), silty CLAY (2-2.7'), silty silt (2.7-3.5') moist
		2.7	10.04 0.5 Clayey silt (0-2.4'), (1 brn moist), silty clay (2.4-2.7'), soft to firm
24	2.5	8.18	0.8 CLAY, grey, firm, red brn (1.3-2.2); clayey silt (0.4-1.3) silty
		2.5	7.48 0 CLAY, grey, stiff, orange staining, clayey silt (1.8-2.4) damp
28	2.7	11.58	0.2 CLAY, orange brn (0-0.4), grey soft (0.4-0.8); silt, brn, grey, wet
		3.8	11.45 0 silt, grey/brn, wet; CLAY (2.8-3.5), grey, firm
32	2.5	7.94	0 silty CLAY, grey, firm; clayey silt (1.1-2.1) moist
		2.8	10.36 0 CLAY, grey, soft (0-0.4), firm grey moist damp CLAY (1-2.5) silt
36	3.8	10.43	3.3 silt, grey (0-0.6), brn (1.1-3.8), wet; CLAY (0.6-1.1), grey, wet
40	3.7	12.35	0.8 silt, brn, wet

Return to the Rain

3-3-22

Sampling CD-Z cont

	Pre	EC	PSD	
40	4	11.75	0	SILT, brn, wet, some clay (3.5-4)
44	3.5	9.18	0.3	SILT, brn, wet, clay (2-3.5), grey, firm
48	4	7.98	1.1	CLAY, grey, firm, organics (0-1), SILT (3.6-4), brn, wet
52	4	9.05	1.8	SILT, brn, wet
54	4	7.56	0.3	SA
56	2	5.34	0	SAAL (50-51), silty clay (51-52), grey, soft

1630 Stop coring leave pipe in ground  
 Process samples/PSD  
 \* location is adjacent to HA-4, only DNA samples below 6'  
 1700 leave site

CS, X, DW

3-4-22 21

700 On site,  
 David -/Ehm

Sampling CD-Z cont

	Pre	EC	PSD	
52	2.5	5.05	0	silty clay, grey, soft; <del>CLAY</del> (0.7-2.5), grey, firm
54	4	3.30	0	CLAY, grey, firm
56	4	7.75	0	CLAY, grey, firm, organics throughout
58	4	7.73	0	SILT, grey, wet, clayey (0-2)
60	2.5	2.47	0	Clayey SILT (0-2.3), grey, wet (0-1), moist (1-2.3) silty clay (2.3-2.5), grey, soft
62	2	7.45	0	SILT, grey, wet
64	3.8	3.1	0	SILT, grey, wet
66	3.8	1.27	0	SILT, grey, wet
68	1.2			

Plot in the Rain

3-4-22  
Set CD-2b well

- Pull sample pipe
- Auger to 50'
- Reem to 24' w/ oversized point on 2 1/4"
- Push 3 1/4" pipe to 56' (casing)
- Push 2 1/4" pipe to 68'
- Set 3/4" PVC well w/ filter sock

Screen 58-68'

Native 56

Sand -

Bent 53

Casing 52

1200 Let Bent hydrate, 2 hrs

1400 Grout from surface to bent

while pulling casing

8 buckets ~~~~~ ~ 32 gal

1500 Leave site

CS, SC, DW

3-7-22<sup>23</sup>

1030 On site,

David w/ Ehm

Set CD-2<sup>a</sup> well

- Auger to 30', pull out
- Reem w/ oversized point to 32'
- Push 3 1/4" to 32' (casing)
- Push 2 1/4" to 43'

Set 3/4" PVC well w/ filter sock

Screen 33-43'

Native 36

Sand 32

Bent 29

Casing 28

1240 Let bent hydrate 2 hrs

1245 Lunch

Fill water, prep to grout

Sweat & make path to next location

1445 Grout from bent to surface

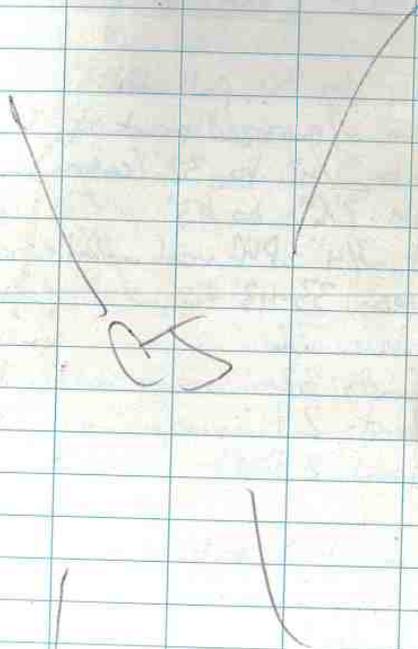
*Site in the Rain*

3-7-22

1545 Mob to next location

Unstring EC pipe, prep for a.m.

1645 leave site



CS, JC, DW

3-8-22 25

700 On site,  
David w/ EHM

Set up to HPT  
Test, Push, String pipe  
Test

825 HPT Probe CD-3 536988  
3337126

EC	Depth		EC	Depth
191	@ 4'		1120	@ 44'
564	@ 8'	Peak 1400 @ 46'	941	@ 48'
679	@ 12'		677	@ 52'
494	@ 16'		293	@ 56'
501	@ 20'		150	@ 60'
819	@ 24'		161	@ 64'
918	@ 28'		176	@ 68'
969	@ 32'			@ 72'
977	@ 36'			
1025	@ 40'			

TD-71'

835 Pull HPT pipe  
Reenter w/ 2 1/2" w/exp tip to 72'  
945 Grout while pulling pipe

*Return to Rain*

3-8-22

# Sampling CD-3

adjacent to probe hole

Depth	Rec	EC	P.S.D	Description
0	1.57	0		Silty CLAY, 1 Horn, soft; blk ( <sup>1-1.3</sup> ), HC odor
4	1.3			
8	1	4.75	25.1	Silty CLAY, 1 Horn + blk, soft, HC odor
12	1.7	8.33	0.2	Silty CLAY (8.9), grey, soft, HC odor; CLAY (9.7) grey, orange mottling, firm
16	4	7.24	0	CLAY, grey + orange, very firm to stiff
20		6.47	0	
24	3.8	6.40	0	CLAY, grey w/ orange staining, stiff, micro-silt lenses throughout
28		9.32	0	
32	2.8	9.12	0	Silty CLAY (0-1.3), grey, firm, shell (0.4); Clayey SILT (1.3-2.8), 1 Horn, moist, <del>shell</del> shell @ 6'
36	2.2	7.62	0	Clayey SILT / Silty CLAY (0-0.6), 1 Horn, damp; CLAY, grey, firm, soft (1.3-1.9)
40	2.2	11.48	0	Silty CLAY, grey + orange, firm
44	2.2	16.25	0	CLAY (0-0.5) (0.8-1.7), grey, firm; SILT (0.5-0.8) (1.7-2.2), brn, wet
48	3.5	17.15	0	SILT, brn, wet
52	2.7	13.12	0	SILT (0-1) (2.4-2.7), brn/grey, wet; CLAY (2.4-3.4), grey, firm
56				

# Sampling CD-3 cont

Depth	Rec	EC	P.S.D	Description
32	3.8	16.12	0	SILT, grey, wet; Clay lens (1.8-2.1), grey, soft
34	2.2	14.93	0	Silty CLAY, grey, soft
36	3.3	14.13	0	SILT, brn, wet
38	3.6	17.17	0	SILT, brn, wet
40	3.7	OR	0	SILT, brn, wet
42	3	14.96	0	Clayey SILT (0-1), brn, moist; CLAY (1-2.4), grey, firm; SILT (2.4-2.6), brn, wet; SILTY CLAY (2.6-3), soft
44	2.4	16.68	0	CLAY, grey, firm
46	2.4	13.14	0	Silty CLAY, grey, soft to firm; SILT (2-2.4), brn, wet
48	4	18.08	0	SILT, brownish grey, wet
50	4	13.39	0	SILT, brn (0-2), grey (2-3.2), wet; CLAY (3.2-3.8), grey, firm; Clayey SILT (3.5-4)
52	4	10.65	0	SILT (2-2), <sup>brn</sup> grey, wet; CLAY (2-4), grey, firm
54				

Rite in the Rain

3-8-22

## Sampling CD-3 cont.

Depth	Time	PIID	Description
54	3.4	7.70	0 CLAY, grey, firm, organics (0-2)
56	2.9	5.08	0 CLAY, grey, firm, organics
58	2.6	2.97	0 CLAY, grey, firm
60	4	2.57	0 CLAY SILT (0-1.7) (2.2-2.5) (3-3.5) (2.5-3) (3.5-4) grey, moist, hard; silty CLAY (0.7-1.5) (2.5-3) (3.5-4) grey, soft
62	4	2.24	0 Clayey SILT (0-1.3) (1.5-2.1) (2.5-2.7) (2.9-3.3) grey, wet silty CLAY (0.3-1.5) (2.1-2.5) (2.7-2.9) (3.3-4) grey, soft
64	4	1.82	0 silty CLAY, grey, soft; CLAY (1.6-4), grey, firm

CD-3a - Casing 32', Screen 33-43

CD-3b - Casing 58', Screen 60-65

\* Location is adjacent to HA-5, only run samples below 6'

1330 Process samples & PIID  
Begin setting well

3-8-22 29

## Set CD-3b well

- Pull Sample pipe
- Ream hole to 60' w/ oversized pointer 2 1/4" pipe
- Push 3 1/4" pipe to 60' (casing)
- Push 2 1/4" pipe to 65'
- Set 3/4" PVC well w/ Diller sock
- Screen 60-65'
- Native 60
- Sand 58
- Grout 54
- Casing 53

## 1530 Set CD-3a well

- Move adjacent
- Push pilot hole / ream w/ 2 1/4" w/ oversized tip
- Push 3 1/4" to ~~26'~~ 26'
- Push 2 1/4" to ~~42'~~ 42'
- Set 3/4" PVC well w/ Diller sock
- Screen ~~31-44'~~ 27-42'
- Native 27
- Sand 26
- Grout 23
- Casing 22

1700 Leave Site *Rite in the Rain*

700 On site,  
David w/Ehm

Grouting CD-3 into wells  
from bent to surface

945 Mob to south area,  
load up Geoprobe

1045 Set up to HPT  
Test, Pass string pipe

1130 Lunch  
1230 Test, pass.

1250 HPT Probing CD-4 536541  
333A214

EC	Depth	EC	Depth	EC	Depth
404	@ 4'	74	@ 36'	90	@ 68'
623	@ 8'	44	@ 40'	134	@ 72'
826	@ 12'	183	@ 44'	85	@ 76'
648	@ 16'	206	@ 48'	118	@ 80'
370	@ 20'	316	@ 52'	25	@ 84'
416	@ 24'	376	@ 56'	100	@ 88'
166	@ 28'	306	@ 60'	60	@ 92'
52	@ 32'	41	@ 64'	16	@ 96'
				TD - 99'	

1335 Pull HPT pipe  
Reenter w/exp hp  
Grout hole

1530 Start Coring

adjacent to  
probe hole

### Sampling CD-4

0	Rec	EC	AD	
0	2.76	86	0	Silty CLAY, brn, firm; blk + H color (2-2.2')
4	4.7	7.0	0	CLAY, grey, orange staining, brn mottles (0-2), 10.0 0 very firm to stiff, H color (0-1')
8	3.6	16.31	0	CLAY (8-8.4), grey, firm; SILT (8.4-9.2), H brn, wet;
12		11.84	0	silty CLAY (9.2-10.2), grey, soft; CLAY (10.2-11.6), SILT from lower part
16	4	11.65	0	CLAY, grey + orange, very firm to stiff,
		8.99	0	
20	3	8.25	0	CLAY, grey, orange staining, stiff micro silt lenses
	3.1	7.65	0	CLAY (0-2), grey, stiff, silty (2-3), SILT; clayey SILT, H brn, moist
	3.6	5.69	0	Clayey SILT, H brn, moist to wet
24	2.4	7.58	0	CLAY, reddish brn + grey, firm
26	3	4.12	0	CLAY (0-0.2) (1.5-3), firm; clayey SILT (0.2-1.5), brn, moist to wet

Rite in the Rain

3-9-22

## Sampling CD-4 cont

	Sec	Ec	PID	
526	3.5	2.85	0	CLAY(0-0.3)(2-2.3), grey, firm; SILT(0.3-2)(2.3-3.5), brn, wet
528	3.7	1.84	0	SILT, brn, wet
530	3.5	0.95	0	SILT, brn, wet
632	3.8	1.01	0	SILT, brn, wet; CLAY(3.6-3.8), grey, soft
634	2.7	2.68	0	Silty CLAY(0-1.3)(1.9-2.5), grey, soft; Clayey SILT(1.3-1.9), grey, moist; SILT(2.5-2.7), brn, wet
636	3.7	1.12	0	SILT, brn, wet
638	3.5	0.84	0	SILT, brn, wet
40	3.7	2.56	0	SILT, brn, wet
42				CLAY(2.5-3.7), grey, soft to firm, wood @ 3.2

1700 leave site, Pause sampling

CS, IC, DW

3-10-22<sup>83</sup>

700 On site,

David v/ EAM

Continue sampling

## Sampling CD-4 cont

	Sec	Ec	PID	
044	1.2	3.39	0	CLAY, grey, soft
44	3	3.55	0	Silty CLAY(0-0.7)(1-2)(2.5-3), grey, soft; Clayey SILT(0.7-1)(2-2.5), brn, wet
46	2	4.82	0	Silty CLAY, grey, soft to firm
48	4	4.45	0	SILT, brn, wet; Silty CLAY(3.7-4)
50	3.2	3.97	0	Silty CLAY, grey, soft to firm
52	3	4.35	0	SAA
54	2.3	5.11	0	CLAY, grey, firm
56	4	6.40	0	CLAY, grey, firm, wood @ 0.7, 3.2, 3.8
58				

Rite in the Rain

3-10-22

## Sampling CD-4 cont

Dec	EC	PTM	
5:00	3.7	5.50	0 Wood (0-0.5); CLAY, grey, firm
5:07	2.7	4.90	0 CLAY, grey, firm
5:09	3.5	1.39	0 CLAY (0-0.5), grey, soft; Clayey SILT to SILT, grey, wet
5:16	3.2	0.72	0 SILT, grey, wet
5:20	4	1.11	0 SILT, grey, wet; CLAY (2-4), grey, firm

900 Process samples, location adjacent to #A-2 Run samples below 6'

## Set CD-4b well

- Pull sample pipe
- Auger to 60', ream w/oversized post to 60
- 3/4" pipe to 60' (casing)
- 2/4" pipe to 67'

Set 3/4" PVC well w/ filter sock

Screen 62-67'

Native 62'

Sand 61'

1230 Bent 58'

Casing 56'

1230 Lunch

3-10-22 35

1330 Set CD-4a well

- Move adjacent
- Plot hole + ream to 28'
- 3/4" pipe to 28'
- 2/4" pipe to 42'

Set 3/4" PVC well w/ filter sock

Screen 27-42'

Native 28'

Sand 26'

1445 Bent 23'

Casing 22'

1515 Start grouting CD-4b from bent to surface while pulling casing

1630 Grout CD-4a from bent to surface

1700 Leave site, Drw to Lowes for grout

Rite in the Rain

CS, JC, DW

3-11-22

715 On site

David / Ehm

Setup to EC probe

Test, pass, Wenner string pipe

820

EC Probe CD-5

536421  
3339217

EC	Depth	EC	Depth
99	@ 4'	418	@ 56'
19	@ 8'	1007	@ 60'
43	@ 12'	1006	@ 64'
137	@ 16'	647	@ 68'
200	@ 20'	353	@ 72'
146	@ 24'	207	@ 76'
88	@ 28'	157	@ 80'
49	@ 32'	80	@ 84'
122	@ 36'	40	@ 88'
35	@ 40'	51	@ 92'
37	@ 44'		@ 96'
51	@ 48'	TD	94' (re-insol)
56	@ 52'		

Pull EC pipe  
Grant hole

1030 Leave site, need to re-supply / have shop work  
or take tank to shop

CS, JC, DW

3-14-22 37

900 On site,

Kurt / Ehm

### Sampling CD-5

0	Res	EC	PSD	
0	2.2	0.8	1.0	CLAY, lt brn, firm, orange staining
4	3.6	1.45	0.5	SAA (4-7.2)
8		1.03	1.0	silty CLAY (7.2-7.6), lt brn, firm
12	3.3	1.26	0.9	Silty CLAY (8-10.3), firm, grey;
		0.78	0.6	SLT (10.3-11.2), lt brn, damp
16	4	1.80	0.8	SLT (12-12.4), brn, moist;
		2.52	0.9	CLAY, grey + orange, firm to very firm
18	2.6	0.87	1.1	CLAY, lt brn / orange, firm (layer SLT (1-2.6)), lt brn, moist to wet
20	3.3	2.27	1.0	CLAY, grey, orange staining, very firm
	3.8	2.11	0.9	CLAY, grey, orange staining, very firm
22				CLAY, grey (3.3-3.8), brn, damp
24	2	2.57	0.8	Silty CLAY (22-22.7), brn, soft;
				CLAY (22.7-24), brn, very firm
26	3.1	2.31	1.0	CLAY, grey + reddish brn, very firm;
				SLT (2.6-3.1), brn, wet
28	2.6	2.38	0.9	SLT (0-0.6), brn, wet; CLAY (0.6-2.4), grey
				very firm; SLT (2.4-2.6), brn, wet

Ret in the Rain

3-14-22

## Sampling CD-5 cont

	Rec	EC	PID	
42	3.4	0.97	1.1	SILT, brn, wet, Clayey (2.6-3.4)
43	3.6	1.03	0.7	SILT, brn, wet
43	3.8	0.90	1.1	SILT, brn, wet
44	3.8	0.73	1.1	SILT, brn, wet; CLAY (3.5-3.8), grey, soft to firm
46	3.3	1.16	1.0	CLAY, grey, soft, silty (2-3.3)
48	3.5	0.70	0.9	CLAY (0-0.7), grey, soft; SILT, brn, wet
49	3.7	0.46	0.7	SILT, brn, wet
49	3.8	0.35	1.5	SILT, brn, wet; silty CLAY (3.1-3.8), brn/grey, soft to firm
49	4	0.60	0.7	Alternating SILT & silty CLAY, grey & brn, soft, wet
49	4	0.58	0.7	SILT, brn (0-3), grey (3-4), wet
49	2	1.34	0.7	silty CLAY, grey, soft; SILT lens (4.9, 4.4, 4.7) brn, wet

28-43

3-14-22 39

## Sampling CD-5 cont

	Rec	EC	PID	
50	3.2	1.69	0.8	silty CLAY to CLAY, grey, soft to firm; Clayey SILT (0.7-1.5), brn, wet
52	3.7	0.75	0.5	SILT, grey, wet
54	3.8	2.12	0.8	SILT, grey, wet, Clayey SILT (3.3-3.5), brn, wet
56	3.8	7.48	1.1	SILT, grey (0-2), brn (2-3), wet; CLAY (3-3.8), grey + clayey firm, organics
58	4	9.81	2.3	CLAY, grey, red brown staining, firm, organics
60	4	10.66	1.0	CLAY, grey, firm, organics
62	3.3	10.36	0.6	CLAY, grey, firm, organics
64	4	8.40	1.5	CLAY, grey, firm, organics (0-2); SILT (3.5-4), grey, wet
66	1.7	9.80	0.6	SILT, grey, wet, dm (0.4-1.4)
68	3.6	11.45	0.6	silty CLAY (0-1), grey, soft; SILT (1-1.6) (2.2-2.8) grey, wet; CLAY (2.8-3.8), grey, firm
70	3	5.5	0.6	CLAY, grey, firm

52-57

Ritter on Rain

3-14-22

\* 1000-1100 Troubleshoot problems w/ Geoprobe  
 1330-1330 Lunch  
 1330 Push 68-72, samples got stuck in pipe

1410 Set CD-5b well

- Pull sample pipe
- Ream hole w/ oversized point to 60', pull
- Push 3/4" pipe to 60' (casing)
- Push 2 1/4" pipe to 70'
- Set 3/4" PVC well w/ filter sock

Screen 65-70'

Native 61.5

Sand 64

1530 Bent 61

Casing 59

1535 Set CD-5a well

- Move adjacent
- Push pilot/ream hole to 28'
- Push 3/4" to 28'
- Push 2 1/4" to 43'
- Set 3/4" PVC well w/ filter sock

Screen 28-43'

Native 29

Sand 27

Bent 24

Casing 23

1700 Leave site

CS, JC, DW

3-15-22

700 On site

Kurt w/ EAM

Grouting CD-5b & 5a from bent to surface while pulling casing

\* Gas + gurgling in CD-5b well

930 Load up Geoprobe on trailer  
 Mob to next location

1015 Test EC, pass, ~~denies~~

1025 EC Probe CD-6 537063  
 3339098

EC	Depth	EC	Depth	EC	Depth
98	@ 4'	@ 36'		@ 68'	
150	@ 8'	@ 40'		@ 72'	
182	@ 12'	@ 44'		@ 76'	
96	@ 16'	@ 48'			
225	@ 20'	@ 52'			
	@ 24'	@ 56'			
	@ 28'	@ 60'			
	@ 32'	@ 64'			

Ret in the Rain

3-15-22

- \* Stop @ 20', hydraulic leak on probe  
pull out grant hole.
- 1110 DW off site, meeting DP for Geoprobe  
O-ring/hydraulic kits  
Pull probe off location to work on
- 1320 DW on site, fixing geoprobe  
need part, ordered overnight
- 1500 CJ off site to get part from  
office tomorrow  
JC & DW, do completions while  
waiting on part
- 1530 JC & DW to lowes for cement  
level site

3-16-22<sup>43</sup>

700 JC &amp; DW on site

700 completions done

1200 CS on site w/ hydraulic part

Cannot get old part off  
to shop to fix Thurs/Friday1400 Load up Geoprobe,  
CS to office for water sampling equip  
& back to hotel to start in a.m.

Rite in the Rain

3-17-22

700 On site, Water Sampling  
Kurt v/Ekm

CD-2a

DTW - 17.07' bloc  
TD - 24.92' bloc  
stick - 1.8

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
750	1	19.3	6.27	29.58	87	30.15	12
758	1 1/2	19.4	6.25	31.98	45	33.32	30
802	2	19.8	6.32	32.46	23	33.78	28
806	2 1/2	19.6	6.37	32.72	9	34.18	19
811	3	19.7	6.38	32.62	-5	34.01	17
817	3 1/2	19.7	6.41	32.94	0	34.42	14
822	4	19.8	6.42	32.68	-5	34.06	10
825	Sample Time						

CD-2b

DTW - 27.39' bloc  
TD - 69.92' bloc  
stick - 1.7  
using HydroLift pump & check valve

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
940	1	19.9	6.97	7209	-8	5955	-
943	1 1/2	20.7	6.84	7892	-43	6595	-
958	2 1/2	20.5	6.73	7443	-57	6638	-
1004	3	21.1	6.75	7812	-62	6506	641
1010	3 1/2	21.2	6.73	7722	-53	6411	90
1016	4	21.5	6.74	7636	-51	6326	27
1024	4 1/2	21.4	6.74	7531	-48	6225	22
1032	5	21.9	6.73	7415	-49	6124	31

3-17-22<sup>15</sup>

CD-2b cont

Time	Gal	Temp	pH	Cond	ORP	TDS	Turb
1040	5 1/2	22.7	6.72	7356	-56	6064	55
1047	6	22.2	6.73	7319	-44	6033	55

1050 Sample Time, Filter Dissolved  
Metals Turb - 10

1145 Lunch

\* Tubing off bottom

CD-3a

DTW - 15.13' bloc  
TD - 43.75' bloc  
stick - 1.8

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
1305	1	22.4	6.73	4730	-26	51.67	51
1308	1 1/2	22.4	6.70	49.53	-33	55.05	29
1312	2	22.3	6.67	50.41	-40	56.28	21
1315	2 1/2	22.3	6.71	50.64	-38	56.53	15
1320	3	22.4	6.73	51.22	-48	57.36	13
1323	3 1/2	22.6	6.84	50.65	-47	56.60	27
1327	4	22.1	6.77	49.32	-52	54.76	19
1330	4 1/2	22.6	6.74	50.07	-51	55.89	13
1334	5	22.9	6.70	50.75	-52	56.07	18

1340 Sample Time

Rain in the Rain

3-17-22

1405

CD-3b

DTW-28.06 btoe  
TD-66.65 btoe  
stick-1.8'

using hydrolift pump w/check valve

Time Gal Temp pH Cond (µs) OAP TDS Turb

1412 1 25.5 7.61 3824(µs) 44 2926 -

1420 Dry @ 1 gal, pump off let-recharge

1447 Pump on

1451 1 1/4 24.8 6.88 1469(µs) 53 1330 -

1454 Pump off, dry &lt; 1/4 gal

1540 Barely any water came out

head @ ~58' before pumping

1540 25.2 6.85 13.66 -50 1215 -

Let recharge overnight, check in a.m.

1615

CD-1b

DTW-10.91 btoe  
TD-38.60 btoe  
stick-1.8'

Time Gal Temp pH Cond(µs) OAP TDS(µm) Turb

1619 1/2 21.7 7.82 562.0 44 391.4 -

1635 1 21.9 7.36 663.9 88 464.0 19

Dry @

1700 Come back to CD-1 location ~~at~~  
~~date~~, ~~may not be~~ in morning

MS

3-18-22 47

730 On site,

750 @ CD-3b, DTW-28.45' btoe

Will start pumping, take reading if similar  
to yesterday will start samplingTime Gal Temp pH Cond(µs) OAP TDS(µm) Turb  
804 1 1/2 20.7 5.59 10.43 132 8478

810 Sample Time,

818 Dry, filled hydrocarbon bottles

let-recharge while going to another  
well

828 @ CD-1b, DTW-10.88'

use check valve

835

CD-1b cont

Time gal temp pH Cond(µs) OAP TDS(µm) Turb

835 1 20.3 7.18 664.6 63 465.7 -

837 1/4 20.6 7.07 683.3 78 478.6 -

842 1/2 20.7 6.93 681.5 76 478.2 OR

845 3/4 21.2 6.97 686.9 74 481.4 OR

853 2 21.4 6.97 691.2 78 483.4 OR

3-18-22

CD-1b cont

Time Col Temp pH Cond ORP TDS Turb

900 Sample Time, Turb before: 34  
Sampling Metals: 34

923

CD-1aDTW - 9.18 to 100  
FD - 18.05 to 100  
stick - 0.3'

Time	Col	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
923	Initial	21.2	6.76	687.7	111	481.2	-
929	1/2	20.8	6.52	623.6	107	435.9	33
935	3/4	20.8	6.59	598.8	125	417.9	27
941	1	20.9	6.45	593.2	133	414.0	14
947	1 1/4	21.1	6.34	590.8	136	411.9	8
953	1 1/2	21.2	6.32	589.4	139	410.5	6

955 Sample Time

3-18-22 49

1120 @ CD-3b, continue pumping/sampling  
Turb after filtering  
for metals: 6  
\* Dissolved Metals1130 - Only 2 L out in 3 hours  
- filled all non-radium bottles  
& half of one radium bottle  
let recharge, take lunch1230 @ CD-3b, pumped 1 L before  
dry, filled 1 rad bottle.  
- let recharge 30 mins to top  
off Iron rad bottles.  
- no split on rad for Ehm

1330 Finish rad bottles.

1340 leave site

Rite in the Rain

C-5

3-21-22

1000 On Site,  
Hurt ✓/ERM

1015

CD-1C

DTW - 35.38' bblc  
TD - 58.45' bblc  
stick - 0.7'

- hydro lift pump

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS	Turb
1021	1/2	20.7	7.49	665.2	166	465.8	-
1024	1	20.9	7.02	670.5	103	469.3	OK
1032	2	20.9	7.03	680.1	98	476.0	1303
1035	2 1/2	21.0	7.09	681.3	80	477.2	980
1039	3	20.9	7.20	679.6	82	475.7	1093
1042	3 1/2	20.9	7.14	678.9	66	475.3	970
1046	4	20.8	7.22	680.5	63	475.8	992
1050	4 1/2	20.8	7.25	682.5	64	478.5	816
1054	5	20.9	7.34	682.1	68	478.0	1024

1100 Sample Time, Filter Dissolved Metals  
Turb after filter: 16  
\*Collect Dup (2 filters)

1145 Lunch

3-21-22 51

1250

CD-4a

DTW - 17.47' bblc  
TD - 43.40' bblc  
stick - 1.5'

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
1309	1	23.3	7.04	1921	107	1415	42
1314	1 1/2	23.0	7.03	1929	82	1420	35
1317	2	23.0	7.02	1981	68	1461	21
1321	2 1/2	23.4	7.01	1966	52	1450	18
1325	3	23.2	7.08	2008	57	1482	10
1329	3 1/2	23.4	7.05	2058	49	1522	7
1333	4	23.3	7.21	2055	60	1519	6
1338	4 1/2	23.6	7.26	2066	64	1527	5
1342	5	23.4	7.18	2040	59	1506	3

1345 Sample Time

1418

CD-4b

DTW - 37.63' bblc  
TD - 68.85' bblc  
stick - 1.55'

- hydro lift pump

Time	Gal	Temp	pH	Cond (µS)	ORP	TDS (ppm)	Turb
1421	1/2	23.4	6.98	4032	-22	3131	-
1425	1	23.1	7.03	4202	-73	3277	-
1429	1 1/2	23.0	6.98	4011	-77	3115	-
1433	2	23.1	6.93	3983	-71	3090	1678
1436	2 1/2	23.0	6.92	3964	-73	3075	1602
1440	3	22.9	6.90	3964	-66	3075	1307
1443	3 1/2	22.9	6.91	3917	-61	3035	1179
1447	4	22.9	6.88	3878	-65	3003	1044

3-21-22

CD-4b cont

Time	Gal	Temp	pH	Cond	ORP	TDS	Turb
1451	4 1/2	22.8	6.87	3855	-71	2084	455
1455	5	22.9	6.87	3747	-73	2034	882

1500 Sample, Filter Dissolved Metals  
Turb after filter: 5  
(2 filters)

1550

CD-5a

DW - 19.68 hloc  
TD - 44.65 hloc  
stick - 1.5'

Time	Gal	Temp	pH	Cond(mS)	ORP	TDS(ppm)	Turb
1554	1/2	22.5	6.93	1457	25	1052	32
1559	1	22.3	7.11	1473	44	1067	11
1603	1 1/2	22.1	7.30	1479	52	1071	5
1606	2	22.2	7.12	1476	45	1068	3
1610	2 1/2	22.2	6.98	1471	41	1064	3
1614	3	22.2	7.12	1474	42	1066	3
1618	3 1/2	22.1	7.11	1474	46	1067	3
1622	4	22.1	7.15	1475	45	1070	3

1625 Sample Time

3-21-22

CD-5b

DW - 58.28 hloc  
TD - 70.82 hloc  
stick - 1.3'

- hydro lift pump

Time	Gal	Temp	pH	Cond(mS)	ORP	TDS(ppm)	Turb
1700	1/2	22.4	6.72	26.38	-95	2652	-
1705	DM						
1723	3/4	22.0	6.70	28.73	-82	29.05	-
1726	1	22.0	6.81	28.36	-82	28.60	-
1730	DM						

- let recharge overnight

1740 OFF site, Hotel in scott

Notes on the Rain

CS

3-22-22

730 On site,

- Pick up ATW  
bring to stop
- Shut down for day  
due to severe weather

CS

CS

3-23-22

900 On site,

Kurt w/ EAM

CD-5b cont

DTW - 58.23 h<sub>2</sub>O

Time	Chal	Temp	pH	Cond (µs)	ORP	TDS (ppm)	Turb
930	Initial	18.4	6.17	28.06	56	28.79	OR
934	1/4	20.8	6.33	28.96	-11	29.38	OR
937	1/2	20.8	6.50	29.33	-26	29.83	OR
941	3/4	19.9	6.56	29.60	-36	30.15	OK
946	1	20.0	6.56	29.96	-43	30.59	1027
957	1 1/4	20.0	6.52	30.15	-45	30.78	719
1004	1 1/2	20.2	6.55	30.32	-50	31.04	753
1010	1 3/4	20.2	6.55	30.67	-51	31.47	50
1016	2	20.1	6.55	30.83	-55	31.66	42

1020 Sample Time, Filter Metals

Turb: 12 (1 liter)

1023 Dry, let recharge 30 mins

1053 pump on

1059 Dry, let recharge

Repeat every 30 mins

~ 1.5 Liters every 30 mins

1430 Leave site, to Lab &amp; home

Return the Rain

KB, JC, DW  
 56 73° Overcast 4.12.22

0920 On site  
 - meeting w/ pipeline reps

Jared (Targa) CLEARED  
 Cody Little (Harvest) CLEARED

0930 Oversight on site  
 ERM: Kurt Boehringer  
 HET: Ryan Leonard's  
 DNR: Eric Maguanti

1030 Setting up on first location &  
 testing EC probe & computer  
 - Wenner

1125 Stringing probe & pipe & retesting  
 - Wenner

UTM 537068  
 NAD83 3329093 CD-6 EC \* CD-6 NEW.zip

Depth (ft)	Ec (ms/m)	Depth	EC
2	53	16	<del>195</del> (KB) 79
4	101	18	119
4	128	20	169
8	161	24	72
10	186	28	216
12	162	32	68
14	195	34	38

4.12.22

CD-6 EC cont.

Depth	EC
40	36
44	30
48	54
52	102
56	50
60	39
64	40
68	68
72	120
76	43
80	40
84	94
88	74
92	87
96	105
100	35

\* Max EC of 233 @ 28' ms/m

1310 Pulling EC pipe & grouting  
 thru tremie

\* Gas bubbling heard as tremie  
 was inserted ~60-70' Rate in the rain.

4.12.22

- used ~ 16" gal ground

1400 Moving adjacent to soil sample  
to EC hole

- entering w/ 2.25"  $\pm$  cutting shoe

CD-6

UTM: 537068  
NAD83 3339093

Lith	Rec	EC	PID	Description
0				
2	2.6	0.63		Silty CLAY, brn, dry, fissile; CLAY @
4		1.31		0.7', brn w/ red/orange stain, md stiff
4	1.65			CLAY, lt brn to gray w/ orange stain,
8	2.12			md stiff, blk concretions in top half Ca
8	1.65			CLAY, red/brn & gray w/ nodules @ 3.2-4' btm
12	2.93			minor blk stain, Ca throughout, stiff
14	1.85			CLAY, gray w/ orange/brn stain
16	2.36			throughout, Ca, stiff
16	3.1	1.13		CLAY, gray w/ orange stain, stiff,
18		1.01		Sandy SILT lenses @ 0.2-1', 1.3' btm, wet
18	3	2.33		CLAY, gray w/ orange stain, stiff,
20		1.58		CLAY, gray w/ orange & blk stain Ca, stiff; Clayey Sandy SILT @ 2.9', damp
20	3.7	2.31		
22		0.99		
22	2.9	0.86		Fine Sandy SILT w/ some Clay, gray
24		0.84		w/ green stain, damp, soft

4.12.22<sup>59</sup>

CD-6 cont.

Lith	Rec	EC	PID	Description
24				
24	3.8	1.18		Cl. SILT w/ some fine Sand, grey,
24		0.94		damp to wet, shell frags soft
24	3.2	0.91		Cl. SILT, grey, wet, shell frags; CLAY
28		2.25		@ 2.1' grey/brn w/ blue/green stain, stiff
30	3.2	1.05		CLAY, grey/green, stiff; Cl. SILT @
30		0.88		0.4', wet, soft
32	3.7	0.83		SILT, grey, saturated; Cl. SILT/Si. CLAY
32		1.07		@ 2.8', grey w/ green, md soft

time samples

1410 0-4'

1420 6-8'

1430 10-12'

1520 28-30' L

\* PID won't work due to rain

1600 Leaving site

\* Raining

KB

Rain in the Rain

KB, DW, JC  
60 72°, Cloudy

4.13.22

0730 On site  
- oversight on site  
ERNI: KB  
HET: RL

CD-6 cont.

Lith	Rec	Ec	PID	
32	2.6	0.62	0	SILT, brn, micaceous, saturated
34	3.9	0.59	0	SAA
36	3.4	0.45	0	SAA
38	3.9	0.49	0	SAA
40	3.8	0.51	0	SAA
42	3.8	0.52	0	SAA
44	3.7	0.45	0	SILT, brn, micaceous, saturated; CLAY @
46	4	0.52	0	2.3' grey, stiff, Ca nodules
48	4	0.59	0	Cl. SILT to SILT, grey, soft, wet

4.13.22<sup>81</sup>

CD-6 cont.

Lith	Rec	Ec	PID	
48	4	0.96	0	Al. Cl. SILT & Silty CLAY, grey/brn
50	3.8	0.79	0	soft
52	3.4	0.83	0	Silty CLAY, grey, minor blk stain,
54	2.9	0.76	0	md soft
56	3.6	0.47	-	CLAY, grey, <sup>stiff</sup> Cl. SILT @ 2.2' grey
58	3.9	0.55	-	damp
60	3.8	0.54	-	Al. Silty CLAY & damp Cl. SILT, grey
62	4	0.53	-	md soft
64	4	0.72	-	SILT w/ some Clay, grey, wet, soft
66	4	0.67	-	Cl. SILT, grey, wet, soft
68	3.5	1.15	-	SAA
70	3.9	1.46	-	SILT, grey, wet; Cl. SILT @ 3.6'
72				grey, damp

Rite in the Rain

KB, DW, JC

4.13.22

Lith	Rec	EC	PID	CD-6 cont.
72	4.1.50	-	-	SAA
74	3.9.1.36	-	-	SAA
76	3.10.46	-	-	Fine Silty SAND, grey, dry; CLAY @ 2.1'; grey, stiff
78				

time	sample
0955	52-54' L
1155	76-78'

1210 LUNCH

1240 Pulling sample barrels

\* gas coming out of sample barrels when we pulled up on <sup>(KB)</sup> started pulling

\* stop work & call office

1330 Clearing next location

1410 Pulling sample barrels

\* CD-6 still out-gassing

1435 Re-entering hole w/ 2.25" augers to 65'

1510 Pulling augers

*[Signature]*

4.13.22

1543 Re-entering w/ 2.25" & oversized foot to ream hole

1550 Pulling 2.25"

1605 Re-entering w/ 3.25" & E-tip to

1620 Inserting 2.25" turn 3.25" w/ E-tip to 80'

1635 Inserting PVC w/ filter sock & end cap  
CD-6C Set

screen: 75-80' pellets: 71'

native: 75' E-tip: 1 (2")

sand: 74' 1 (3")

casing: 70'

1640 Pulling 2.25"

\* PID reading 23 ppm right @ opening of uncapped well

\* PID malfunctioning halfway thru soil

1730 Leaving site <sup>sample-testing</sup>

\* Leaving well uncapped overnight

KB

*Return to the Rain*

64 KB, JC, DW  
59°, Sunny

4.14.22

0730 On site

- oversight on site

ERM: KB

HET: RL

0750 Grouting CD-bc thru tremie &  
pulling 3.25"

\* Well is gurgling & shooting water  
to about 5' above TOC

→ video taken

- used ~52 gal of grout

0915 Moving adj. to CD-bc to set  
CD-bb

0925 Entering w/ augers to 55'

1010 Pulling augers

1020 Re-entering w/ 3.25" & E-tip

- Inserting 2.25" thru 3.25" &

E-tip

1035 Inserting PVC w/ filter sock &  
end cap

65 4.13.22

CD-bb

Screen: 56-66' casing: 51'

native: 56' E-tip: 1 (2")

sand: 55' 1 (3")

pellets: 52' Water: ~5 gal

1050 Pulling 2.25"

1115 LUNCH

- allowing pellets to hydrate

1300 Pulling 3.25" & grouting thru  
tremie

- used ~32 gal grout

1400 Leaving site

KB

Ret in the Rain

66 KB, JC, DW  
63° Cloudy

4.18.22

0900 On site

- oversight on site

ERM: Kurt Boelinger

HET: Don Watts

0930 Moving adj. w/ geoprobe to  
set shallow well

0950 Entering w/ 2.25"  $\phi$  oversized point  
to 30'

1010 Re-entering w/ 3.25"  $\phi$  E-tip to

1030 Inserting 2.25"  $\phi$  E-tip thru 3.25"  
to 40'

- inserting PVC w/ filter sock  $\phi$  end  
cap

### CD-6a Set

Screen: 30-40' casing: 23'  
native: 28' E-tip: 1(2") 1(3")  
sand: — Water: 0 gal  
pellets: 25'

4.18.22

\* LEL meter readings on open

• CD-6a:

Oxygen: 2%

LEL: Over 99%

H<sub>2</sub>S: 2.4 ppm

VOC: 75 ppm

1100 LUNCH

- allowing pellets to hydrate

1250 Pulling 3.25"  $\phi$  grouting thru  
- tremie

- used 12 gal grout

\* topped off ~~30~~  $\phi$  ~~30~~ wells w/  
3 gal  $\phi$  1 gal respectively

1400 Moving to next location

1425 Testing EC probe  $\phi$  computer  
↳ Wenner

eu

Rite in the Rain

KB, JC, DW

4.18.22

CD-7 EC \*CD-7.zip

Depth (ft)	EC (ms/m)	Depth	EC
2	137	72	
4	180	76	
6	160	80	
8	197	84	
10	162	88	
12	232	92	
14	240	96	
16	282	100	
20			
24			
28			
32			
36			
40			
44			
48			
52			
56			
60			
64			
68			

\* Max EC of @

KB

4.18.22

1450 EC flatlined - denoting issue w/ cable  
↳ pulling pipe or probe  
\* probe & cable broke

1530 Re-stringing EC pipe & re-testing  
↳ Wenner

CD-7 EC \*CD-7.zip

Depth (ft)	EC (ms/m)	Depth	EC
2	108	56	62
4	182	60	43
6	136	64	32
8	211	68	78
10	128	72	127
12	210	76	94
16	240	80	45
20	125	84	83
24	63	88	113
28	61	92	40
32	100	96	4
36	33		
40	39		
44	33		
48	78		
52	85		

\* Max EC of 298ms/m

@ 8.7'

KB

Plot on the Rain

70 KB, JC, DW

4.18.22

1630 Pulled EC pipe

- re-entering w/ augers to <sup>(KB)</sup> 60'

1730 Re-entering w/ 2.25"  $\phi$  E-tip to 93'

- will grout in AM

KB

KB, JC, DW  
54° Clear

4.19.22

0730 On site

- oversight on site

ERM: KB

HET: DW

0750 Grouting thru tremie thru 2.25"

- used 28 gal grout

0825 Moving adj. to <sup>(KB)</sup> EC hole to sample soil

- entering w/ 2.25"  $\phi$  cutting shoe

CD-7

WTM: 0537308  
NAQSB: 3339585

Lithology Log

6	1.04	0	Silty CLAY top 3" btm; CLAY @
2.5	2.36	0	0.3' btm w/ minor orange & blk stain, stiff
4	2.41	0	CLAY, grey & btm w/ orange & blk stain, stiff; SILT @ 2.1' dry & compact, CLAY @
3.9	1.63	0	CLAY, grey w/ orange & blk stain, stiff; SILT @ 1.7' red/btm wet
3.5	2.05	0	CLAY, grey w/ orange & blk stain, stiff; SILT @ 1.7' red/btm wet
4	1.71	0	SILT, red/btm, wet; CLAY @ 2.6' grey w/ heavy orange stain, stiff
12	3.22	0	CLAY, grey w/ orange stain, stiff; SILT lenses throughout (dry), Ca @ 1.1'
14	3.41	0	
2.53	3.22	0	
18			

Rate in the Rain

CD-7 cont.

Lth	Rec	EC	PID	Description
18	2.51	1.11	0	CLAY, grey w/ minor orange & blk stain, stiff, damp silt lenses throughout
20	2.52	2.30	0	Alt. <sup>stiff</sup> CLAY & <sup>damp</sup> CI. SILT, brn & grey w/ orange stain, damp silt, shell frags
22	2.81	1.09	0	CLAY, grey, stiff, shell frags; CI. SILT @ 1.6' brn, damp, soft
24	2.61	2.26	0	CI. SILT, brn, damp, shell frags; CLAY @ 1.5'-2' & 2.4'-2.6', stiff
26	3.11	1.71	0	CLAY, grey w/ heavy orange stain, Ca, stiff; CI. SILT lens @ 2.9', moist
28	2.81	1.67	0	CLAY, grey, stiff, Ca; SILT @ 0.4' brn, saturated; CI. SILT @ 1.2', soft; CLAY @ 1.6' SILT @ 2.1' wet
30	3.0	0.73	0	SILT, brn, wet; CLAY @ 0.7', grey/gm, stiff; SILT @ 1.5', brn, wet
32	3.1	0.76	0	CLAY, grey & brn, stiff; SILT @ 2.1', some clay
34	2	0.78	0	SILT, brn, saturated, clay lens @ 0.5'-1.0' (stiff, grey/green)
36	2.20	0.48	0	SILT, brn, saturated
38	3.30	0.44	0	SAA
40	3.5	0.51	0	SAA
42				

CD-7 cont

Lth	Rec	EC	PID	Description
42	3.4	0.44	0	SAA
44	3.4	0.40	0	SAA SILT, brn, micaceous, saturated
46	3.4	0.45	0	SILT, brn, some clay, saturated
48	4	1.40	0	SILT, brn, saturated; CLAY @ 1' <sup>md stiff</sup> grey, massive, wet SILT lens @ 2.3'-2.4'
50	4	1.17	0	CLAY, grey, soft, peat @ 3.9'
52	4	0.94	0	CLAY, grey, soft
54	3.7	1.08	0	CLAY, grey, wood @ 2.7', md stiff
56	4.0	0.94	0	CLAY, grey, blk stain, wet silt lenses throughout brn half
58	4	0.44	0	Silty CLAY, grey, wood throughout, soft

time	sample	time	sample
1130	36-38' L	0945	2-4'
1045	26-28' L	0950	4-6'
1250	LUNCH	1000	8-10' L
		1225	58-60'

1300 Grouting sample hole thru tremie thru sample barrels - used 20 gal grout

Rite in the Rain

4.19.22

1350 Moving adj. to sample hole to set deep well

- entering w/ <sup>(KB)</sup> 2.25" augers to 30'

1430 Re-entering w/ 3.25" <sup>(KB)</sup> E-tip to 40'

1450 Inserting 2.25" thru 3.25" w/ E-tip to 50'

- inserting PVC w/ filter sock & end cap

CD-7c Set

Screen: 40-50' casing: 34.5'

native: 40' E-tip: 1(2")

sand: 39' 1(3")

pellets: 36' Water: ~2 gal

1530 Moving adj. to CD-7c to set intermediate well

- entering w/ 2.25" & oversized point to 32'

1555 Re-entering w/ 3.25" & E-tip to 26'

1615 Inserting 2.25" thru 3.25" w/ E-tip to 32'

- inserting PVC w/ filter sock & end cap

4.19.22<sup>35</sup>CD-7b Set

Screen: 27-32' casing: 22'

native: 27' E-tip: 1(2")

Sand: 26' 1(3")

pellets: 23' Water: —

1628 Moving adj. to set shallow well

- entering w/ 2.25" & E-tip to 15'

↳ inserting PVC w/ filter sock & end cap

CD-7a Set

Screen: 10-15' E-tip: 1(2")

native: 15'

sand: 9'

pellets: 6'

1650 Decon & pick up site

1710 Leaving site

KB

Rite in the Rain

78 KB, JC, DW  
63° Cloudy

4.20.22

0730 On site  
- oversight on site  
ERM: KB  
HET: DW

0740 Pulling casing from both wells &  
grouting thru tremie  
CD-7a : ~3 gal grout  
CD-7b : ~14 gal grout  
CD-7c : ~16 gal grout

0930 Arrived @ CD-8 to set up  
1100 Testing HPT probe & computer  
↳ Wenner

CD-8 HPT \*CD-8.zip

Depth (ft)	EC (ms/m)	Depth	EC
2	112	16	90
4	150	20	80
6	145	24	26
8	119	28	36
10	121	32	126
12	118	36	143
14	47	40	47

4.20.22

Depth EC

44 49

48 76

52 53

56 61

60 67

64 41

68 69

72 38

76 45

80 41

84 23

88 21

91 ~~97~~ 23

(KB)

TD

\* Max EC of 170 ms/m  
@ 140'

1200 LUNCH

- restringing & testing after  
↳ Wenner

1250 Entering w/ HPT

\* Log on previous page

1400 Reaming HPT hole w/ augers to  
60'

*Ret in the hole*

KB, JC, DW

4.20.22

1530 Entering w/ 2.25"  $\phi$  E-tip to 91'

1555 Inserting tremie thru 2.25"  $\phi$  grouting  
used ~30 gal grout

1700 Leaving site

\*ERM (KB) left sight @ 1530 due to personal emergency

KB

KB, JC, DW

70' Overcast

4.21.22<sup>79</sup>

0730 On site

- oversight on site

HET: DW

ERM: Jake Roberson

0745 Moving adj. to HPT hole to soil sample

- entering w/ 2.25"  $\phi$  cutting shoe

CD-8

urn 0530270  
NAO93 3338917

ITH Rez EC PID

0	2.7	0.93	0	Silty CLAY, brn, organics, Ca nodules
4	4	1.93	0	0.6'-1.3' (~1" thick) CLAY @ 1.8, gray w/ orange stain, med stiff
8	4	2.18	0	CLAY, gray w/ orange & blk stain, Ca throughout, stiff
12	4	1.55	0	CLAY, gray w/ heavy orange & blk stain, Ca throughout, stiff
16	4	1.82	0	Silty CLAY, gray w/ some green, minor blk & orange stain. Ca, med stiff
18	3	1.40	0	SILT @ 2.2', red/brn, damp
19	3	0.92	0	Silty CLAY, brn, Ca; SILT @ 0.7', saturated, brn; CLAY @ 2.5', grey, stiff
20	2.8	2.17	0	CLAY, grey, stiff, Ca, minor orange stain, damp Cl. SILT lens @ 1.3-1.5

Rite in the Rain

4.21.22

CD-8 cont.

Lith	Rec	EC	PD	Description
20	3.2	0.94		SILT, brn, saturated, Clay lens @ 0-0.3' & 2-2.1' w/ Ca, stiff
22	3.6	0.44		SILT, brn, saturated
24	3.7	0.37		SAA
26	3.9	0.5		SAA
28	3.5	0.56		SAA
30	3.8	0.66		SAA
32	3.8	1.66		SILT, brn, saturated, Silty CLAY @ 1.6' brn, soft, CLAY @ 2', grey/brn, md soft
34	3.8	1.8		CLAY, brn & grey, organics, soft
36	2.9	1.25		Silty CLAY, gray & brn, stiff. Cl. SILT @ 1.7' moist, soft; SILT btm 1"
38	2.5	0.74		AH. Cl. SILT & Silty CLAY, brn & grey, damp
40	2.2	1.04		SILT, brn, wet; Silty CLAY @ 0.8' brn, md soft; SILT @ 1.7' damp to dry

4.21.22

CD-9 cont

Lith	Rec	EC	PD	Description
42	2.3	1.14		SILT, brn, dry; CLAY @ 0.6', grey, <del>brn</del> wet silt lenses; SILT @ 1.9' dry, brn
44	2.7	0.89		SILT, brn, damp; CLAY @ 0.5' grey w/damp silt lenses; SILT @ 1.7' moist
46	2.4	0.34		SILT, brn, wet
48	3	1.48		SILT, grey/brn, saturated; CLAY @ 0.8' grey, md stiff; SILT @ 2.3' brn, saturated
50	2.4	0.38		SILT, brn, saturated
52	2.7	0.55		SAA
54	4	0.67		SILT, brn, saturated; Cl. SILT @ 2.1' grey, soft; SILT @ 3.3' brn, saturated
56	4	0.67		SILT, brn, saturated
58	4	0.83		SILT w/some clay, saturated
60	4	0.14		SILT, brn, saturated
62	4	1.25		SILT, brn, wet. CLAY @ 1' silt lenses throughout, md stiff, wet silt lens @ 0.8'
64				(KB)

Rite in the Rain

4.21.22

time	samples
0810	2-4'
0815	4-6'
0825	8-10'

KB

time	samples
0850	18-20' L
1045	48-50' L
1330	62-64'

1130 LUNCH

1230 Resume soil sampling @ 54'

1400 Pulling sample barrels &amp; re-entering w/ augers to 50'

1500 Re-entering w/ 3.25" &amp; E-tip to 52'

1520 Entering w/ 2.25" thru 3.25" w/ E-tip to 62'

↳ Inserting PVC w/ filter sock &amp; end cap

CD-8b Set

Screen: 52-62'	Casing: 45'
native: 55'	E-tip: 1(2")
Sand: 50'	1(3")
pellets: 47'	Water: 4 gal

4.21.22

1615 Moving adj. to CD-8b to set shallow well  
- entering w/ 2.25" & oversized tip to 20'

1625 Re-entering w/ 3.25" &amp; E-tip to 20'

1630 <sup>(KB)</sup> Inserting 2.25" & E-tip ~~thru~~ thru 3.25" to 30'

CD-8a Set

Screen: 20-30'	Casing: 15'
native: 20'	E-tip: 1(2")
sand: 19'	1(3")
pellets: 16'	

1700 Leaving site

KB

*Rite in the Rain*

84 KB, JC, DW  
66° Clear

4.22.22

0730 On site  
- oversight on site  
ERM: JR  
HET: DW

0745 Decon

0800 Entering both wells thru tremie  
& pulling 3.25"  
- CD-8a used 14 gal grout  
- CD-8b used 24 gal grout

1045 Leaving site

KB

KB, JC, ~~DR~~ MJ  
77° Overcast/Drizzling

4.25.22<sup>85</sup>

0930 On site  
- oversight on site  
ERM: Charles Trahan  
HET: Ryan Leonards

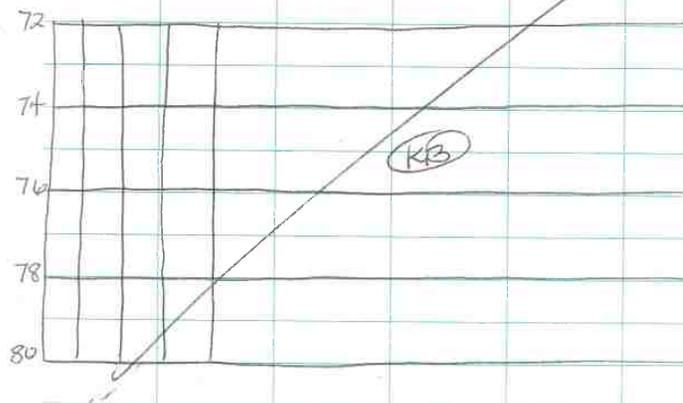
1020 Entering adj. to CD-5 w/ augers  
to ~~68~~ 70'  
KB

1200 LUNCH

1305 Pulling augers & re-entering w/  
2.25" & discreet tip to 72' to  
soil sample

1415 Lightning/Rain delay  
CD-5 cont.

1500 Leaving due to weather



*Note in the rain.*

86

KB, JC, MJ  
6:00 Overcast

4.26.22

0730 On site as ~~oversight~~ (KB)

-oversight on site

ERNA: CT

HET: RL

0750 Begin sampling from 72' logs

CD-5 cont.

Lith	Rec	EC	PID	Description
72	3.6	4.17		CLAY, grey, stiff, wood @ 2.4'
74	3.9	2.54		CLAY, grey, wood @ 0.2' & 2.6', md stiff, Silty CLAY @ 2.5', md stiff
76	3.9	1.82		Silty CLAY to Cl. SILT, grey, md soft, damp @ btm 1'
78	4	1.75		Alt. Silty CLAY & Cl. SILT, grey, md stiff, damp
80	3	1.03		Clayey SILT to Silty CLAY, grey, md soft to md stiff @ btm
82	3.9	1.23		CLAY, gray, md soft
84	3.1	1.08		Silty CLAY w/ damp SIL lenses, md soft

4.26.22

Lith	Rec	EC	PID	Description
86	3	1.16		CLAY, grey, massive, stiff
88	3.2	1.08		CLAY, grey, stiff, SIL lenses throughout: SIL @ 2.9' wet
90	3.6	0.44		CLAY, grey, Alt Cl. SIL & saturated SILT @ 0.6', soft
92	3	0.77		Cl SILT / Silty CLAY, grey, soft, damp
94	2.3	1.10		Silty CLAY to CLAY, grey, md stiff

TD

time	Samples
0940	88-90' L
1035	94-96'
0805	72-74'

1100 Pulling sample barrels & re-entering  
w/ 2.25" & E tip to (B)  
oversized tip to 72'  
Re-entering <sup>inserting</sup> w/ 2.25" & E tip  
~~thru 3.25" to 95'~~

1145 Pulling 2.25"

1200 Entering w/ 3.25" & E tip to 78'

1230 LUNCH

*Rite in the Rain*

4.26.22

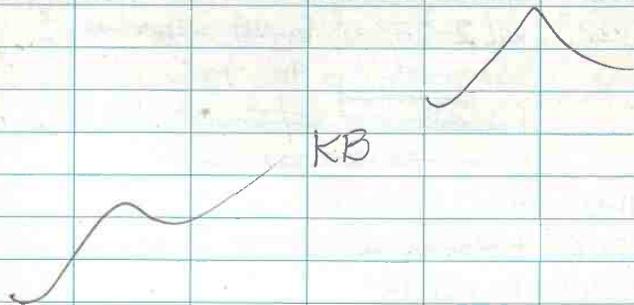
- 1330 Inserting 2.25"  $\phi$  Etip thru  
3.25" to 95'
- 1350 Inserting PVC w/ filter sock  $\phi$  end cap  
CD-5c Set

screen: 90-95' casing: 71'  
native: 78' E-tip: 1(2")  
sand: ~~75~~ (KB) 1(3")  
pellets: 75' Water: 2 gal

\* Waiting 2 hrs to grout

- 1645 Pulling 3.25"  $\phi$  grouting thru  
tremie  
↳ used <sup>254</sup> gal grout

1805 Leaving site

4.27.22<sup>89</sup>

- 0730 On site  
- oversight on site  
ERM: CT, Lance Cooper  
HET: RL

\* Scouting next location

- 0800 Moding geoprrobe  $\phi$  equipment  
0915 Testing EC probe  $\phi$  computer  
↳ Wenner  
0920 Stringing EC pipe  $\phi$  retesting  
↳ cables failing  
1000 Unstringing  $\phi$  testing HPT  
 $\phi$  computer  
↳ Wenner  
1100 Stringing  $\phi$  retesting  
↳ Wenner  
1130 LUNCH \* DP on site to drop  
off kits  
1230 Back on site to HPT

Plot in the Rain

4.27.22

CD-9 HPT \*CD-9.zip

Depth (ft)	EC (ms/m)	Depth	EC
2	63	76	44
4	107	80	49
6	104	84	29
8	115	88	24
10	118	92	30
12	110	94	19
14	95	95	18
16	112		TD
18	49		
20	48		
24	147		
28	41		
32	85		
36	82		
40	40		
44	94		
48	79		
52	82		
56	106		
60	33		
64	71		
68	131		
72	62		

\*Max EC of 161ms/m @ 24.5'

4.27.22<sup>91</sup>

1330 Pulling HPT & grouting thru tremie  
- used ~20 gal grout

1420 Moving adj. to HPT to soil sample  
- entering w/ 2.25" of cutting shoe

CD-9 urn: 536795  
NAD83 3339374

Depth (ft)	EC (ms/m)	PID	Description
3	0.23		Silty CLAY, brn dry, minor orange stain, stiff, CLAY @ 1.6' grey w/ orange stain, md stiff
4	1.40		
4	1.25		Silty CLAY, grey w/ orange stain, minor blk stain, stiff
8	1.53		
4	1.62		Silty CLAY, grey w/ orange & brown stain, stiff
12	1.66		
3	1.63		Silty CLAY, light grey w/ orange stain, md stiff; clayey SILT @ 2.5' grey md stiff
27	1.5		Silty CLAY, grey w/ minor orange stain, md stiff; clayey SILT lens @ 1.9'
24	0.75		Silty CLAY, grey w/ minor orange stain, md stiff; SILT w/ some Clay grey/brn damp
18			
2.6	0.46		SILT w/ some Clay, red/brn wet, clay lens @ 1.6'-1.7' (grey, md stiff)
20			
3.1	0.21		SILT w/ some Clay, brn damp shells & shell frags in btm half; CLAY @ 2.2'-2.8' md stiff
22			

Return on chain.

KB, JC, MJ

92

4.27.22

CD-9 cont.

Lith Rec EC PID

22	3	0.58	SILT, brn, saturated; CLAY @ 1.2', grey, dry SILT lenses throughout, stiff
24	3	0.49	CLAY, grey/brn w/ vertical SILT lens, stiff; SILT @ 0.6', saturated, brn clayey lens @ 0.7-0.9'
26	2	0.52	SILT, brn, saturated
28			
30	3	0.59	SAA
32	3	7.056	SILT, brn, saturated; CLAY @ 2.4', grey, md soft some SILT
34	2	7.1.02	CLAY w/ SILT, <sup>grey</sup> md soft; SILT @ 2', brn, wet
36	3	9.0.69	AH, wet SILT & CI SILT, brn, soft
38	3	7.0.60	SILT, brn, saturated
40	2	6.1.09	Silty CLAY, grey, soft; SILT w/ some clay @ 1.7', grey, damp
42	3	8.0.59	SILT, brn, saturated, color change to grey @ 1.9'; CI SILT lenses @ btm
44	3	8.0.68	SILT, grey/brn, saturated, Clay lens @ 2.4'-2.7', md soft
46	3	4.1.20	AH, wet SILT & soft clayey SILT, grey brn

lee

4.27.22<sup>93</sup>

CD-9 cont

Lith Rec EC PID

46	2	4.0.84	Silty CLAY, grey, md stiff, damp CI SILT lenses @ btm 0.5'
48	4	0.96	AH CI SILT & Silty CLAY, grey/brn, damp; SILT @ 3.2', saturated

time samples

1455	2-4'
1505	6-8'
1515	10-12'
1545	22-24' L

~~1730 48-50' L~~ (KB)

1810 Leaving site

KB

Rite in the Rain

KB, JC, MJ  
61° Clear

4.28.22

0730 On site

- oversight on site

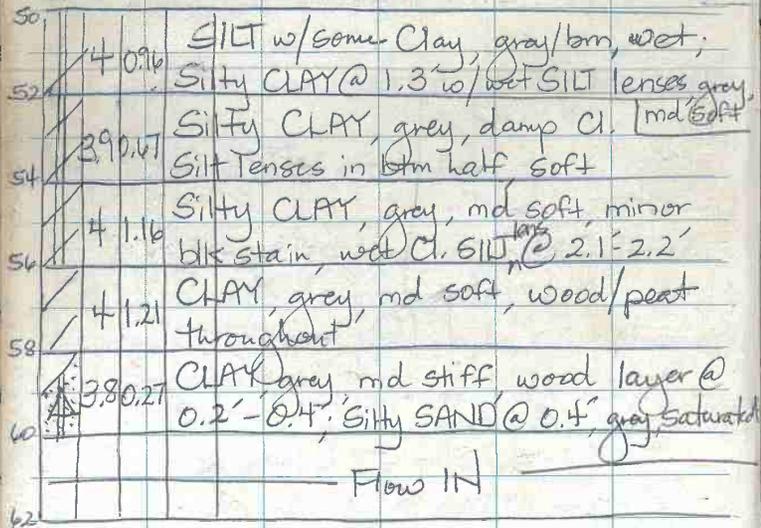
ERM: CT

HET: RL

0745 Continuing soil sampling @ 50'

CD-9 cont.

Lith Rec EC



4.28.22<sup>95</sup>

Time Samples

0855 54-58' L

0900 58-60' (TD)

0920 Pulling sample barrels & re-entering w/ augers to 40'

\* Machine overheating

~~Entering w/ 3.25" d E-tip to 50'~~ (KB)

1120 LUNCH

1220 Continuing augering

1235 Allowing Geoprobe to cool before continuing

1250 Entering w/ 3.25" d E-tip to 5'

1305 Inserting 2.25" thru 3.25" w/ E-tip to 68'

1330 Inserting PVC w/ filter sock & end cap

CD-9 b Set

Screen: 58-68' casing: 42'

native: ~~48'~~ 48' E-tip: 1/2"

sand: — 1/3"

pellets: 44' Water: 2 gal

KB, JC, MJ

KB, Jc, MJ

4.28.22

1400 Moving adj. to CD-9b to set shallow well  
 - entering w/ 2.25" of E-tip to 36"  
 ↳ inserting PVC w/ filter sock & end cap

CD-9a Set

screen: 26-36" casing: —  
 native: 24" E-tip: 1(2")  
 sand: —  
 pellets: 21'

\* Allowing pellets to hydrate

1545 Grouting both wells  
 - used 24 gal grout on CD-9b  
 - used 4 gal grout on CD-9a

1700 Leaving site

KB, Jc, MJ

64° Sunny

4.29.22

0730 On site

- oversight on site  
 ERM: CT  
 HET: RL

0830 Testing EC probe & computer @ CD-10  
 ↳ Wenner

0835 Stringing EC pipe & retesting  
 ↳ Wenner

CD-10 EC

\* CD-10.zip

Depth (ft)	EC (mS/m)	Depth	EC
2	41	36	
4	76	40	
6	57	44	
8	72	48	
10	101	52	
12	75	56	
14	* Hit something	60	
14	@ 14' bags	64	
20	pulling & re-	68	
24	starting	72	
28		76	
32		80	

*Rite in the Rain*

4.29.22

CD-10 cont.

Depth	EC
84	
88	
92	
96	
100	

KB

CD-10 EC \* CD-10.2ip

Depth (ft)	EC (mS/m)	Depth	EC
2	35	44	
4	67	48	
6	67	52	
8	81	56	
10	98	60	
12	* Cable malfunction		
14	- pulling	68	
16	↓	72	
20		76	
24	probe broke	80	
28		84	
32		88	
36		92	
40		96	
		100	

4.29.22<sup>99</sup>

CD-10 EC

Depth (ft)	EC (mS/m)	Depth	EC
2	40	80	22
4	75	84	19
6	61	88	22
8	56	92	12
10	116	<del>96</del> 93	13
12	81	<del>100</del> TD	
14	41		
16	173		
20	148		
24	96		
28	86		
32	43		
36	28		
40	47		
44	122		
48	42		
52	93		
56	26		
60	10		
64	35		
68	26		
72	23		
76	22		

\* Max EC of 186 mS/m @ 17'

*Rite in the Rain*

KB, JC, MJ

4.29.22

- 1020 Pulling EC pipe
  - Grouted thru tremie using ~15 gal on EC hole
  - both shallow holes took ~4 gal grout each

1150 Leaving site

KB

KB, JC, MJ

79° Overcast

5.2.22<sup>101</sup>

- 1000 On site
  - oversight on site
  - ERM: Charles Trahan
  - HET: Ryan Leonards

1015 Scouting locations  
 ↳ site got rain over weekend & CD-10 is under water

1040 Trailering Eteoprobe & moving to CD-11 to set up

1220 Testing EC probe & computer  
 ↳ Wenner

1230 LUNCH

1330 Retesting → Wenner

CD-11 EC \*CD-11 Zip

Depth(ft)	EC(ms/m)	Depth	EC
2	13	14	187
4	151	16	175
6	129	20	151
8	216	24	72
10	118	28	
12	121	32	

~~KB~~

*Ret in the rain*

CD-11 EC cont.

Depth (ft) EC (mS/m)

36

40

44

48

52

56

60

64

68

72

76

80

84

88

92

96

100

\* Cable or probe broke @ ~28' bgs  
↳ pulling

KB

1354 Retesting → Failure  
\* Will not EC this location

1401 Moving adj. to EC to soil sample  
- entering w/ 2.25" & cutting shoe

CD-11

WTM: 0537143  
NADES3 3339818

Lith Rec EC PID

0	0.0	0	Silty CLAY, brn w/ heavy red stain,
3.2	1.42		stiff; CLAY @ 2.2', grey w/ red stain, stiff
3.8	1.47		CLAY, grey w/ orange stain, blk & orange
4	0.46		concretions, dry SILTY CLAY @ 1.5' grey/brn
4	2.14		CLAY, grey w/ heavy red & blk stain (dry)
4	2.76		v. stiff, SILT (dry) lenses top half
8.3	1.64		CLAY, grey w/ heavy orange & blk stain
10	2.29		v. stiff, Cl. SILT lens @ 0.4-0.8' soft damp
2.7	1.77		CLAY, grey w/ minor orange & blk stain
18			stiff, dry SILT lenses throughout
2.5	2		CLAY, grey w/ heavy orange & blk stain
20			stiff, damp SILT lenses throughout
3.4	2.12		CLAY, grey w/ orange stain, stiff, dry
22			SILT lenses shell frags @ 2', Cl. SILT @ 2.6'
2.7	0.94		SILT w/ some Clay, brn, soft, damp
24			wet shell frags
2.5	0.80		Cl. SILT, brn, damp, soft, shell frags
2.3	1.66		CLAY, grey w/ red/brn stain, Ca, damp
28			SILT lenses @ 0.4' & 1.3', stiff
3.2	0.77		CLAY, grey, stiff; SILT @ 1', grey/brn, saturated

Ret in the Rain

KB, JC, MJ  
104

CD-11 cont.

Lth	Rec	EC	PID	
30	2.8	0.88		SILT w/some Clay, grey, wet
32	3.4	0.74		SILT, grey, saturated
34	3.7	0.61		SAA
36	3.3	0.95		Cl. SILT, grey, soft wet SILT lenses; CLAY @ 2.9', grey, md soft
38	2.8	1.23		CLAY grey, md soft Cl. SILT lens @ 1.4'-4.8', damp Silt @ btm 1"

time	samples
1505	2-4'
1510	4-6'
1525	10-12'
1635	28-30' L

1745 Leaving site

\* PID malfunctioning

KB

KB, JC, MJ

73", Partly cloudy

5.3.22<sup>105</sup>

0730 On site

0800 KB on site - personal emergency

0750 oversight on site: ERM (CT) & HEI (RL)

0805 Continuing Soil sampling

CD-11 cont.

Lth	Rec	EC	
40	4	0.53	SILT, grey/brown, saturated
42	2.8	0.92	Cl. SILT/Silty CLAY, grey/brown, damp, CLAY @ 1.3', grey, soft; Cl. SILT @ 2.4'
44	3.9	1.54	CLAY w/some Silt, grey, soft, wet peat
46	4	0.58	SILT w/ Cl. SILT lenses, grey/brown soft wet
48	3.7	0.53	SILT w/some Clay, grey, wet
50	3	0.53	SILT, grey, saturated (potentially slough)
52	2.9	1.00	SILT grey/brown, saturated; Cl. SILT/si CLAY @ 1.7' grey, damp; CLAY @ 1.8', grey, md soft
54	4	1.13	CLAY, grey, md soft, organics

Rite in the Rain.

CD-11 cont.

5.3.22

Lth Rec EC

58	3.50.78	Alternating wet Cl. SILT & md soft Silty CLAY, grey
58	4 1.20	CLAY, organics, grey, wood @ 2.9', md soft
60	3.9.084	Cl. SILT w/ wet SILT lenses, grey, soft
62	4 0.52	SILT/Cl. SILT, grey, wet, soft
64	3.6.046	SPA

time	samples
1010	58-60' L
1055	64-66'

1130 LUNCH

1230 Pulling sample barrels & re-entering  
w/ augers to 38'  
3.25" w/E-tip to 54'  
2.25" w/E-tip to 70'

CD-11b Set

screen: 60-70' casing: 49'  
native: 55' E-tip: 1 (2")  
sand: — 1 (3")  
pellets: 51' Water: 2 gal

5.3.22<sup>107</sup>

1450 Moving adj. to set shallow well  
= entering w/ 2.25" & E-tip to  
35'

CD-11a Set

screen: 30-35' casing: —  
native: 28' E-tip: 1 (2")  
sand: — (3")  
pellets: 25' Water: —

1630 Grouting both wells thru tremie

CD-11a: 3 gal grout

CD-11b: ~~28~~ gal grout  
32 gal

1730 Leaving site

KB

0730 on site

- oversight on site

ERM CT

HET RL

0735 Topping off grout on CD-11a & b  
- split a bucket of grout between both

0800 Moving to CD-10

0930 Arrived @ CD-10 to soil sample  
- entering w/ 2.25" of cutting shoe

CD-10 utm: 0536039  
NAD83 3339161

Lith Rec Ec

0	0.00	SILT w/ some Clay, brn, dry, stiff;
4	3.2	0.50 Silty CLAY @ 1.5' grey/brn w/ orange & red stain, stiff, Ca @ 2.4
8	3.6	1.18 Silty CLAY, grey w/ orange stain, stiff; Cl. SILT @ 1.9' grey w/ orange stain, Clay lens @ 2.7-3.1'
12	4	2.45 CLAY, grey w/ orange stain, stiff, Cl. SILT @ 0-0.4' 2.1-2.3' Cl. SILT @ 3.1'-5m' wet
14	2	1.34 Alt. Cl. SILT & CLAY, grey w/ heavy orange & blk stain; SILT @ 1.5' wet

CD-10 cont.

14	2.8	1.73	CLAY, grey w/ heavy red/orange stain, stiff; any SILT lens @ 0.4'
16	2.9	2.14	CLAY, grey w/ orange & red stain, stiff; Cl. SILT @ 2.1' red/brn, wet, soft
18	2.5	1.2	Alt. CLAY & wet Cl. SILT, grey w/ heavy orange stain; CLAY @ 2' grey, stiff
20	3	1.72	CLAY, grey/brn, stiff shell wash @ 2.4' 2.8' damp SILT lenses; Cl. SILT @ 2.5' red/brn
22	2.1	1.08	Cl. SILT / Si. CLAY, moist, red/brn w/ minor blk stain, soft; CLAY lens @ 1.2-1.5'
24	3	1.42	CLAY, red/brn w/ minor blk stain; Cl. SILT @ 0'-0.3' & 1.9'-2.2'
26	3.4	1.76	CLAY, grey & red/brn, stiff, Ca nodules
28	2.6	1.30	Cl. SILT, red/brn, soft; <sup>KB</sup> SILT @ 1.2' red/brn, saturated
30	3.4	0.62	SILT w/ some Clay, wet, brn
32	3.5	0.49	SILT brn micaceous, saturated; Silty CLAY @ 2.3' red/brn, mid soft
34	3.2	0.30	SILT, grey/brn, saturated
36			

*Return to the team*

5.4.22

CO-10 cont.

Lith Rec Ec

36			SAA
38	3.50	0.40	
40	3.70	0.37	SILT, brn, saturated, Clay lens @ 0.8', 2-2.7', & 3.5-btm (soft Clay)
42	3.71	0.34	SILT, brn, saturated; CLAY @ 2', grey w/ orange, md soft to stiff @ btm
44	3.2	0.41	CLAY, red/brn & grey, md soft
46	3.1	0.51	SAA
48	2.1	0.59	CLAY, red/brn & grey, stiff, Ca @ 2.7
50	2.6	0.73	Cl. SILT, brn & grey, md soft, moist
52	2.6	0.69	CLAY, grey, stiff, Cl. SILT lens @ 0.9-1.5', wet
54	2.9	0.42	CLAY, grey, md stiff. SILT w/ some Clay @ 1.3' v. sl. moisture, grey & brn
56	1.9	0.06	SILT, brn, dry
58	2.4	0.10	SILT, brn, damp

CO-10 cont.

Lith Rec Ec

58			
60	1.8	0.09	SILT, brn, dry
62	2.7	0.45	SILT, brn, saturated

time	samples
1005	2-4'
1020	6-8'
1025	8-10'
1315	28-30' L
1515	52-54' L
1610	60-62' (TD)

1700 Leaving site

KB

Plot in the Rain

112

KB, JC, MJ  
75° Partly Cloudy

5.5.22

0730 On site  
- oversight on site  
ERM: CT  
HET: RL

0750 Pulling sample barrels & re-entering  
w/ 2.25" & oversized tip  
3.25" & E-tip to 48'  
2.25" & E-tip to 65'

CD-10b Set (KB)

Screen: 55-65' casing:  
native: E-tip: 1(2")  
sand: 1(3")  
pellets: Water:

1000 Pellets bridged  
↳ pulling & resetting

1130 Entering w/ augers to 40'  
3.25" & E-tip to 48'  
2.25" & E-tip to 65'

5.5.22<sup>113</sup>

CD-10b Set

Screen: 55-65' casing: 45'  
native: 51' E-tip: 1(2")  
sand: — 1(3")  
pellets: 48' Water: —

1400 Moving adj. to set CD-10a  
- entering w/ 2.25" & E-tip  
to 40'

CD-10a Set

Screen: 30-40' casing: —  
native: 28' E-tip: 1(2")  
sand: — (3")  
pellets: 25' Water: —

\* Allowing time for pellets to hydrate

1540 Grouting both wells thru tremie  
& pulling casing

- CD-10a: 3 gal  
- CD-10b: 32 gal

1700 Leaving site

*Rite in the Rain*

KB  
1148 82° Partly Cloudy

5.9.22

1000 On site  
- oversite on site  
ERM: Charles Trahan  
HET: Lance Vincent

1015 Setting up on CD-9b to purge  
of sample

1100 Pump on  
↳ tubing @ 68'

CD-9B

DTW: 28.91' TO: 69.75' su: 2.25'

time	[°C]	[µS]	pH	[ppm]	ORP	Turb	vol
	temp	cond		TDS			
1103	28.5	703	6.10	449	70	OR	Initial
1109	26.5	712	6.53	456	78	7	0.5
1114	26.9	714	6.65	457	72	14	1.0
1122	24.3	715	6.78	458	73	9	1.5
1128	26.4	712	6.87	455	52	11	2.0
1141	25.9	713	7.07	457	36	OR	3.0
1154	26.2	712	7.07	456	44	11	4.0
1208	26.5	715	7.13	458	48	11	5.0

tubing  
dropped to TD turbidimeter can't  
handle humidity

5.9.22<sup>115</sup>

1215 Sample time  
- RADS, total metals

1252 Pump off

1300 LUNCH

1350 Setting up on CD-9a to purge  
of sample

1403 Pump on - tubing @ 35'

CD-9A

DTW: 13.15' TO: 36.67' su: 1.0'

time	temp	[µS]	pH	[mV]	[ppm]	turb	vol
		cond		ORP	TDS		
1404	24.2	986	6.57	24	653	20	Initial
1412	24.3	989	6.87	68	650	—	0.5
1414	23.0	987	6.93	60	645	—	1.0
1419	23.2	985	7.05	65	644	—	1.5

1425 Sample time  
- RADS, total metals

1458 Pump off

*Return to Rain*

116 KB

5.9.22

1500 Heat break  
1530 Setting up on CD-5c to purge  
of sample

1540 Pump on - tubing @ 295'  
\* Waterra valve used

CD-5c

DTW: 63' TD: 96.6' su: 1.80'

time	temp	[uS]	pH	[mV]	[ppm]	turb	vol
		cond		ORP	TDS		
1545	32.5	3090	7.49	85	2165	—	Initial
1550	27.3	3072	7.56	78	2165	—	0.5
1553	—	well dry @ 0.75 gal @ <del>KB</del>					
1605	25.6	3399	7.42	29	2399	OR	2.0
1611	—	well dry @ 1.3 gal — <del>2.0</del>					
1615	—	pump on — <del>4.0</del>					
1620	—	well dry @ 1.75 gal — <del>4.0</del>					
1640	—	pump on					
1645	26.4	2049	7.53	45	1392	OR	2.0

1700 Sample time  
-RAOs, dissolved metals

1735 Pump off → will do RAOs in AM  
1745 Leaving site

KB  
75°, Clear

5.10.22

0730 On site  
- oversight on site  
ERM: CT  
HET: LV

0750 Setting up on CD-5c to  
grab RAOs

0805 Well dry

0815 Finish sampling

0845 Setting up on CD-10b to purge  
of sample

~~Pump on tubing @~~

CD-10b

DTW: — TD: 66.05' su: —

time	temp	cond	pH	ORP	TDS	turb	vol
							Initial
— DRY —							

*Put in the Rain...*

5.10.22

0905 Setting up on CD-10a to purge  
of sample  
0920 Pump on - tubing @ 39'

CD-10a

DTW: 12.25' TD: 40.77' su: 1.10'

time	[°C] temp	[µS] cond	pH	[mV] ORP	[ppm] TDS	[NTU] turb	vol
0922	25.2	534	7.93	7	340	20	Initial
0925	24.7	524	7.72	-17	338	26	0.5
0931	24.8	534	7.59	-6	339	9	1.0
0938	25.3	533	7.61	45	339	8	1.5
0940	24.0	531	7.55	22	337	7	2.0

0945 Sample time  
- RADs, total metals

1010 Pump off

1015 Setting up on CD-8b to purge of  
sample

1040 Pump on - tubing @ 62'  
\* water valve used

CD-8b

DTW: 53.79' TD: 63.71' su: 1.80'

time	temp	[µS] cond	pH	[mV] ORP	[ppm] TDS	turb	vol	
1042	25.3	1167	7.44	91	766	OR	Initial	
1044	- well dry @ 0.22 gal							<del>1.0</del>
1110	24.9	1226	7.49	44	810	OR	<del>1.5</del>	
1112	- well dry @ 0.5 gal							0.5
1135	29.6	1238	7.48	66	813	OR	0.6	

1135 Sample time  
- NO RADs, dissolved metals ~~KB~~  
\* utilized 2 filters  
↳ turb = 10.86 NTU

1245 Pump off

1300 LUNCH

1400 Back on site to purge of sample  
CD-8a

1407 Pump on - tubing @ 30'

*Plot on the Rain*

CD-8a

DTW: 10.2' TD: 30.9' su: 0.3'

time	temp	[us] cond	pH	ORP	[ppm] TDS	turb	vol
1409	30.0	816	7.38	75	522	29	Initial
1413	24.1	756	7.25	11	488	7	0.5
1419	24.2	738	7.24	14	476	5	1.25
1422	24.3	737	7.15	-13	476	5	1.75

1430 Sample time  
- RADs, total metals

1455 Pump off

1520 Arrived @ CD-11a to purge & sample

1525 Pump on - tubing @ 35'

CD-11a

DTW: 15.55' TD: 35.80' su: 1.10'

time	temp	[us] cond	pH	ORP	[ppm] TDS	turb	vol
1526	26.0	1556	7.40	-127	1039	48	Initial
1533	24.7	1548	7.19	-124	1035	11	0.75
1535	23.6	1543	7.17	-110	1033	11	1.0
1542	23.8	1541	7.16	-76	1032	10	1.5

1550 Sample time  
- RADs, total metals

1620 Pump off

1645 Leaving site

KB

KB  
122 73° Clear

5.11.22

0740 On site  
- oversite on site  
HET: LV  
ERM: CT

0800 Setting up on CD-11b to purge  
& sample

0820 Pump on - tubing @ 70'  
\* water valve used  
CD-11b

DTW: 30.55' TD: 71.45' su: 1.80'

time	temp	[us] cond	pH	ORP	[ppm] TDS	turb	vol
0823	22.7	704	8.27	96	456	OR	initial
0828	22.0	712	7.95	33	463	OR	0.5

0830 Well dry @ ~0.75 gal

0845 Resume

0848 Very little recharge - pump off

0910 Resume

0918 Well dry @ ~1 gal

0954 Resume

5.11.22

1000 Sample time  
- NO RADs, dissolved metals

~~1130~~ LUNCH

1200 Back on site to continue sampling

1244 pump off

1320 Setting up on CD-7a to purge  
& sample  
Pump on - tubing @ KB

CD-7a

DTW: TD: su:

time	temp	cond	pH	ORP	TDS	turb	vol
------	------	------	----	-----	-----	------	-----

\* Insufficient Water \*

1330 Setting up on CD-7b to purge  
& sample

1332 Pump on - tubing @ ~32'

*Rite in the Rain*

124 KB

5.11.22

CD-7b

DTW: 16.95' TD: 33.86' su: 2.15'

time	temp	[ $\mu$ S] cond	pH	ORP	TDS	turb	vol
1334	26.8	1161	7.78	70	761	13	Initial
1344	24.4	1118	7.56	71	736	6	0.5
1406	25.8	1168	7.53	79	768	3	1.0
1427	25.7	1146	7.73	83	753	3	1.5

1435 Sample time  
- RADS, total metals

1715 Pump off

1730 Leaving site

KB

KB  
73° Clear

5.12.22<sup>125</sup>

0745 On site  
- oversight on site  
ERM CT  
HET: LV

0800 Setting up on CD-7c to purge  
& sample

0816 Pump on - tubing @

CD-7c

DTW: 17.4' TD: 51.8' su: 2.40'

time	temp	[ $\mu$ S] cond	pH	ORP	[ppm] TDS	turb	vol
0818	21.8	538	8.50	38	346	OR	Initial
0823	21.1	800	7.82	63	523	22	0.5
0832	21.2	823	7.67	84	539	6	1.25
0833	21.0	819	7.57	72	535	8	1.5
0838	21.4	825	7.52	57	540	9	2.0
0845	21.7	825	7.49	54	539	3	2.5

0855 Sample time  
- RADS, total metals

0920 Pump off

*Rite in the Rain*

KB  
126

5.12.22

0940 Setting up on CD-6a to purge & sample

0950 Pump on - tubing @ 41'

CD-6a

DTW: 19.8' TD: 42.0' su: 2.30'

time	temp	[uS] cond	pH	ORP	[ppm] TDS	turb	vol
0950	26.9	1533	7.44	84	1018	OR	initial
0958	23.9	1671	7.26	-22	1126	3	0.5
1003	23.7	1653	7.30	-15	1111	2	1.0
1010	23.9	1646	7.30	-15	1108	2	1.5
1017	24.0	1618	7.30	-14	1087	2	2.0

1025 Sample time  
- RAOs, total metals

1105 Pump off

1120 Setting up on CD-6b to purge & sample

1125 Pump on - tubing @ 67'

5.12.22<sup>127</sup>

CD-6b

DTW: 23.36' TD: 68.0' su: 2.4'

time	temp	[uS] cond	pH	ORP	TDS	turb	vol
1126	32.6	558	7.85	77	350	62	initial
1134	29.3	774	7.75	64	495	54	0.5
1150	28.4	819	7.61	72	524	21	1.0
1202	28.7	805	7.57	68	516	11	1.5
1222	29.3	802	7.47	23	513	5	2.0
1251	29.1	790	7.61	49	506	3	3.0

1300 Sample time

# - RAOs, total metals

1435 Pump off

1450 Dumping purge water into drums

1500 Leaving site

KB

*Return the Rain*

128 KB

72° Clear

5.13.22

0730 On site  
- oversight on site  
ERM: CT  
HET: LV

0740 Setting up on CD-bc to gas sample  
\* utilizing LV's cap/nipple combo  
↳ decontaminated

0800 Sample time CD-bc

0810 Setting up on CD-bc to purge & sample

\* LEL + Gas Meter Readings @ 2' above well

LEL: over 99% \* everything else zero  
Oxy: 20.9%  
VOC: 15 ppm

CD-bc  
DTW: ~~79.90~~ KB TD: 79.90' su: 0.25'

5.13.22<sup>9</sup>

\* Will allow well to vent to see if water comes in

0830 CD-5b

\* LEL + Gas Meter Readings @ well opening

LEL: over 99% \* everything else zero  
Oxy: 18.4%  
H<sub>2</sub>S: 1.6 ppm

0845 Sample time CD-5b

0905 Arrived @ CD-<sup>KB</sup>~~5b~~ 2a

\* LEL + Gas Meter Reading @ well opening

LEL: over 99% \* everything else zero  
Oxy: 20.4%  
VOC: 28 ppm

*Rite in the Rain*

5.13.22

CD-2b

\* LEL & Gas Meter Reading @  
well opening

LEL: 0  
Oxy: 20.9%  
CO: 0  
H<sub>2</sub>S: 0  
VOC: 0

0920 Sample time CD-2a

\* oversight received minimal volume

0950 Setting up on CD-6c to purge  
& sample

0955 Pump on - tubing @ ~78'  
\* water valve used

5.13.22

CD-6c

DTW: impossible to measure due to  
gas bubbling

TD: 99.90'

SU: 0.25'

time	temp [°F]	cond [µS]	pH	ORP	TDS [ppm]	turb	vol
1007	32.4	832	7.90	93	532	OR	Initial
1025	— well dry @ —						0.5
						~500mL	1.0

\* Will not sample CD-6c

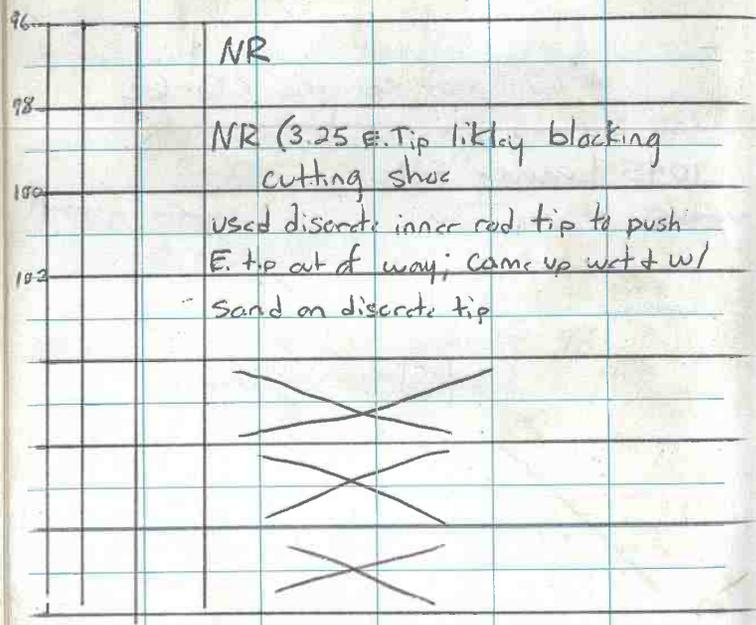
1045 Leaving site

KB

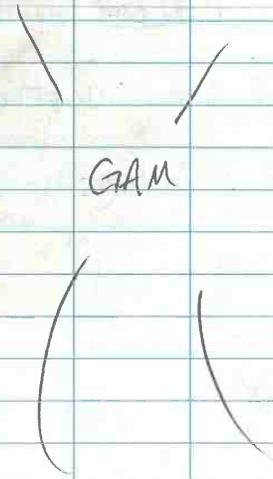
*Return to Rain*

- 0700 on site
- @ CD-5
- 0800 - 2.5" Auger going to 96'
- 0900 - pulling auger
- 0930 - Enter w/ 3.25" w/ E tip to
- 1000 - Enter 3.25" casing w/ 2.25" to resume soil logging

CD-5 cont



- 1130 - pulling sample barrels
- 1140 - Enter w/ 2.25 w/ E tip to
- 1200 - Cant get past 102' w/ 2.25"
- pull 2.25"
- 1300 - pull 3.25"
- bottom 4 3.25" clogged w/ sand
- 1400 - @ 100' w/ 2.5" auger
- 1440 - Enter w/ 3.25"
- 1600 - able to get to 104' w/ 3.25"
- went to install well; sand was in bottom 4 barrels
- 1630 - Will grout well in the morning
- Leaving site



*Rite in the Rain*

GAM, CAM

134

HET. RL ERM:MG

6.2.22

0700- On site

- Pull #3.25"

- Re-enter hole w/ 2.25" to 100';  
grout through 2.25"

- ≈ 50 gal grout to surface

↳ 4 bags portland

↳ 2 3.25 E. tip + 2.25"

1200 - Decon 2.25", 3.25" + 2.5 augers

- Return to CD-10

- augers to 24'

- Enter w/ 2.25" w/ discrete tip to  
62', resume sampling

CD-10 cont

62	F.C		
64	3'	0.49	SILT, brown, wet

GA-66: stuck in barrel

1630 - Leaving site

| /

GAM

| \

6.2.22 135

0700- On site

0712 - pulling 2.25"

- Auger to 52'

- Enter w/ 3.25" casing to 52'

- Insert 2.25" to 72'

0908 - Insert PVC w/ bottom cap + filter  
Sack

- tag

- Add filter sand + coated pellets

CD-10B Set (replacing CD-10B(55-65))

SCREEN: 62-70

0945 Pellets: 58'

SAND: 61'

NATIVE: 70'

1200 - Grating 10B

- tronic at 55'

↳ 23 gal grout to surface

1330 - Leaving site

| /

GAM

| \

*Write in the Rain*

6.6.22

0930 - On Site  
 - moving equip to next location  
 1030 - Testing F.C  
 ↳ pass

CD-12 cond

ms/M	FT	ms/M	FT	ms/M	FT
126	4'	35	36'	27	68
201	8'	33	40'	25	72
23	12'	124	44'	18	76
39	16'	52	48'	24	80
130	20'	6.24	52'	13	84
91	24'	61	56'	15	88 TD
59	28'	10	60'		
45	32'	35	64'		

1230 - pull F.C pipe  
 1245 - able to get tremie to 55'  
 - grouting through tremie  
 ↳ ≈ 8 gal grout to surface

6.6.22<sup>137</sup>

WTM 0536283  
 CD-12 NAD83: 3339370

Depth	Per	F.C	Description
0	1	0.11	SILT (0-1), brown, dry; CLAY (1-3) red/brown
4	1	1.06	to brown, st. ff
8	1	1.68	CLAY, gray w/ orange; med, st. ff, red
8	1	2.05	bottom 7'
12	1	1.07	CLAY (0-1.6') w/ some silt, gray, st. ff,
12	1	0.71	SILT (1.6-4') brown, soft, wet, clayey towards bot
16	1	0.21	SAND, brown, very fine, wet; CLAY lens
16	1		at (1.5-1.8) & 2.1-2.4
18	1	0.37	CLAY, gray, st. ff; SAND (0.3-1') wet, very fine
20	1	1.46	CLAY, gray, st. ff, Ca nod
24	1	1.12	CLAY, gray w/ some orange
24	1	2.7	CLAY (0-1.6') gray, st. ff; S. Hy CLAY, gray w/ red
26	1	0.69	S. Hy CLAY, red/brown, med soft
28	1	0.96	CLAY, red/brown, st. ff
30	1	0.42	SAA (0-1); clayey SILT to fine SAND, red/brown w/ gray, soft, wet

Return to Rain

6.6.22

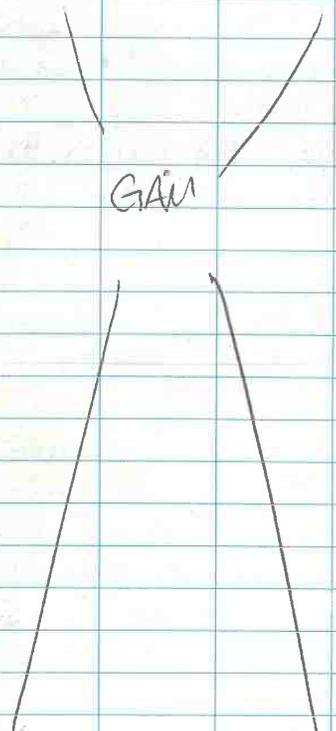
CD-12

30	i.th	R <sub>c</sub>	FC	
	Δ	4'	0.41	SILT, gray, soft, wet
32	Δ	2.3'	0.51	Clayey SILT, gray, soft, wet
34	Δ	4'	0.50	SILT, brown, wet, soft
36	Δ	4'	0.47	SAND, very fine, gray, wet; CLAY 3.5-4', gray, med soft
38	Δ	4'	0.52	clayey SILT, gray, soft, wet
40				NS (no sampled)
				NS

6.6.22<sup>139</sup>

1630 - Leaving sample barrels in ground  
 a 40' overnight  
 - Will install wells in a.m.

1640 - Leaving Site



*Return to Site*

140  
GAM, JC, DW  
HEF, RL ERM:DS

6.7.22

0700 - on site

0740 - Pulling sample barrels

- Re-center w/ 3.25" tip on 2.25" to 29'

0808 - Enter w/ 3.25" casing to 29'

- Insert 2.25" in 3.25" casing  
- Insert PVC w/ filter sock & bottom cap

- pull 2.25" ; tag → add filter sand & coated pellets

CD-12B set

SCREEN: 29-39'

0840 PELLETS: 25'

SAND: -

NATIVE: 28'

Casing: 23'

CD-12A

SCREEN: 7-17'

0900 PELLETS: 3'

SAND: 6'

NATIVE: 11'

0845 - Enter adj to CD-12B w/ 2.25" FE tip to 17'

- pull 2.25" → tag → add filter sand & coated pellets

1105 - Trammie @ 25' on CD-12B; grat through trammie

↳ ~16 gal grat to surface

1130 - ~2 gal grat to surface on CD-12A

6.7.22

1130 - Decan

1200 - move to next location

CD-13 cond

mslM	FI'	mslM	FI'	mslM	FI'
95	- 4'	51	- 40'	110	- 76'
102	- 8'	118	- 44'	92	- 80'
39	- 12'	35	- 48'	57	- 84'
109	- 16'	102	- 52'	20	- 88'
149	- 20'	109	- 56'	17	- 92 TD
45	- 24'	25	- 60'		
137	- 28'	40	- 64'		
47	- 32'	128	- 68'		
44	- 36'	139	- 72'		

1355 - pulling EC pipe

- trammie stopped @ 30'

1425 - Entering w 2.5" flighted augers

1615 - Augers @ ; trammie @ 80'

- grating through trammie @ 80'

1650 - ~ 36 gal grat to surface

↳ 3 bags portland

1700 - Leaving site

*Rate in the Rain*

6.8.22

0700 - On Site

UTM: 05363A0

CD-13 NAD83: 3338800

EL			
0	3.1	0.27	Silty CLAY (0-2') brown, stiff, rootlets; CLAY,
4		0.99	brown, stiff
8	3.8	1.30	CLAY (0-2.9) light <sup>black nodules</sup> brown, stiff; Silty CLAY,
		0.69	light brown, med soft
12	3.2	0.97	clayey SILT 0-2, med soft, light, brown,
		0.11	damp; SAND, very fine damp
16	3	1.45	Silty CLAY (0-1), brown, med soft; CLAY, light
		2.51	brown, stiff, Ca nodules
18	2.5	1.11	Silty CLAY, light brown, stiff, Ca nodules @
			btm
20	2.5	1.61	CLAY w/ silt lens. s thru out. damp, stiff,
			light brown w/ orange
22	3.2	1.77	CLAY, gray w/ orange, stiff, Ca nodules, silty
			CLAY (2.1-3.2)
24	3.1	0.67	SILT, brown, soft, wet
26	2.6	1.26	SILT, brown, soft, wet, shell frags;
			clay lens (1.3-1.9')
28	2.8	1.32	SILT (0-1.2) brown, wet; CLAY, gray
			stiff

6.8.22<sup>143</sup>

CD-13

Rel	EL		
28	2.2	1.02	clayey SILT, gray, soft, damp
30	2.1	0.87	SILT, gray, wet, trace clay top 0-0.4
32	3.7	0.85	SILT, brown, wet, trace sand bottom
34			1'
36	3.5	0.71	<del>SAND</del> <sup>CLAY</sup> , brown, <sup>CLAY</sup> fine, wet
			SILT
38	3.5	0.69	SILT, brown, wet
40	3.7	0.74	SAA
42	3.7	0.74	SAN
44	4'	0.95	SAA 0-2.1; CLAY, gray, med soft
46	4'	1.45	CLAY, gray, med soft on @ 3.8
48	3'	1.11	CLAY, gray, <sup>wood</sup> med soft, SILT lens @
			(1.6-1.9) wet, (2.8-3') w.t
50	3.8	0.63	SILT, brown, wet

Plot in the Rain

6.8.22

## CD-13

50	LH	PC	EC	
50	3.8'	0.97		clayey SILT 0-2.5, gray, soft, damp;
52				Silty CLAY, gray w/ red/brown, med soft
54	2.7	0.92		Silty CLAY, gray, med soft; SAND
				bottom 2", gray, damp
56	2.6	1.16		Silty CLAY, gray w/ red/brown, med
				Soft; SAND for 2", damp
58	4'	1.02		CLAY 0-2, gray, med soft; Silty CLAY,
				gray, wood soft
60	2.8'	0.30		Silty clay 0-1, gray, med soft; clayey SILT
				w/ sand, wet, gray, soft
62	3.5'	0.27		SAND 0-2.2', very fine, gray, wet; clayey
				SILT, gray, damp
64	3.8	0.49		clayey SILT, gray, soft, wet w/
				trace sand
66	3.8	0.59		SAND (0-2.2); CLAY, gray, med soft,
				wood

- No soil samples taken

1100 - pulling sample barrels

1115 - Entering sample hole w/ 2.5" auger to 58'

1135 - pulling auger

1145 - Enter sample hole w/ 3.25" casing to 58'

6.8.22 145

1305 - Entering 3.25" w/ 2.25" to 68'

1310 - Add pvc w/ bottom cap & filter sock

- Add 3 gal potable water

- fill 2.25"

- tag

- add filter sock & coated pellets

## CD-13C Set

## CD-13B Set

SCREEN: 58-68'

SCREEN: 32-42'

1330 PELLETS: 5A

1433 PELLETS: 22'

SAND: -

SAND: -

NATIVE: 57'

NATIVE: 30'

(3.25) casing: 53'

- Enter adj to install CD-13B

- 2.25" to 42' w/ E. tip

1410 - Insert pvc w/ bottom cap & filter

sock

- tag

- add coated pellets

1450 - move adj to CD-13C to install

CD-13A

- 2.25" to 32'

- Insert pvc w/ filter sock & btm cap

*Return to the Room*

6.8.22

CD-13A sat

SCREEN: 22-32'

1520 PELLETS: 18'

SAND: 21'

NATIVE: 27'

- 1530 - Trammie to 50' on CD-15c,
  - grout through trammie
  - ≈ 32 gal grout through trammie to surface
  - 2 bags portland

1610 - Decon

1650 - Leaving site

GAM

6.9.22<sup>17</sup>

0700 - On site

- Grouting CD-13A + B
- trammie @ 15 on A (3 gal grout)
- trammie @ 20 on B (4 gal grout)
- Grout through trammie to surface
- 0830 - Setting up on next location
- Test conductivity
- ↳ pass

0905 - Probe failed @ 46'; will re-attempt

CD-14 cond 537377, 3339649

msl/M	FI	msl/M	FI	msl/M	FI
338	-4'	43	-40'		
330	-8'	143	-44'		
368	-12'		-48'	* struggled to get	
419	-16'		-52'	2.25" to 44'	
457	-20'		-56'	Will change location	
406	-24'		-60'	of CD-14.	
368	-28'		-64'		
286	-32'		-68'		
54	-36'				

1000 - Grouting E.C hole; 2.25 @ 44' trammie through 2.25'

1020 - ≈ 8 gal grout to surface

*Rite in the Rain*

95°, very hot

6.9.22

		CD-14 <sup>cont</sup>			
msl/ft	FT	msl/ft	FT	msl/ft	FT
365	-4'	112	-36'	660	-65'
245	-8'	35	-40'	453	-72'
83	-12'	33	-44'	440	-76'
310	-16'	82	-48'	240	-80'
304	-20'	99	-52'	181	-84'
218	-24'	53	-56'	273	-88'
246	-28'	40	-60'	215	-92'
46	-32'	206	-64'	58	-96'
				144	-97' TD

1250 Lunch

1350 - pull E.C pipe

1400 - Augering to 80' to grat

1435 - machine overheated

1600 - Tremmie to 60'

- grat through tremmie

- ≈ 36 gal grat to surface

1700 - Leaving site

GAM

6.10.23<sup>9</sup>

0700 - on site

UTM : 0537403

CD-14 MAD83: 3339645

0	2.2	1.75	Silty CLAY, red/brown, stiff to medium
4		3.81	soft
4	4'	3.45	CLAY, light brown w/ red & orange, stiff,
8		2.77	trace silt towards bottom
8	4'	3.19	CLAY, red/brown w/ gray, stiff, Ca nodules,
12		1.88	stiff SAND (2.9-3.4) btm 2", wet
12	3.8'	1.3A	Silty SAND (0-2.3'), very fine, wet, tan, blk top 5"
16		4.72	CLAY gray/brown, med soft
16	2.5	2.44	Silty CLAY, light brown w/ gray, stiff
18			
18	2.5	3.71	Silty CLAY, light brown, med soft, shell
20			frag
20	2.6	3.72	Silty CLAY, gray w/ brown, stiff, shell frag
22			
22	2.7	2.83	Silty CLAY (0-1.7) gray, med soft; clayey SILT,
24			gray/brown, damp, soft
24	2.5	3.47	clayey SILT (0-1.2) brown, damp, shell frags; Silty
26			CLAY gray w/ red, stiff
26	2.3	3.78	CLAY, red/brown w/ gray, stiff, silt base @ 0.7
28			
28	2.2	2.41	CLAY (0-0.5) (1.5-1.8) gray, stiff; CL SILT (0.6-1.5), brown,
30			damp; SILT btm 2" damp

Rite in the rain

G.10.22

CD-1A

30	33	1.05	SILT, gray to brown, wet, shell frags @ top
32	38	0.71	SILT (0-3.1), gray/brown, wet; CLAY, gray to brown, very stiff
34	28'	0.93	CLAY (0-0.1) gray/brown, stiff; Silty CLAY, gray, soft; SILT, brown, w/ bottom 1"
36	38	0.64	SILT, brown, wet
38	37	0.56	SAA
40	37	0.53	SAA
42	37	0.50	SAA
44	38	0.51	SAA
46	4'	0.54	SILT, brown, wet, trace clay @ top & bottom
48	31	0.90	CLAY, gray, soft; silt lens @ 1.8(1") damp
50	3	1.05	CLAY, gray, soft, wood

CD-1A

52	4'	0.91	CLAY, gray, wood, med soft
54	4	1.1A	SAA, trace silt bottom 5"
56	4'	0.52	clayey SILT, soft, gray, moist, wood
58	4'	0.49	clayey SILT, soft, wet, gray
60	4'	0.53	SILT, gray, wet
62	1.6	2.11	SAA w/ clay lens @ 0.4 & 1'
64	4'	4.03	SILT, gray, wet
66			Flawed; bottom 4 barrels full of SAND

Time	Sample	Notes
0805	2-4	1122 - GAM going to lab
0810	4-C	Sc & Dlw loading equip to leave site
0815	6-8	
0820	8-10	
0905	26-28L	

*Rite in the Rain*

6.13.22

1000 on site

- pulling 2.25" @ CD-14 @ 68'
- 1030 - Re-center w/ E tip to 80'
- Insert PVC w/ filter sock & bottom cap
- add 5 gal potable water
- Temp well

		DTW
CD-14B set (Temp)	1055	25.95'
SCREEN: 60-80'	1112	23.85
2.25 casing: @ 56'	1134	23.81
water: 5gal	12-1-1	23.85

1100 - move adj to 14B

- 3.25" ~~tip~~ on 2.25" to 28'
- Insert 3.25" to 28'

Tubing @ 70'	CD-14B (Temp) (check valve)
DTW: 23.85	ID: 80.68 Su: 1.30'

Time	Temp	Cond	pH	ORP	IDS	Turb	Vol
1308	33.2	905	5.99	164	580	-	init'd
1315	29.4	16.30ms	5.94	48	13.63ppm	-	1
1323	29.2	21.09ms	6.02	-22	18.35	OR	2
1336	28.9	21.80ms	6.31	-53	19.15	OR	3

930

6.13.22 153

CD-14B

Time	Temp	Cond	pH	ORP	IDS	Turb	Vol
1349	30.6	23.63	6.46	-50	20.90	15	4
1410	25.0	26.97	6.51	-54	24.51	30.5	5
1429	22.4	26.83	6.67	-61	24.72ppm	11.2	6

1430 Sample time

\* - used check valve first 2 gal to flush silt out of well.

- Turned flow rate down, head stayed @ 25-30'
- Total metals
- Tubing @ 70'

1605 - 3.25" @ 28' on CD-14A; 2.25" to 40'

- Insert PVC w/ filter sock & bottom cap

1605 - pull 2.25"; Fog; add pellets

CD-14A set  
SCREEN: 30-40'  
PELLETS: 25'  
SAND: -  
NATIVE: 28'  
Casing: 23' (3.25")

1640 - Leaving Site

*Return to the Rain*

GAM, DW, CALL  
 154 HET: RL  
 ERM: CT

90° 6.14.22

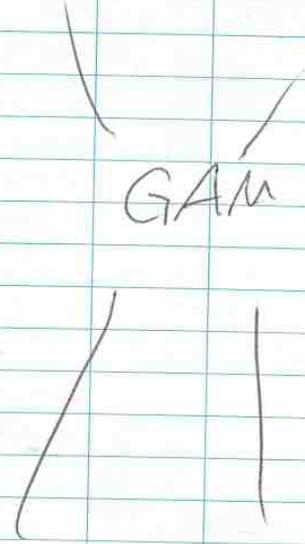
- 0700 - on site
  - trammic @ 25' on CD-14A
  - grout through trammic
  - pull casing
  - ≈ 16 gal grout to surface
  - 1 bag
- 0800 - pull CD-14B
  - trammic to 60'
  - ≈ 24 gal grout thru trammic to surface
- 0900 - Decon
  - move to next location
- 1045 - Test Cond equip
  - ↳ pass

CD-15 cond

mslm	FT'	mslm	FT'	mslm	FT'
134	4'	45	40'	136	76'
252	8'	54	44'	100	80'
207	12'	114	48'	25	84'
175	16'	40	52'	69	88'
151	20'	102	56'	47	92'
69	24'	68	60'	41	96'
89	28'	40	64'	18	97.40' $\text{D}$
70	32'	65	68'		
48	36'	121	72'		

93° 6.14.22 155

- 1300 - pull E.C. pipe
- 1310 - Encountered gas
  - ↳ letting air out
- 1340 - Entering E.C. hole w/ 2.5" auger
- 1515 ~~1515~~ - Pulling auger (machine overheated multiple times while augering to 80')
  - trammic to 80'
- 1600 - Grout through trammic to surface
  - ↳ ≈ 35 gal grout to surface
- 1610 - GAM leaving site to get oil change on work truck



*Ret in the Rain*

Castex Development  
9403-016-0100



*Rite in the Rain*  
ALL-WEATHER  
**JOURNAL**  
Nº 391FX



2 CS

6-6-22

900 On site, Survey + water levels

Opening wells

930 Surveyors on site

Langlinais - Chad + Dylan

Well	DTW (btac)	Completion?	TD (btac)
CD-1a	14.72	yes Flush	17.58
CD-1b	15.05	yes Flush	36.58
CD-1c	37.96	yes Flush	57.68
CD-2a	17.33	yes	42.93
CD-2b	28.09	yes	69.93
<del>CD-2c</del>			
CD-3a	15.48	no	43.75
CD-3b	28.86	yes	66.65
CD-4a	18.23	yes	43.42
CD-4b	39.02	yes	66.88
CD-5a	19.81'	yes	44.65
CD-5b	61.40'	yes	70.80
CD-5c	65.52'	no	96.68
CD-6a	19.75	no	42.19
CD-6b	23.24	no	68.12
* CD-6c	gas still blowing out of well		
(dry) CD-7a	16.34	no	17.50
CD-7b	16.92	no	34.02
* CD-7c	— dry, to be plugged		

6-6-22 3

Well	DTW	Completion?	TD (btac)
CD-8a	9.23	no	30.87
CD-8b	55.90	no	63.70
CD-9a	13.46	no	36.94
CD-9b	29.99	no	69.87
CD-10a	12.38	no	40.92
* CD-10b	— dry, to be plugged		
* CD-10c	— meter doesn't go past 33'		
CD-11a	15.67'	no	35.96'
CD-11b	31.16'	no	71.62
* CD-10c	71.42'	no	72.45
CD-7c	17.17	no	51.96

\* CD-6c, blowing gas but will survey w/cap off then put back on

\* CD-7c + 10b, dry not surveyed

\* CD-10c, meter did not go past 33' survey well, no completion  
 3000. will troubleshoot well later

1230 Pushed depth rods to TD  
 GW level

Langlinais off site

1245 realized 7a was the dry well not 7c, Langlinais called back to site pull in the train

6-6-22

to shoot 7c.

1310 Langlinus back on site @ CD-7c

1400 leave site

6-8-22

630 Mob to site

825 Meet Ken Champagne - HET

Derek Pencairn - RSO - Surveyor

WORM Survey using Ludlum

Model 3 w/ 44-2 Probe

sn 193876 cal date 5/3/22

Battery = Good

Cs 137 = 800  $\mu$ R/hrCrawfish ponds, oilfield roads,  
grass fields, hardwoods, oak trees,  
cypress treesBackground = 10  $\mu$ R/hr

GPS 15R 0536112

3338930

David Saganeti w/ ERM oversight

Survey TB area + around sn 229984

many hot spots reading  $> 20 \mu$ R/hrWill w/ Bammer @ TB to  
perform norm survey for current  
operator*Rite in the Rain*

6 6-8-22

DP

9:00 AM  
Sunny

Mob to sn 162279 + sn 206253  
for survey. (Drill crew @ location)  
all readings 10-15  $\mu$ R/hr

1200 Survey around TB ENCO Resources  
CIB HVNA; R.R. Bruce NO 3  
Luw 610371 +

o+G well sn 200772 + sn 208588  
Found scale on the ground  
reading  $> 20 \mu$ R/hr + a  
hot flowline  $> 50 \mu$ R/hr

1:330 Survey around o+G sn 82022  
thick brush found large pile of  
scale reading  $> 20 \mu$ R/hr

Survey around sn 76164 + sn 971675  
all readings 10-15  $\mu$ R/hr

Survey around sn 158347 + sn 217815  
all readings 9-12  $\mu$ R/hr

Survey around sn 34959 JCD-2 + CD-3  
all readings 8-12  $\mu$ R/hr

1605

DP

6-8-22

7

Survey around sn 28396  
all readings 9-13  $\mu$ R/hr

1605 Check out meter  
Cs = 800  $\mu$ R/hr  
Bottle = Good

*Put in the Rain.*

6-9-22

DP, CJ

85°F

620 Mob to site

820 meet Sydney Manal w/ HET

David S w/ ERM splitting samples

Flow sampling & documenting  
NORM Derek & Chase

Using Ludlum Model 3 w/  
40-2 probe.

Cs 137 = 800  $\mu$ R/hr

Battery = Good

R-1 536112  
3338930

BACKGROUND

	before	After
surface	10 $\mu$ R/hr	10 $\mu$ R/hr
@ 1m	10 $\mu$ R/hr	10 $\mu$ R/hr
845 (0-6) @ 6"	-	15 $\mu$ R/hr
870 (6-12) @ 12"	-	16
855 (12-18) @ 18"	-	16
900 (18-24) @ 24"	-	16 $\mu$ R/hr

Using hand auger to sample 3" bucket head of  
2 1/2" ditch head. Devon w/ alternate bled  
intervals.

DP, CJ

6-9-22

R-2 537009  
3339021

OTG well sn 200772  $\rightarrow$  sn 208588

TB ENCO Resources LUN610371

Scale on the surface

2' x 1'  $\times$  20  $\mu$ R/hr - Hot spot 23  $\mu$ R/hr  
before After

surface 23  $\mu$ R/hr 18

@ 1m 10' 18  $\mu$ R/hr

930 (0-6) @ 6" 23

935 (6-12) @ 12" 19  $\mu$ R/hr

@

E1 537002  
3339033

Flowline @

Hot spot 200  $\mu$ R/hr  
85' of active flowline between  
separators reading  $>$  100  $\mu$ R/hr

Rite in the Rain

6-9-22

DP, CT

90°  
cloudy

R-3 537064  
3339078

scale from inside of a  
tank that was removed  
14'x10' area reading > 20  $\mu$ R/hr  
before After

	@ surface	43 $\mu$ R/hr	32 $\mu$ R/hr
	@ 1m	33 $\mu$ R/hr	19
1000	(6") @ 6"		29
1005	(6-12") @ 12"		24
1010	(7-15") @ 18"		20

Hot spot 43  $\mu$ R/hr @  
sn 82022 / sn 139607

E-2 15 537128  
3339311

TB 26 pcs of tubing  
High reading 1700  $\mu$ R/hr

TB E-3 537139  
3339309

90° flange on well head  
@ sn 229984  
reading 290  $\mu$ R/hr

DP, CT

6-9-22 11

TB E-4 537126  
3339288

2.5' pc of cut flowline w/ 90°  
120  $\mu$ R/hr

TB E-5 537127  
3339282

separator active  
470  $\mu$ R/hr

TB R-5 537122  
3339282  
sn 229984

8'x7' area coming from separator  
reading > 20  $\mu$ R/hr

Hot spot 250  $\mu$ R/hr  
before After

	@ 1m	65 $\mu$ R/hr	70
	@ surface	250	140
1100 (6")	@ 6"		75

refusal concrete or stone @ 6"

Rite in the Rain

6-9-22

DP, CS

Sample on R-4 537136  
 3339304  
 coming from well head  
 pg 14 sn 229984  
 11'x6' area > 20  $\mu$ R/hr

High 800  $\mu$ R/hr

R-6 537122  
 3339285  
 3'x4' area > 20  $\mu$ R/hr  
 High 30  $\mu$ R/hr

R-9 537104  
 3339316  
 1'x1' area > 20  $\mu$ R/hr  
 hot spot 32  $\mu$ R/hr

R-7 537140  
 3339270  
 6" spot reading 26  $\mu$ R/hr

PP, CS

6-9-22

R-8 537138  
 3339295  
 6" spot reading 40  $\mu$ R/hr

R-10a 537144  
 3339302  
 spot under 90° in  
 flow line 14' from well head  
 High reading 120  $\mu$ R/hr  
 6" spot > 20  $\mu$ R/hr

R-10b 537143  
 3339306  
 7' from well head  
 High read 40  $\mu$ R/hr  
 1'x1' > 20  $\mu$ R/hr

All readings from TB + sn 229984  
 location

*Rite in the Rain.*

6-9-22

DP, CJ

## R4 Sampling

sample 10' from well head  
packed limestone

1130 0-4" refusal @ 4" large rocks  
11'x6' area reading > 20  $\mu$ R/hr  
before after

surface	800 $\mu$ R/hr	210
@ 1m	35	45
@ 4"		160 $\mu$ R/hr

Put decon water in Rad-5 sample  
hole.

Close meter Cs-137 = 800  $\mu$ R/hr  
Battery = Good

1145 Mob to the shop

7-3-24

630 Mob to site

840 @ site

un cap wells

ERM Marcus S + HET Ryan L.

930 SJ Langlois (had title)  
surveying wells CD12-17

DP wtr levels - un cap wells

Well	DTW	TD
1240 2a	18.61	
2b	29.43	
3a	16.08	
3b	29.92	
11a	18.33	
11b	32.46	
15 RB	18.91	49.13
15 BA	18.86	39.3
15 C	26.26	69.29
5A	14.85	
5B	60.75	
8		
4a	14.03	
4b	37.65	

Rite in the Rain

Well	DTW	TD
12a	5.00	18.31
12b	5.02	39.53
9a & 9b	not there	
10	8.55	41.87
8a	8.18	
8b	54.44	
13a	16.49	32.87
13b	16.46	42.91
13c	45.48	68.85
17a1	19.15	27.45
17a2	19.90	51.45
17b	33.30	72.75
6a	18.70	
6b	22.19	
6c	GAS Gurgling; <del>was</del> had pressure	
16a1	18.60	27.44
16a2	18.53	47.19
16b	27.50	67.23
7a	dry	<del>46.46</del> 16.4
7b	17.52	<del>17.52</del>
7c	17.57	
14a	16.88	40.95
1a	9.52	
1b	10.02	
1505 1c	36.24	

15/10 Leaving site 1a, 1b, 1c were buried, uncovered by surveyors

Rite in the Rain

Castex Development  
9403-016-0100

3



*Rite in the Rain*  
ALL-WEATHER  
**JOURNAL**  
N° 391FX



KB  
88° Mostly Cloudy

6.13.22

1100 On site

- oversight on site

ERM: David Sanguinetti

HET: Darryl Carroll

1120 Setting up on CD-12A to purge  
of sample

1130 Pump on, tubing @ ~17'

CD-12A

DTW: 8.47' TD: 18.25' Su: 1.65

time	temp	[ $\mu$ S]	pH	ORP	[ppm]	TDS	turb	vol
1131	25.2	578.8	7.38	-71	319	48	Initial	
1140	24.2	445	6.61	-22	304	54	0.5	
1145	24.1	392	6.42	50	266	11	1.0	
1150	23.9	381	6.32	50	258	5	1.5	

1200 Sample time

- RADs, total metals

1235 Pump off

1240 LUNCH / Heat break

6.13.22

1315 Setting up on CD-12B to purge  
of sample

1325 Pump on, tubing @ ~38'

CD-12B

DTW: 8.32' TD: 39.4' Su: 1.5

time	temp	[ $\mu$ S]	pH	ORP	[ppm]	TDS	turb	vol
1330	26.9	575	7.37	18	391	24	Initial	
1332	25.7	577	7.31	-10	393	22	0.5	
1336	27.0	577	7.29	31	393	7	1.0	
1338	25.4	578	7.32	25	394	4	1.5	
1341	25.0	576	7.36	46	394	3	2.0	
1344	25.0	575	7.31	64	393	2	2.5	

1350 Sample time

- RADs, total metals

1410 Pump off

1415 Heat break

1445 Setting up on CD-10C to purge  
of sample

\* Well dry

DTW: 71.65' TD: 72.15' Su: 2.5

*Rite in the Rain*

4 KB

6.13.22

1520 Pump on, CD-13A  
tubing @ ~32'

DTW: 20.22' TD: 33.75 Su: 2.1'

[ $\mu$ S]

time	temp	cond	pH	ORP	TDS	turb	vol
1522	29.0	1035	7.07	4	726	26	Initial
1530	25.8	1101	7.00	17	778	OR	0.5
1536	26.3	1136	7.01	-2	803	7	1.0
1540	25.7	1142	7.01	3	809	3	1.5

1545 Sample time  
- RADs, total metals

1620 Pump off

1625 Setting up on CD-13C to purge  
of sample

~~1630~~ Pump on, tubing @ ~42'

CD-13B

DTW: 19.70' TD: 43.35' Su: 2.00'

time	temp	cond	pH	ORP	TDS	turb	vol
1633	27.8	1210	7.76	-39	915	OR	Initial
1637	25.6	1293	7.46	-106	919	5	0.5
1641	25.7	1308	7.33	-108	930	2	1.0
1647	25.6	1317	7.28	-118	937	2	1.5
1651	25.1	1320	7.28	-111	940	3	2.0

6.13.22

1700 Sample time  
- RADs, total metals

1720 Pump off

1740 Leaving site

KB

*Return to the Rain.*

KB  
81°F, Sunny

6.14.22

0745 On site

- oversight on site

ERN & DS

HET: DC

0810 Pump on, tubing @ ~68'  
CD-13C

DTW: 48.0' TD: 69.59' Su: 2.27'

time	temp [us]	cond [ppm]	pH	ORP	TDS	turb	vol
0815	27.6	2908	8.31	128	2184	OR	Initial
0822	25.4	2247	8.07	-32	1472	OR	0.5
0828	25.5	2171	7.97	24	1609	OR	1.0
0838	28.4	1375	7.76	-9	977	OR	1.5
0848	25.5	1039	7.78	26	730	OR	2.0
0857	26.0	993	7.75	36	697	OR	2.5

0900 Sample time

- RAOs, dissolved metals (2)

\* turb @ sample time w/filters  
= 3.97 NTU

1015 Pump off

6.14.22

1025 Setting up on CD- to purge  
& sample

1045 Pump on, tubing @ ~40'

CD-14A

DTW: 17.02' TD: 41.83' Su: 2.35'

time	temp [us]	cond [ppm]	pH	ORP	TDS	turb	vol
1050	29.2	1929	7.29	-50	1410	3	Initial
1052	26.7	1610	7.37	-20	1164	7	0.5
1055	26.3	1550	7.30	-69	1115	3	1.0
1058	25.9	1349	7.30	-82	959	12	1.5
1100	26.3	1340	7.22	-26	953	4	2.0

1105 Sample time

- RAOs, total metals

1135 Pump off

1150 Meeting EIAM to grab samples

1230 Leaving site

KB

Site in the Rain

8 7/3/24  
0915

DC  
@ site

CD-2B

DTW ~~27.05~~ 29.43'

Ryan w/ HET onsite

Marcus w/ ERM onsite

+ transducer set ~40' bwc

1056

Start logging

1101

Add ~80z H<sub>2</sub>O

1120

Add ~80z H<sub>2</sub>O

1140

Add ~80z H<sub>2</sub>O

1200

Stop logging

CD-1C

DTW 36.16'

+ transducer set ~40' bwc

1235

Start logging

1240

Add ~80z H<sub>2</sub>O

1250

Add ~80z H<sub>2</sub>O

1300

Add ~80z H<sub>2</sub>O

1310

Stop logging

CD-8A DTW: 8.18' bwc

7/3/24

9

CD-8B

DTW 54.44' bwc

transducer set ~60' bwc

1434

Start logging

1450

Add ~80z H<sub>2</sub>O

1521

Stop logging

1550

Leave site

*Ritter in the Rain*

CASTEX DEVELOPMENT  
9403-016-0100  
LOG BOOK #4



*Rite in the Rain.*  
ALL-WEATHER  
**LEVEL**  
Nº 310F

GAM, CAM, DW  
 HET: DW ERM: CT

6.15.22

0700 - on site

UTM: 0537188  
 CD-15 NAD83: 3339674

Cl. #	Re	EL	Description
3'	0.25		CLAY, brown, stiff, rootlets @ top
4'	1.92		CLAY (0-2'), light brown w/ orange, stiff.
4'	2.49		Silty CLAY (2-4), light brown, w/ orange, stiff
4'	3.05		CLAY, gray w/ red & orange, stiff, Ca nodules @ 3'
4'	2.49		CLAY, gray w/ orange & red, stiff
2.4	1.67		Silty CLAY, gray w/ orange @ top, stiff
3'	2.02		Silty CLAY, gray w/ orange, stiff
2.4	2.25		Silty CLAY, stratified gray & orange, stiff shell frags @ bottom
2.5	0.87		clayey SILT, gray to brown, soft, moist, shell frags
2.1	2.21		SAA top 5"; CLAY, gray w/ red/brown, stiff
2.5	2.12		CLAY, stratified gray & red/brown, stiff, SILT bottom 3" dense

6.15.22<sup>3</sup>

CD-15

Cl. #	Re	EL	Description
2.5	0.90		SILT, brown, wet; clay (0-7-1') gray, stiff
3.2'	1.03		SILT, brown, wet; silty CLAY (3.2-4') gray/brown, stiff
2.4	1.05		clayey SILT, gray to brown, sandy bottom 4"
3.8	0.74		SILT, brown, <del>tan</del> wet
3.8	0.77		SAA
3.8	0.74		SAA
3.6	0.73		SAA
3.7	0.75		SAA
3.6	0.76		SAA
2.5	0.95		CLAY, gray, med soft; SILT lens (1.2-1.6) wet, brown
4'	1.43		CLAY, gray, med soft

*Return to Rain*

GAM, DW, CAM, SC  
ERM:CT HET:DW

6.15.22

CD-15

50	2A	0.6A	Silty CLAY, gray, soft; SILT @ (1-1.7), 2-2.1' w.t
51	3.6	0.49	SILT, brown, wet, clay lenses throughout
5A	3.8	0.40	SILT, brown, wet
5c	3.6	1.26	CLAY, gray, med soft, var, wood
5B	3.6	1.29	SAA
6A	2.9	0.88	Silty CLAY, gray, med soft
6B	2.1	1.08	SAA
6A	<del>3.2</del> 3.8	<del>0.36</del> 0.19	SILT, brown to gray, wet, trace clay @ bottom
6c	4	0.54	SILT, gray, soft, wet
6B	2.4	0.92	CLAY, gray, st. ff.
7A	4	1.35	SAA w/ wood @ bottom
7B			

No soil sample to be submitted to lab

6.15.22

5

- 1010 - pulling sample barrel
- re-enter sample hole w/ E. tip to 98'
- 1110 - Insert PVC w/ filter sock & bottom cap
- Add ~3 gal potable water

CD-15 set (temp)

SCREEN: 78-98'

- 2.25' casing: 78
- gas venting out of well
- pull temp well
- 1st gas vent; still venting
- Enter hole w/ E. tip to 76'
- Grout through 2.25" w/ heavy mix of grout
- ~23 gal grout to surface
- gas sealed

1430 - Installing CD-15B

- 2.25" to 48'; Insert PVC w/ filter sock & bottom cap

CD-15A set

SCREEN: 28-38'

PELLETS: 24'

SAND: 27'

NATIVE: 28'

CD-15B set

SCREEN: 38-48'

PELLETS: 17'

SAND: -

NATIVE: 33'

*Rate in the Rain*

GAM, DW, JC

6.15.22

- 1511 - Enter adj to 15A to 38'
- 1530 - Insert pvc w/ filter sock & bottom cap
- 1520 - CAM leaving site to return to office
- 1600 - Decon
  - move equip to trailer
- 1645 - Leaving site



GAM, DW, JC, MJ (doing well completions)

HET: DW ERM: CT

93°

6.16.22

- 0700 - On site
- 0730 - Circulating CD-15B
  - tramic @ 15', grout thru tramic
  - 3 gal grout to surface
  - tramic @ 10' on CD-15A
- 0830 - Return to CD-5 to install Temp deep well
  - Enter w/ augers to 95'
- 1115 - Enter augered hole w/ 2.25 w/ E. tip to 110'
- 1140 - Insert pvc w/ filter sock & bottom cap
  - add ~8 gal potable water

CD-5B (Temp)

SCREEN: 95-110'

2.25" casing: 94'

water: 8 gal

SU: 2.70'

DTW

1158 68.02

1215 67.99

1230 68.02

1300 67.01

1311 68.00

1322 67.99

1333 67.99

Not on the Rain

6.16.22

- Jc, Dm, MS doing well completions

CD-5D Temp

LTW: 67.99'    ID: 112.25'    SU: 2.70'

Time	temp	MS Cond	pH	ORP	PPM TDS	Turb	Vol
1344	31.1	529	6.27	122	330	-	initial
1352	24.1	562	7.13	-103	357	-	1
1400	26.5	556	7.14	-148	352	-	2
1412	26.0	641	7.25	-150	410	-	3
1423	26.0	615	7.27	-164	389	OR	4
1431	25.7	610	7.30	-153	387	OR	5
1445	26.2	611	7.32	-96	387	OR	6
1455	26A	606	7.30	-111	384	-	7
1502	26.7	603	7.27	-106	382	OR	8

1510 - Sample time

- Dissolved (field filtered)
- = 13 NTU w/ filter

	DTW
1600	67.98
1610	67.98
1620	67.99

1630 - Leaving site

6.17.22<sup>9</sup>

0700 - On site

- CD-5D    DTW  
0708 - 67.95'

CD-15A

DTW: 18.36'    ID: 39.74    SU: 1.90'

Time    temp    Cond    pH    ORP    TDS    Turb    Vol

- pump malfunction; will sample Monday

0730 - pulled CD-5D; able to push  
transducer through 2.25" to 97'.

Grouting through transducer  
- 30 gal grout to surface

0820 - GAM leaving site; going to lab

*Rite in the Rain*

10 6/28/22  
0935

DC  
@ site  
Ryan Leonards w/HET onsite  
Marcus Smith w/ERM onsite

Slug Test CD-3a  
DTW: 16.58' btrc

Transducer set ~25' btrc

1037

Start logging

1042

Add ~8oz H<sub>2</sub>O

1057

Add ~8oz H<sub>2</sub>O

1119

Add ~8oz H<sub>2</sub>O

1147

Stop logging

Slug Test CD-29

DTW: 18.20' btrc

Transducer set ~25' btrc

1211

Start logging

1216

Add ~8oz H<sub>2</sub>O

1231

Add ~8oz H<sub>2</sub>O

1246

Add ~8oz H<sub>2</sub>O

1302

Stop logging

6/28/22  
1430

Pump Test CD-2b

DTW: 28.888 btrc

Time	DTW	Vol	Pump time
1430	29.48	250mL	0:29.23
- slow pump down			
1435	31.69	250mL	0:49.78
1440	31.93	250mL	0:47.26
1445	31.92	250mL	0:46.84
1450	32.13	250mL	0:49.65
1455	31.99	250mL	0:46.96
1500	32.16	250mL	0:49.94
1505	32.01	250mL	0:48.75
1510	32.17	250mL	0:47.74
1515	32.14	250mL	0:46.48
1520	32.24	250mL	0:50.83
1525	31.95	250mL	0:58.54
1530	31.95	250mL	1:02.38
1535	31.97	250mL	1:04.32

1539 Pump off

*Write in the Rain*

6/28/22

Pump Test CD-66  
DTW: 23.03' btoc

Time	DTW	Time to Pump 250 ml
1625	26.90	1:23.85
- Slightly increase pump speed		
1630	30.55	0:57.41
1635	32.19	1:25.44
- slowed pump back down slightly		
1640	32.18	1:30.29
1645	31.71	1:40.66
1650	31.00	

- Pump shut off
- change peristaltic head to series 1 drive
- resume pumping

1700	30.84	1:37.84
1705	31.54	1:38.27
1710	31.54	1:43.02
1715	31.55	1:41.14

1717 Pump off

6/29/22  
0755

DL

13

@ site  
Marcus w/ ERM on site  
Ryan w/ HET on site

Pump Test CD-96  
DTW: 31.18' btoc

Time	DTW	Time to Pump 250 ml
0840		
0850	31.72'	1:59.43
0855	31.69'	pump speed fluctuating
- increase pump speed		
0900	31.75'	1:57.79
0915	31.75	2:32.61
- increase pump speed		
0920	31.77	2:06.00
0925	31.78	2:04.64
0930	31.79	2:13.60
0935	31.82	1:46.71
0940	31.86	1:51.70
0945	31.80	1:51.64

0947 Pump off

*Plot in the Rain*

14 6/29/22

Slug Test CD-10a

DTW: 13.59' btoc  
Transducer set ~ 20' btoc

1026 Start logging  
1030 Add ~ 8oz H<sub>2</sub>O  
1050 Add ~ 8oz H<sub>2</sub>O  
1110 Add ~ 8oz H<sub>2</sub>O  
1130 Stop logging

Slug Test CD-4a

DTW: 19.25' btoc  
Transducer set ~ 25' btoc

1153 Start logging  
1158 Add ~ 8oz H<sub>2</sub>O  
1208 Add ~ 8oz H<sub>2</sub>O  
1218 Add ~ 8oz H<sub>2</sub>O  
1229 Stop logging

Pump Test CD-4b

DTW: 40.17' btoc

1247 Start pumping  
- water level too low for peristaltic pump to pump  
- turn off pump  
- will try CD-11b

6/29/22

15

Pump Test CD-11b

DTW 31.58' btoc

1346 Start pumping  
- pump not pulling water over  
- started raining  
- talked to Jason, calling it

1430 Leave site

9/8/22

cm/MJ/  
JC

0915 on Site  
0945 Don Watts (HET) on site

START opening wells for water levels

959 CD-14A (no 14B)

1005 CD-7a/b/c

1015 6a/b/c chas Gas

CD-13 are temps ~~not there~~ for

1024 5 (5c No Completion)

*Rite in the Rain*

CMW U ID

1036 4a/b

1042 9a/b

1050 found 13a/b/c

1058 8a/b

1058 10a/b/d

1110 15 a/b/c

1115 2 a/b

1117 11 a/b

1120 3 a/b

1131 12 a/b

1143 1 a/b/c

1225 Go to 'also depths

\* DTW taken with probe ~25' short

\* TD/shotcup with better tape

Time	Well ID	DTW	TD	Strikeup
	CD9a	37.94	39.59	3.50
	CD9b	54.49	71.26	3.44
	CD5a	45.42	44.76	1.65
	CD5b	83.83	70.91	1.46
	CD5c	87.50	-	1.84
	CD4A	43.21	43.51	1.63
	CD4B	63.17	68.93	1.68
	CD10A	38.60	41.00	1.05
	CD10B	91.67	66.30	1.38
	CD10C	92.46	72.59	2.41
	CD14A	41.37	41.22	1.27
	7A	41.72	16.65	1.41
	7B	41.95	33.73	1.50
	7C	41.92	51.48	1.46
	6A	43.72	41.50	1.60
	6B	47.27	67.32	1.58
	6C	44.48	81.31	1.28
	13A	43.47	33.08	1.09
	13B	43.39	43.16	1.38
	13C	70.20	69.08	1.13
	8A	34.42	31.26	1.23
	8B	77.17	63.52	1.30

\* DTW taken with meter ~25' short  
 (CM 09/09/2022 25.52 short) *hit in the rain*

Well ID DTW TD Stickup

DTW was taken with meter 25.52" short.

12A	33.62	18.54	1.63
12B	33.49	39.63	1.36
3A	39.16	43.83	1.88
3B	53.62	66.82	1.87
11A	41.05	36.05	1.04
11B	56.26	71.22	1.24
2A	41.89	45.03	1.91
2B	53.24	70.07	1.84
15A	42.58	39.50	1.42
15B	42.62	49.32	1.54
15C	50.14	69.53	1.56

X

1A	33.04	17.66	Flash Mount
1B	33.49	36.65	
1C	59.48	57.82	

JC, MS

PLA wells  
1/2 Set completion on CD10a

PLA	CD-10b	3 gal
	CD-10c	4 gal
	CD-9a	2 gal
	CD-9b	3 gal
	CD-5c	5 gal

1600 JC, MS leave site

1645 CM leave Site

*Write in the Rain*

Well ID DTN TD Strikeup

DTN was taken with meter 25.52" short.

12A	33.62	18.54	1.63
12B	33.49	39.63	1.36
3A	39.16	43.33	1.88
3B	53.62	66.82	1.87
11A	41.05	36.05	1.04
11B	50.26	71.22	1.24
2A	41.89	45.03	1.91
2B	53.24	70.07	1.84
15A	42.58	39.50	1.42
15B	42.62	49.32	1.54
15C	50.14	69.54	1.56
X 1A	33.04	17.66	
1B	33.44	36.65	Flash Mount
1C	59.48	57.82	

JC, MS

PLA wells

Set Completion on CD10a

PLA

CD-10b	3 gal
CD-10c	4 gal
CD-9a	2 gal
CD-9b	3 gal
CD-5c	5 gal

1600 JC, MS leave site

1645 CM leave site

max, GM, JC

1020 On Site  
Weather: Sunny, 91°

Goal Drilling and set temp wells

VIM: 0537042

CD10c NADES: 3339257

Well ID	DTN	TD	Strikeup	Description
0	1.7	0.47	1.5	Silty CLAY, brown 0-0.4, med stiff; CLAY 0.4-1.7, stiff, red to brown.
4	3.0	1.50	2.3	Silty CLAY, brown to gray, stiff, black stain throughout, Ca med @ 2.9
6	4.0	1.8	2.8	CLAY, red to gray, v. stiff, Ca @ 2.7 + 3.5
12	4.0	2.02	3.0	CLAY, gray, w/ red + black stain gravel @ 2.7 + 0.2
16	4.0	1.20	2.0	Clayey SILT, damp 0-1.5, brown to gray, orange stain, silt lenses 3-3.7
20	3.0	1.49	1.7	CLAY, gray, silt lenses toward orange stain, shell @ 2.7
22A	2.7	0.65	1.7	SILT, brown, soft, damp, shells 0-3
24	3.5	0.65	0	SILT, brown, soft, damp, lining upside
26	3.1	0.73	0	SILT, SAA 0-3.0, shell @ 0.7
28	0.72	0		CLAY, gray, 3.0-3.1

20  
MAY, GAM, JC  
Oversite ERM + HET

6-10-24

CD-16 (contin)

Depth	Re	qc	PP	Description
28	3.3	1.27	0.5	CLAY 0-2.2, gray, stiff, red stain; SILT, gray, 2.2-3.7, med. trace clay, saturated @ bot
30		0.90	0	
32	3.7	0.70	0	SILT, gray, soft, saturated @ bot
34		0.71	0	
36	2.9	0.84	0	Silty CLAY, saturated, 0-1.0, gray;
38		1.47	0.5	CLAY, 1.0-2.1, gray, med soft; silty clay, gray 2.1-2.9
40	3.2	0.71	0	SILT, saturated, gray, soft
42		0.65	0.7	
44	3.7	0.71	0	SAA
46		0.55	0	
48	3.5	0.77	0	SAA
50		0.76	0	
52	3.7	0.70	0	SAA
54		0.59	0	
56	4.0	0.70	0	SAA
58		0.6	0	
60	3.5	0.53	0	SAA
62		0.17	0	
64	8.9	0.52	0	SAA 0-0.7; CLAY 0.7-3.9, gray, med soft
66		0.7		
68	8.6	0.56	0	SILT, gray, soft, saturated
70		0		

21  
MAY, GAM, JC  
Oversite ERM + HET

CD-16 (continue)

Depth	Re	qc	PP	Description
52	3.4	0.64	0	Silty CLAY, gray, orange stain, soft
54		0.48	0	
56	3.2	1.27	0.5	CLAY, silt lenses, red stain, med soft, gray
58				
60	2.9	1.14	1.5	CLAY, gray, med stiff, red stain, trace silt
62				
64	4.0	0.45	0	Silty CLAY, 0-3.0, gray, soft, damp; SILT 3.0, gray, soft, wet
66				
68	3.8	0.44	0	SILT, SAA
70				

Samples: 10-12, 14-16, 54-56  
Time: 1325 1335 15K

1620 Pack and decan, will set well tomorrow leaving casing in ground  
1630 Leave Site

MAY

Rate in the Rain

22

MAD, GAM, JC  
Onsite ERM + HET

10-10-24

0710 On Site  
Weather 74°, Sunny

Goal Set well @ CD-16 (temporary)

Setting screen intervals: 16-26',  
36'-46', 56'-66'

- 0750 Pulling sample bands
- Re-enter sample hole w/ E-tip to 56' w/ 2.25' + 3.25' to
- insert PVC w/ filter sock + bottom cap
- Add potable water - 4 gal

CD-16 (B)

Screen 56-66'

Casing 56'

(Sand) ~~Sand~~ - 50'

Native - Native 56'

Pellets 52'

MIR

10-10-24<sup>23</sup>

MAD, GAM, JC  
Onsite ERM + HET  
HS D

1000 More probe adjacent to CD-16B and using barrels setting interval to 36'-46' w/ E-tip. Enter insert PVC w/ filter sock + bottom cap

CD-16(A2)

Screen 36-46'

~~Casing 36'~~

Sand -

Native 33-46'

Pellets 30'

1049 install CD-16(A1) <sup>adjacent to CD-16(A2)</sup> insert bands w/ E-tip to 16' insert PVC w/ filter sock + bottom cap

CD-16(A1)

Screen 16-26'

Native 24'

Sand 15'

Pellets 12'

Return to Rain

1130 Lunch Break

1230 Removing casing from CD-16B  
Grout ~ 10 min  
~ 35 gal to gal

Decen, move to CD-16A2  
grout ~ 10 gal turn turn

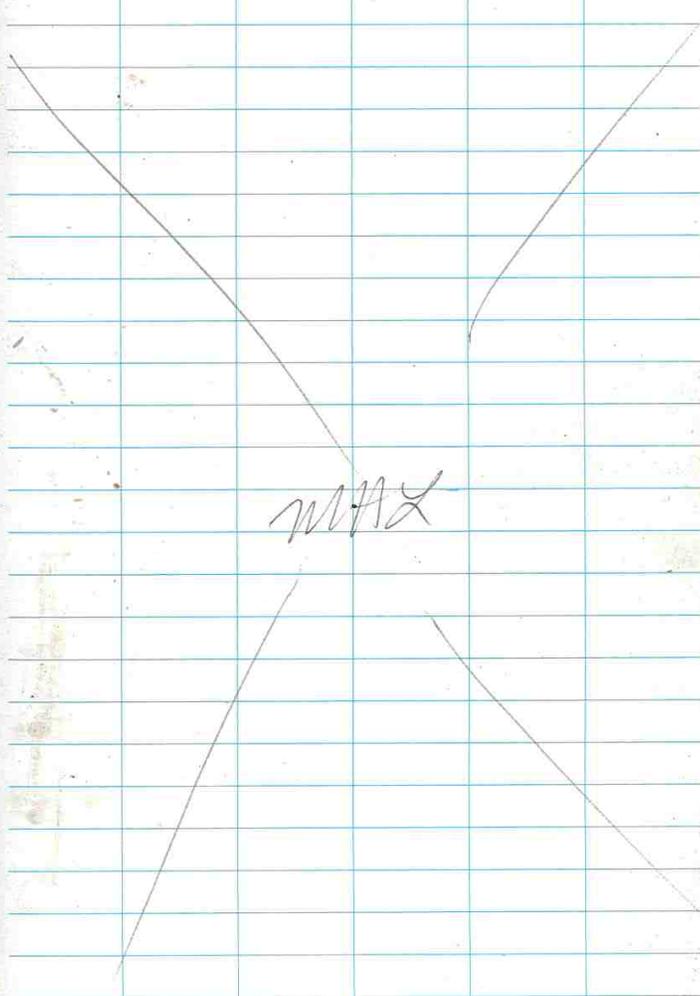
Decen, move to CD-16A3  
grout ~ 10 gal turn turn

1440 Decen; pack equipment more  
prob to build a bridge  
over a trench dug in  
road  
Use geo prob to push  
mud into trench + smother  
over

Cover with a mat

1520 Track geo prob to next  
pad and clean location

1600 Leave Site



*Plot in the Rain*

26 MAX, GAM, JC

6-12-24

Oversite ERM + HET

0700 On Site

Weather 72°, Sunny

Goal Auger site to <sup>94'</sup>  
~~30' + 1'~~ &  
~~sample~~

0720 Position Geoprod & set up equipment  
for augering

0745 Begin setting CD-17 (temp)  
~~CD-17~~

Augering to 94'

0930 Finished augering to depth  
94'  
Setting geoprod coil

0953 Pulling up solid auger

1110 Enter auger hole w/ 2.25  
and E-tip  
chest PVC w/ filter sock &  
bottom cap  
Add potable water.

MAX, GAM, JC

6-12-24<sup>27</sup>

Oversite ERM + HET

CD-17 (temp) 537341  
3339654  
Screen: 94-104

1210 Gas and water spattering  
out of the well & pipe top  
Lunch break to let pressure  
die down

1320 Well is still producing  
gas and spattering water  
Going to allow well pressure  
to deplete over night

1340 MAX leaves site to pick up  
supplies from AB

MAX

Ret in the Rain

Oversite ERM, H&T

0700 On site  
Weather 75°, Sunny

Goal Check pressurized well and ground water sampler CD-16

0719 CD-16(temp) is still sputtering water and releasing gas  
Going to grant well and not sample

- Pulling 2.25' pipe using goprobe after GAM & JC sheveled away sand build up

\* When bag was taken off the top of well, water began geysering up to ~30ft

- Well was pulled and tummie PVC was placed as water continued to geyser up.

- ~~A cap was placed on baffle to stop geyser to pull pipe bands~~

max

Oversite ERM, H&T

- Boring hell collapse, stopping geyser as barrels were removed

- insert final E-tip <sup>wd</sup> 2.25' to grant boring

1030 Finished grouting and decoring all equipment.  
Moving on to CD-16 for ground water sampling

1039

CD-16 A1

DTW 18.84'

TD 27.63'

Su 1.72'

Time	Temp	MS Cond	PH	ORP	IDS	Turb	Vol
1054							
1055	27.2	1197	6.74	-22	832.8	-	0
1100	24.0	1084	6.84	-38	750.7	-	0.5
1105	23.6	1097	7.16	26	711.3	630	1.0
1117	24.4	1097	7.29	66	753.5	111	1.5
1128	24.4	1101	7.29	76	762.4	15.2	2.0
1139	24.2	1101	7.30	88	761.4	9.36	2.5
1141							

Stop purging

Ret in the Rain

30 Max, GAM, JC  
Oremitz

6-13-24

Sample Time 1150

1301 Pump off, finished sampling

CD-16 A2

DTW 18.94 TD 76.65 SU 2.0'

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1316	Pump on						
1317	26.6	1012	7.85	99	695.3	-	0
1321	24.5	1032	7.75	135	712.3	-	0.5
1326	23.9	1147	7.64	148	797.2	2.1	1.0
1332	23.9	1209	7.55	152	841.7	3.21	1.5
1336	24.1	1229	7.49	144	855.4	1.89	2.0
1342	23.9	1243	7.45	136	863.9	2.5	

Sample Time: 1400

Pump off, Finished sampling 1446

Max, GAM, JC

6-13-24<sup>31</sup>

CD-16 AB

DTW 28.13 TD 68.10 SU

Applied Check Value @ start

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1511	Pump on						
1512	31.7	534.0	7.20	70	352.2	-	0
1515	27.8	611.5	8.25	-40	108.4	-	0.5
1521	26.0	626.6	7.79	-90	415.7	OR	1.0
1528	27.0	644.2	7.69	-78	430.2	OR	1.5
1535	27.3	643.6	7.58	-63	430.6	OR	2.0
1543	27.3	640.0	7.57	-63	428.9	OR	2.5
1544	Stop	Purging					

Sample Time: 1550

Turbidity Test: 1549 ~ OR

w/ filter 104

w/ 2nd filter 0.89

\* Taking dissolved metals

1634 Finished sampling

1700 Park equipment Leave site

MAX

Roll in the Rain

MAX, GAM, JC

6-14-24

Oversite ERM + HET

0715 Arrive on Site

Weather 71° Sunny

Goal Sample (soil) for CD-17

0800 CD-17 0530910 3338413

Depth	Lim	Rel	W	PP	Description
2.2	0.45	0.5			Silty CLAY, 0-0.7 gray, soft
	1.02	7.0			orange stain; CLAY 0.7-2.2, gray med soft, orange stain
4.0	2.34	3.5			CLAY, gray, v. stiff, orange
	2.55	3.0			black stain, silt lens 2.0-2.1
4.0	3.00	2.7			CLAY SAA 0-2.9 trace silt; <sup>green</sup> SILT, 0.2-2.9, gray, stiff, dry.
	0.94	3.5			
4.0	2.42	2.5			CLAY, gray, stiff, orange stain, silt lens 2.1-2.3, pebbles 0.4, 1.0, 2.0
	2.20	3.7			
2.5	1.43	0.0			Clayey SILT 0-0.7, gray, soft, SILT, 0.7-1.5, red, wet, soft; CLAY, gray, orange, silt lenses
2.7	1.67	1.3			Silty CLAY, gray, soft, silt lenses thin out, orange stain
2.9	1.16	2.5			CLAY, gray, med stiff, orange stain, silt lenses

MAX, GAM, JC

Oversite ERM + HET

CD-17 (continued)

Depth	Lim	Rel	W	PP	Description
3.0	0.77	0.3			CLAY, 0-1.7, gray, soft, trace silt
					Clayey SILT 1.7-3.0, gray, moist
2.7	0.72	0.5			SILT, gray, damp, soft
3.0	0.70	0			SAA, shells thin out
2.8	1.52	2.5			CLAY, stiff, gray, trace silt
2.7	0.96	0.3			SILT, trace clay, shells, wet soft
4.0	0.93	0			SAA, saturated 0-1.9, damp 1.9-4.0
3.7	0.88	0			SAA, saturated
4.0	0.73	0			SAA
3.8	0.73	0			SAA
3.7	0.63	0			SAA

Rite in the Rain

34 MAX, GAM, JC  
Over site

6-14-24

CD-17

42	Lim	Res	qc	PP	
42	3.7	0.71	0		SAA
44	3.8	0.62	0		SAA 0-3.3; CLAY, soft, 3.3-3.8, gray
46	4.0	1.05	0.5		SILT 0-1.6, gray, soft; CLAY 1.6-2.7, gray, trace silt, SILT 2.7-4.0

1130 Pack equipment, leaving  
panels in being  
Will return on Monday  
to complete sampling

MAX

MAX, GAM, JC  
Over site ERM + HET  
HS DC

6-17-24

0920 On Site  
Weather 71, cloudy  
Chance for Rain

Goal Finish Setting and sampling  
CD-17

CD-17

Reversed order

48	Lim	Res	qc	PP	
48	2.7	1.81	0.5		SILT 0-0.6, gray, saturated; CLAY, gray, wood @ 2.2, Nitro @ bott
50	4.0	1.06	0		Silty CLAY, gray, soft, curving upwards
54	4.0	1.06	0.5		Clayey SILT 0-1.7, gray, damp, soft; <del>SILT</del> Silty CLAY 1.7-4.0, SAA
56	4.0	1.69	0		CLAY, trace silt, soft, damp wood @ 3.1
58	4.0	0.71	0		Silty CLAY, gray, soft, wood @ 1.1
60	4.0	1.01	0		Silty CLAY, gray, soft, curving upwards
62	2.3	1.15	0.7		CLAY, gray, soft, mud clast, 2.0-2.7'

Rite in the Rain

36 MAR, GAM, JC

6-17-24

Oversite SRM + HET

CD-17 (contin)

62	4.0	0.71	0	Silty CLAY gray, soft, silt lens 1.0-0.8
64	3.4	0.77	0	Silty CLAY, gray, soft, damp, silt lens 2.9-3.2
66	0.7	0.67	0	SILT gray, 0-1.9, soft, saturated, silty CLAY 1.9-3, gray, damp
68	3.6			

Sample: Time  
60-62 1130 Dechats

1200 Lunch Break to let rain clear up

1300 Continue to cut cores

1315 Setting 3 wells (nested) w/ screen intervals 16-26', 39-49', 62-72

Pull sample barrels  
Re-enter sample hole w/ 3.25' to 56' & E-tip 2.25' to 72'  
Insert PVC w/ filter sock & both cap

37 MAR, GAM, JC

6-17-24

Oversite SRM + HET

1411

CD-17 B

Screen: 62-72'  
Casing 50'  
Pellets 52'  
Sand 55'  
Native 66'

1500 More geoprod. adjacent to CD-17 B

CD-17 A2

Screen: 39-49'  
Casing -  
Pellets 38'  
Sand 30'  
Native 31'

Insert 2.25' w/ E-tip to 49'

Insert PVC w/ filter sock & both cap

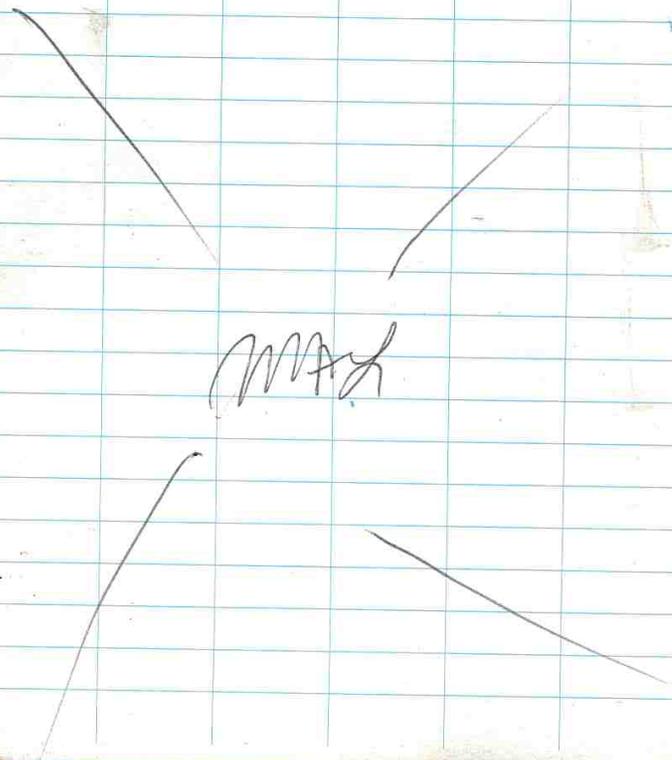
Rite in the Rain

<sup>38</sup> MAX, GAM, Je

6-18-24

1545 Pack equipment and  
dism  
Leaving panels in over  
night will complete  
well tomorrow morning

1600 Leave Site



MAX, GAM, Je

6-18-24<sup>39</sup>

~~Overite~~ ERM+

Overite ERM + HET

0730 MAX leaves to pick up  
sample kits from lab

0920 MAX arrive on site  
Weather: Cloudy, 79°. Sounds of  
distant thunder

Goal Complete CD-17A1  
Ground water sample

0930 Setting CD-17A1  
More geoprobes adjacent to  
CD-17A2  
~~Insert~~ insert 2.25' to 26'  
w/ E-tip  
insert PVC w/ filter sock  
and lott cap

	CD-17A1	} Had to redo MAX
Screen	16-26	
Sand	15'	
Pellets	12'	
Water	26'	
Casing	4'	

*Notes in the Rain*

40 MAX, GAM, JC 6-18-24  
Oversite HET + ERM

0945 Boring collapsed, removing  
PVC to reset well w/  
casing  
Enter boring hole w/ 2.25"  
+ Ertip to 16'  
churnt again PVC w/ filter  
sock + bot cap  
Remove 2.25"

1028 Allowing pellets hydrate  
before grouting

1130 Pellets hydrated, grouting  
CD-17A2, CD-17A2, CD-17B

Trunnie to 50' CD-17B, grouting  
trun trunnie ~ 30 gal

Trunnie to 31 CD-17A2,  
grout trun trunnie ~ 4 gal

Trunnie to CD-17A1  
grout trun trunnie ~ 4 gal

MAX, GAM, JC 6-18-24<sup>A1</sup>  
Oversite HET + ERM

1242 Decern equipment

1250 Lunch Break

1330 Lunch Break over

CD-17A1  
DTW — TD — SU —

~~Zone did not have efficient  
water zone~~ MAX  
~~Redigging well to more screen  
depth~~

~~1443 Move goopels adjacent to  
original CD-17A1 adjacent to CD-17A1  
Enter boring w/ 2.25" and  
E tip to 33', 3.25 to 23'  
churnt PVC w/ filter sock  
and bot cap~~ MAX

*Rate in the Rain*

<sup>42</sup> MAX, GAM, JC

6-18-24

Onsite HET & SRM

~~CD-17A1~~

~~Screen 23-33'~~

~~Pellets~~

~~Smooth~~

~~Active~~

MAX

CD-17A1

DTW 20.0' TD 25.29' SU 6.0'

Pump on 1439

PPM

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1441	25.0	1376	7.85	126	886.4	-	0

1448	25.3	1509	7.57	121	1059	-	0.5
------	------	------	------	-----	------	---	-----

1453 Well Dry, let recharge more on to intermediate depth

1615 Pump on

1616	23.3	1595	7.66	-21	1128	-	1.0
------	------	------	------	-----	------	---	-----

1618 Well dry again

MAX, GAM, JC

6-18-24<sup>43</sup>

CD-17A2

DTW 17.76

TD 49.50'

SU 6'

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1505	Pump on						
1506	25.2	1375	7.57	33	958.6	-	0
1515	23.0	1400	7.63	-7	979.1	880	1.0
1521	22.9	1409	7.53	-90	986.7	293	1.5
1527	22.9	1415	7.46	-106	991.9	2.14	2.0
1534	22.7	1416	7.43	-104	990.9	3.10	2.5
1535	Stop Pumping						

Sample time 1540

1612 Pump off

1615 Moving to purge CD-17A1

1620 Well dried, pack equipment

1630 Leave site

MAX

Rite in the Rain

44 MAX, GAM, JC 6-19-24

Oversite SRM + HST

0715 On Site

Weather 75°, cloudy

Goal Finish Sampling Wells  
CD-17B + CD-17A1

0750 Sampling CD-17A1 since  
water zone is not ~~ade~~  
efficient  
will be cutting RADs

Sample Time 0800

0803 Turb reading: 19.2  
Collecting Total Metals

0805 Well went dry

Moving on to CD-17B  
to let CD-17A1 recharge

MAX, GAM, JC 6-19-24<sup>45</sup>

Oversite SRM + HST

0820 CD-17B  
DTW 33.73' TD 72.89' SU 7.22

Time	Temp	Cond	pH	ORP	TDS	Turb	Vel
0827	Pump on						
0831	Applied	Check	valve				
0833	Pump on						
0834	21.7	917.3	7.02	122	628.7	-	0
0845	23.3	1057	7.32	80	734.6	-	0.5
0850	23.1	1006	7.44	52	720.9	OR	1.0
0856	23.7	1071	7.46	-14	740.3	OR	1.5
0903	22.9	1168	7.39	-3	812.4	OR	2.0
0905	Well	dry					
0922	Pump	on					
0925	23.6	1165	7.42	-10	810.5	OR	2.5
0930	23.0	1203	7.38	-16	839.0	OR	3.0

0936 Turb reading: 3.09 w/ filter  
Dissolved Metals

Sample Time 0946

Rite in the Rain

46 MAX, GAM, JC

U.19.24

Onsite

1039 Finish sampling, moving  
back to ED-17A1

1048 Pump on

1100

Well went dry.  
GAM & JC ~~start~~ collect  
completing well to let well  
recharge

Wells completed

1219 Pump on for ED-17A1

1347 Finished Sampling  
Pack equipment

1400 Leave Site

MAX

GAM, CAM, JC

7.22.24

1530 - on site

- Dropping equip on site
- Scouting locations

1620 - Leaving site

GAM

*Plot in the Rain*

GAM, SC, CM  
48 ERM. CT HFT. TW

7.23.24

0700 - on site

UTM: 0536780

CD-18 NADES: 3338612

Depth	P <sub>cu</sub>	F <sub>v</sub>	F <sub>p</sub>	Description
1.9	1.58	0.5		Silty CLAY, gray w/ orange, med soft
3.9	1.81	1.7		CLAY gray w/ orange & red, stiff;
	2.72	1.9		Ca. nod. @ 3.5'
4	2.52	2.4		CLAY, gray w/ orange & red, stiff, Ca
	2.85	2.0		nod. thru at
4'	2.68	2.0		SAA w/ silt lens bottom 2", moist, tan
	2.20	1.7		
2.2	0.66	0.4		Clayey SILT, brown, soft, damp
2.6	2.09	1.3		Silty CLAY, gray, med soft; silt lens: thru at, dry
2.1	2.17	1.4		Silty CLAY gray/blue w/ orange, stiff; silt lens @ 0.5, damp
2.5	0.75	0.1		Silty CLAY 0-1, gray/blue; clayey silt 1-2.5, gray, wet
1.9	0.82	0.1		clayey SILT 0-1, gray, damp; Silty CLAY, gray/blue w/ brown soft to stiff
2'	1.76	1.0		CLAY, gray, med soft

7.23.24

CD-18

Depth	P <sub>cu</sub>	F <sub>v</sub>	F <sub>p</sub>	Description
2.8	1.51	0.7		SAA 0-2.1; clayey SILT, gray, w/ 2.1-2.8
3'	0.77	0.1		Silty CLAY 0-1, gray; clayey SILT, gray, w/ 1-3 shell frags
3'	0.92	-		SILT red/brown, wet
3.7	0.98	-		SAA
3.9	0.77	-		SILT, gray, wet
3.7	0.61	-		SAA
4'	0.56	-		SAA
4'	0.93	0.1		SAA 0-2; CLAY, gray, soft, wood @ bottom 3"
3.4	0.65	0.1		Silty CLAY 0-2, gray, wood; clayey SILT 2-3.4, brown, wet
4'	0.49	-		SILT, brown to gray, wet, trace clay
4'	0.55	-		SILT 0-2.9, brown (possible flow. n.); CLAY 2.9-4, gray
3.5	1.05	0.1		Silty CLAY, gray, soft; silt lens: thru at

Rite in the Rain

GAM, CM, SC

50 ERM: CT HET: TW

7.23.24

0955 - Rain delay

1138 - Resume

Time	Sample
0815	0-4
0825	6-8
0835	10-12
0845	14-16 L
0910	26-28
1025	56-58

1240 - pulling 2.25"

1250 - re-center w 2" Solid Stem augers to 52'

- re-center w/ 2.25" to resume sampling

CD-18

Depth	LC	RF	EC	PF	Description
52	3.1	0.54	-	-	clayey SILT gray, soft, mast wood
54	3.9	0.49	-	-	clayey SILT, gray, wet
56	4'	0.98	-	-	SILT 0-1 (possible Flaw); clayey SILT 1-2, wet;
58	4'	0.57	-	-	SILT 0-2 (possible Flaw) gray, wet; clayey SILT
60					2-4, gray soft, wet

7.23.24<sup>51</sup>

CD-18

Depth	LC	RF	EC	PF	Description
60	3.7	0.62	0.4	-	SILTY CLAY w/ silt losses thru cut (wet), gray
62	3.7	0.60	-	-	clayey SILT 0-2.5, gray, wet; Silty SAND, gray, very fine, wet
64					20' Flaw in
66					—
68					—
70					—
72					

- Leaving Sample barrels in hole overnight w 66'

1600 - Leaving Site

GAM

Rite in the Rain

52 GAM, CM, JC  
ERM:CT HET: TW

7.24.24

0700 - on site

- pull sample barrels
- Enter w/ 3.25" to 64'
- Insert 2.25" w/ E.T.P. thru 3.25" to 74'
- Insert PVC w/ 6 slot screen w/ filter sock & bottom cap
- DW on site; dropping of drill pipe.

CD-18D

SCREEN: 64-74'

1208 PELLETS: 59

SAND: 62

NATIVE: 63'

Casing: 57'

Water: 8 gal

1010 - Rain delay

1210 - Trammie w/  $\approx 59'$ ; grout through trammie; casing still w/ 57'; pour  $\approx 8$  gal grout; pull 4 3.25" joints. Repeat

1340 -  $\approx 32$  gal grout

- Done

1400 - Rain delay; forecast is for rest of day. Leaving site.

7.25.24<sup>53</sup>

0700 - On Site

- Augering down to  $\approx 48'$
- pulling augers
- 0850 - Enter hole w/ 3.25" to 52'
- Enter thru 3.25" w/ 2.25" w/ E.T.P. to 57'
- Insert PVC w/ 6 slot w/ filter sock & bottom cap

CD-18C

SCREEN: 52-57

0945 PELLETS: 48'

SAND: 51'

NATIVE: 52'

Casing: 45'

Water: 2 gal

CD-18B

SCREEN: 32-42

1100 PELLETS: 28'

SAND: 31'

NATIVE: 32'

Casing: 26'

Water: -

1000 - Enter adj. to CD-18C, w/ 3.25" to 30'

- Enter 3.25 w/ 2.25" to 42'

- Insert PVC w/ filter sock & bottom cap

1150 - Testing HPT

- pass

- Stringing up HPI

*Retire in the Rain*

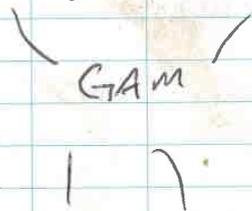
7.25.2A

		CD-18 HPT			
msl/m	FT'	msl/m	FT'	msl/m	FT'
140	- 4'	129	- 28'	80	- 52'
208	- 8'	63	- 32'	66	- 56'
214	- 12'	51	- 36'	44	- 60'
59	- 16'	42	- 40'	78	- 64'
100	- 20'	114	- 44'	92	- 68'
47	- 24'	39	- 48'	124	- 72'
				101	- 76'
				84	- 80'
				110	- 82'

- Trammie to 65' ~~at~~
- grat thru trammie
- ≈ 8 gal grat to surface

1400 - Rain; forecast is rain until 1800

- Leaving Site

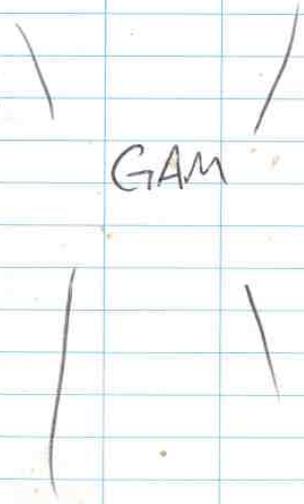


- 0700 - on Site
- grating CD-18B; trammie to ≈ 25'
- ≈ 24 gal grat thru trammie

- 0830 - Rain delay
- 0940 - Resume
- Trammie to ≈ 45' on CD-18C
- 28 gal grat thru trammie to surface

1020 - Rain delay

1100 - Leaving Site



*Rain in the Rain*

0930 - on site

- Installing CD-18A
- 2.25' to 26'
- Insert 1" w/ 6 Slot w/ Filter Sock & Bottom Cap

CD-18A Set

SCREEN: 16' 26'  
PELLETS: 12'  
SAND: 15'  
NATIVE: 24'

UTM 0536526

CD-19 NAD83: 3338644

Depth	R <sub>L</sub>	R <sub>F</sub>	R <sub>E</sub>	R <sub>P</sub>	Description
0.14	1.2	0.77	0.7		Silty CLAY, tan, soft
4	3.5	1.72	4.5		CLAY, gray w/ orange, red, & black, very stiff to stiff
8	2.21	2.7			
8	4'	1.30	2.1		Silty CLAY 0-3.1, gray, stiff to soft;
12	0.40	-			SILT, gray, wet
12	4'	0.90	-		SILT 0-1, gray, wet; Silty CLAY, gray w/ red, calc nod
16	2.15	2.7			
16	2.3	1.36	1.6		Silty CLAY, gray, med soft; Silt lens w/ 1.4-1.6, wet
18					

CD-19

Depth	R <sub>L</sub>	R <sub>F</sub>	R <sub>E</sub>	R <sub>P</sub>	Description
18	2.3	2.42	1.5		Silty CLAY, gray, med soft; Silt lenses w/ top (2") & 1.6-1.9, wet
20	1.73				
20	2.5	2.70	0.7		Silty CLAY, gray/brown, soft; Silt lenses thru out, damp
22	3.4	2.18	2.0		CLAY, gray w/ orange layers (stratified) shells, Silt w/ bottom 2" damp
24	2.7	1.63	-		SILT, brown, wet
26	3'	1.61	-		clayey SILT (brown to gray, shell frags, wet
28	2.3	2.55	1		SILT 0-0.7, gray, damp; Silty CLAY blue/gray, med soft
30	2.2	1.98	1		CLAY 0-1.3, blue/gray, med soft; clayey SILT, gray, damp, shells
32	2.7	1.14	-		Silty CLAY, 0-0.6, gray, soft; SILT, brown, wet
34	3.6	1.31	-		SILT, brown, wet
36	3.6	1.23	-		SAA
38	3.6	1.24	-		SAA
40					

*Rate in the Rain*

CD-19

40	42	44	46	48	50	52	54	56	58	60	62	64
Lim	R <sub>c</sub>	E <sub>c</sub>	P <sub>f</sub>									
3.7'	1.00	-		SILT, gray, w.t								
4	1.01	-		SAA								
3.9	1.00	-		SAA 0-2.2 ; CLAY gray, soft								
			0.2									
2.0	1.11	0.3		CLAY, gray, Soft, wood								
3.3	1.00	0.7		Silty CLAY, gray, soft ; Silty lens @ 1.7-2.1, w.t								
3.8	1.40	1		Silty CLAY, gray/brown, med soft ; clayey SILT 2.1-3.7, w.t								
3.9	0.53	-		clayey SILT, gray, wet brown								
2.3	0.43	-		SAA								
3'	0.36	-		SAA								
3'	0.53	-		Clayey SILT gray/brown, moist								
2.3'	1.01	0.4		Silty CLAY, gray, soft ; SILT bottom 3", w.t, gray								
3.7	1.03	-		Clayey SILT, gray, moist								

CD-19

64	66	68	70	72	74	76	78	80	82
Lim	R <sub>c</sub>	E <sub>c</sub>	P <sub>f</sub>						
2.6	1.11	-		SAA 0-1 ; Silty CLAY, gray, soft					
			0.7						
A'	1.35	0.9		CLAY 0-2.4, gray, soft ; clayey SILT, gray, wet, wood					
A'	0.41	-		clayey SILT, gray, wet ; clay lens @ 3.6-3.8					
2.7'	0.35	-		Sandy SILT, gray, wet, clay lens @ 2-2.2 more sand @ bottom					
A'	1.24	0.5		CLAY, gray, soft, wood					
			0.7						
4'	1.00	1.6		CLAY, gray, med soft					
			1.1						
4'	1.00	1.2		SAA					
			0.7						

Time	Sample	Time	Sample
1125	0-4	1105	66-68
1135	6-8	<del>1120</del> <del>73-74</del> d	
1140	8-10 L	0800	78-80 L
1215	22-24		
1235	30-32 L		
1315	46-48 L		

*Rite in the Rain*

GAM, CM, SL

60

ERM; CT HET; TW -

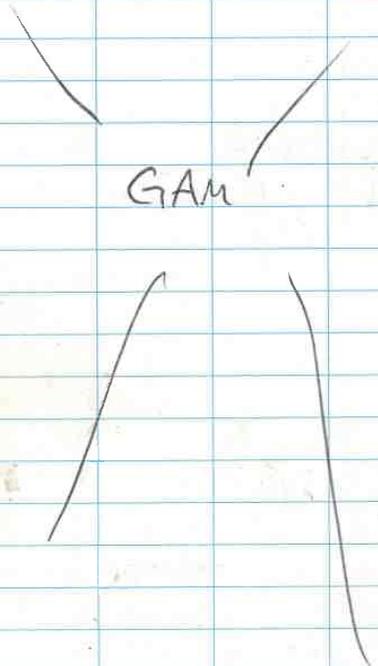
7.29.24

1530 - Tremie @  $\approx 10'$  @ CD-18A

- 4 gal grout to surface

- 2.25" @ 78'; will resume sampling in morning

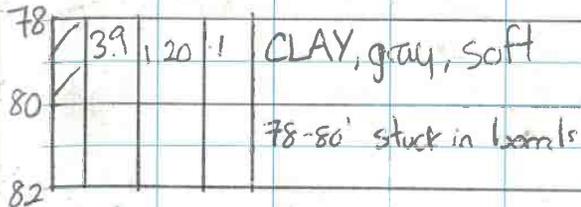
1600 - Leaving Site



7.30.24

0700 - on site

CD-19 cont



0810 - pull 2.25"

- Enter sample hole w/ solid stem augers (2.25") to  $\approx 78'$

1017 - Enter w/ 2.25" w/ E. tip to 104'

- Insert PVC w/ 6 slot screen w/ filter sock & bottom cap

- pull 2.25" to

CD-19D (Temp)

1050 Screen 94-104'

CASING (2.25"): 94'

Water: 2 gal

- Able to push 2.25" from 78-93' w/out hammering; resistance started @ 94', increased resistance @  $\approx 98'$

*Rite in the Rain*

GAM, CM, JC  
62 ERM: CT HET. TW

HOT

7.30.24

CD-19D (temp)

DTW: 64.74 ID:  $\approx$  106 Su: 2.31'

Time	Temp	ms Cond	pH	ORP	ppm IDS	Turb	Vol
1146	32.9	687	7.43	80	446	-	in.td
1154	27.3	830	7.59	-93	553	-	0.5
1200	25.9	675	7.63	-125	450	-	1
1205	25.8	740	7.70	-133	492	-	2
1211	26.9	618	7.72	-151	410	-	3
1218	26.6	604	7.76	-159	407	OR	4
1225	26.3	585	7.83	-177	385	OR	5

1230 Sample time

Turb w/ filter  $\rightarrow$  11.6 NTU  
\* Dissolved

1320 - Pulling well

- Insert tremmie to 94' through  
2.25"

-  $\approx$  40 gal grout to surface

1435 - taking heat break

7.30.24

- move adj to CD-19D
- Enter w/ 3.25" to 32'
- Enter 3.25" w/ 2.25" to 42'
- Insert prc w/ 6 slot w/ filter  
sock  $\downarrow$  bottom cap

CD-196 Set

SCREEN: 32-A2

PELLETS: .28'

SAND: .31'

NATIVE: 3.2'

Casing: 27'

1610 Leaving Site

GAM

Rate in the Rain

GAM, CM, JC

64

HET: EM FERM. CT

7.31.24

0700 - on Site

- traverse to 25' w/ casing @ 27' on CD-19B
- 16 gal grout to surface

- Enter adj to CD-19B w/ auger to 38'
- Enter auger hook w/ 3.25" to 52'
- Enter 3.25" w/ 2.25" to 62'
- Insert PVC w/ G slot w/ filter sock & bottom cap

CD-19C Set (New pellets hydrate)

SCREEN: 52-62' too fast; stuck in

PELLETS: 46 3.25"

SAND: -

NATIVE: 52'

CASING: 24'

- traverse @  $\approx 45'$ ; grout thru traverse;  $\approx 30$  gal grout to surface

7.31.24<sup>65</sup>

- Enter adj to CD-19C w/ 2.25" to 20'
- Insert PVC w/ G slot & filter sock & bottom cap

CD-19A

SCREEN: 10-20

PELLETS: 6'

SAND: 9'

NATIVE: 18'

- moving to next location
- putting geoprobe on black mats
- Everything set up
- CM Decan augers

1500 Leaving Site

GAM

*Ret in the Rain*

0700 - on site

VTM: 0536571

CD-20 NABE3: 3338423

Depth	Li	P <sub>v</sub>	F <sub>u</sub>	P <sub>f</sub>	Description
0	2.7	1.49	0.3		Silty CLAY, gray w/ orange Soft to med soft
4	1.34	2.5			CLAY, gray w/ orange & blk, stiff to very stiff
8	1.45	1.7			Silty CLAY 0-2.8, gray, med soft; clayey SILT gray/brown, dense
12	2.5	2.5	1.7		clayey SILT 0-0.5; CLAY gray w/ orange & red, stiff, ca. red
16	2.5	2.11	1.4		Sandy SILT 0-0.4, wet; Silty CLAY, brown, med soft
18	2.4	2.30	0.9		Silty CLAY, gray w/ orange, med soft
20	3.5	2.60	1.5		CLAY w/ trace silt gray/blue w/ brown, stratified, med soft
22	2.5	1.17			clayey SILT, brown, moist
24	3.8	1.15			SAA w/ shell frags
28	1.49	2.6			CLAY, gray/brown stiff; clayey silt @ 0-0.6, @ 1.4-2.2, damp

CD-20

Depth	Li	P <sub>v</sub>	F <sub>u</sub>	P <sub>f</sub>	Description
28	3.8	1.75	2.0		SILT 0-2, brown, wet; CLAY gray/blue w/ brown, stiff
30	2.5	1.91	2.4		Silty CLAY gray/blue w/ brown, stiff
32	3.9	1.43	0.1		Silty CLAY, gray, soft
34	2.9	0.88	0.9		SAA 0-1.2; clayey SILT, brown, wet
36	3.8	0.93			clayey SILT, brown, soft, wet
38	3.1	0.84			SILT, gray, wet
40	3.8	0.90			clayey SILT 0-2.5, gray, wet; silty CLAY, gray, soft
42	2.2	1.57	0.1		CLAY, gray, soft
44	3.3	0.93	0.1		clayey SILT, gray, damp, soft; clay lens @ 1.8-2.2
46	2.2	0.60			SILT, gray, wet
48					Flaw-in
50					0750 0-2 T <sub>2</sub>
					0800 4-6
					0805 6-8 T <sub>2</sub>
					0900 20-22
					0925 30-32 L
					0955 42-44

GAM, CM, 3c  
ERM: CT HPT, EM

8.1.24

1020 - pulling Sample barrels  
- penetrator w/ 3.25" to 48' 36"

1100 - Testing HPT

CD-20 HPT

mslm	FT'	mslm	FT'	mslm	FT'
86	4'	127	32'	53	60'
117	8'	71	36'	89	64'
84	10'	58	40'	62	68'
78	16'	80	44'	105	72'
180	20'	45	48'	78	76'
71	21'	48	52'	92	82' TP
169	28'	79	56'		

- Augers in HPT hole to 78'

- property boundary issues
- 36 gal grat in auger hole
- 24 gal grat in 3.25" hole

1620 - Leaving Site

GAM, CM  
ERM: CT

8.2.24<sup>69</sup>

0700 - on site

UTM: 0536656

HA-10 NAD83 3338660

Depth	FC	Description
0-1.66		CLAY gray w/ orange, rootlets
2-2.35		CLAY, brown, stiff
4-2.85		SAA w/ trace silt

Time	Sample
0810	0-2
0815	2-4
0820	4-6

0900 GAM leaving Site

GAM

*Rite in the Rain*

GAM,  
70 ERM CT MET. JP

8.6.24

0930 - On site

CD-18A

DTW: 21.08 ID: 27.91 SU: 1.98

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
0950	26.8	692	7.44	-19	460	-	in.td
0952	23.7	608	7.26	-51	407	-	0.15
0954	23.4	691	7.49	-94	466	-	0.25
0955	22.8	714	7.50	-113	480	-	0.35 Dy
1049	24.4	653	7.61	55	439	-	0.5
1151	24.0	702	7.86	-79	474	-	0.6

1330 Sample time TBM → 15 NTU

CD-18B (check valve)

DTW: 21.04 ID: 43.91 SU: 2.05

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1009	29.7	198	7.32	-77	819	-	in.td
1015	24.1	1190	7.40	-134	821	-	0.5
1021	23.6	1255	7.30	-139	870	-	1.0
1030	23.4	1363	7.24	-131	948	29	2.0
1040	23.9	1284	7.27	-131	890	5.5	3.0

1050 Sample time

TBM → 6 NTU

8.6.24

1205 CD-18C (check valve)

DTW: 26.03 ID: 58.63 SU: 1.75

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1205	24.6	834	7.54	-119	570	-	0.5
1212	24.2	863	7.43	-119	589	-	1
1225	24.6	925	7.38	-108	626	-	2
1233	24.2	917	7.36	-116	626	-	2.5
1239	23.9	927	7.33	-116	636	413	3

1250 Sample time

Turb before metals (filtered)

↳ 5.73 NTU + dissolved

CD-18D (check valve)

DTW: 28.28 ID: 75.89 SU: 2.02

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1354	24.3	759	7.56	-114	513	-	0.5
1400	23.7	838	7.64	-122	575	-	1
1409	23.9	840	7.40	-120	570	-	2
1418	24.1	845	7.38	-122	575	-	3
1425	24.3	842	7.37	-120	573	9.68	4

1430 Sample time

1610 Leaving site

*Plot in the rain*

GAM,  
72 HET: SP ECM: CT

8.7.24

0700 - On Site  
- Resuming CD-18A  
0800 - moving to next location

CD-19A

DTW: 20.05 ID: 22.00' Su: 2.21

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
0824	28.9	3879	7.14	98	2883	-	initial
0825	25.8	3827	6.97	56	2864	-	0.1
0830	27.3	3870	6.97	-45	2885	-	0.2
0842	28.7	3896	7.33	-101	2892	4.91	0.3

0850 Sample time. \* No Rads

1110 TBM = 10.9 NTU

1150 - END Sampling & vent

1156 - Resuming CD-18A, 2 Rads left

1230 - END

8.7.23<sup>73</sup>

CD-19B

DTW: 20.11 ID: 43.89' Su: 2.10

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1306	34.0	2543	7.92	-138	1834	-	initial
1310	26.4	2550	7.79	-142	1868	-	0.5
1315	25.2	2546	7.58	-141	1857	6.40	1
1318	24.9	2536	7.50	-139	1843	3.99	1.5
1320	25.0	2544	7.45	-136	1849	2.68	2
1327	25.2	2527	7.45	-131	1841	1.59	2.5

1330 Sample time.

CD-19c

DTW: 34.71 ID: 64.18' Su: 2.05

Time	Temp	Cond	pH	ORP	TDS	Turb	Vol
1414	32.5	818	8.60	24	540	-	initial
1425	26.7	856	8.01	-110	579	-	1
1437	26.6	858	7.79	-109	581	-	2
1445	26.2	909	7.65	-123	621	-	2.5
1453	27.4	887	7.67	-129	601	-	3

1500 Sample time

TBM → 24.6 NTU

1600 - Leaving Site

*Return to Rain*

CASTEX DEVELOPMENT  
9403-016-0100  
LOG BOOK # 5



*Rite in the Rain.*  
ALL-WEATHER  
**JOURNAL**  
Nº 391FX

GAM, DW, JC

Castex Development

96°

6.20.22

1000 On site

- returning to CD-10 to install deep temp well

1100 - Entering w/ 2.25" auger to 70'

- Rig overheat multiple times

1255 - pulling augers

→ Enter hole w/ 2.25" to

1325 - Add refusal @ 82', will set a 15' screen 67-82'

1405 - Insert pvc w/ filter sock & bottom

cap

- add ≈ 8 gal potable water

1415 - Well stuck in 2.25"

- crew taking lunch, will re-attempt

- fill well & 2.25"

- Re-enter w/ E. tip to 82'

- ~~Casing @~~ Insert pvc w/ filter sock & bottom cap

- Casing @ 66'

6.20.22 5

(DTW)

CD-10D temp	Time	DTW
SCREEN @ 67-82'	1527	39.93'
Casing @ 66'	1545	44.61'
Water: ≈ 8 gal	1600	47.20'
	1615	49.01'
	1630	50.68'

1640 - Leaving Site

GAM

Ret in the Rain



GAM, DW, JL  
MET: RL FRM: Markus

6.22.22

0700 - on site

- back @ CD-15
- Augering down to 60'

0855 - pulling Augers

0930 - Entering w/ 3.25 casing to 60'

0940 - moving rig back to CD-10 to pull  
temp well & grout

- able to pull well
- tremors down to 80'
- ~ 50 gal grout thru tremors  
to surface

1340 - return to CD-15C; casing (3.25") to  
62'

- Enter w/ 2.25" w/ E. tip to 68'
- Insert pvc w/ filter sock & bottom  
cap
- tag, add 2 gal potable water

CD-15c Set

SCREEN: 63-68'

PELLETS: 59'

SAND: -

NATIVE: 62'

WATER: 2 gal

CASING: 57'

6.22.22<sup>9</sup>

CD-15A

DW: 17.93'

TD: 39.20'

SU: 1.25'

Time	temp	MS Cond	pH	ORP	PPM TDS	Turb	Vol
1503	28.8	1754	5.76	102	1170	-	initial
1510	23.1	1709	6.67	-6	1150	20.1	1 gal
1516	23.7	1693	6.87	-4	1143	10.63	1.5
1521	22.9	1694	6.86	-30	1135	9.37	2
1525	22.8	1685	6.87	-34	1128	9.67	2.5
1530	Sample time						

1620 - Leaving Site

GAM

*Plot in the Rain*

6.23.22

OGAS - on site

- transmiss at 55' @ CD-15C, casing @ 57'

-  $\approx$  50 gal grout to surface

- Decon

0900 - Well completions

CD-15C (check valve used)

DTW: 25.36' ID: 69.22' SU: 1.31'

Time	Temp	Cond <sup>MS</sup>	pH	IDS <sup>PPM</sup>	Turb	Vel
1016	28.1	641	6.03	407	-	initial
1021	24.8	744	6.72	478	-	0.5
1030	25.0	649	7.51	415	52	1 (Dry)
1046	25.4	654	7.60	418	-	(.25(Dry))

1050 DTW 55.05

1100 49.31

1210 Sample time

\* Dissolved, triple filtered

↳ Turb: 2.09 NTU

- No rad's

6.23.22

CD-15B

DTW: 17.97 ID: 49.05' SU: 1.30

Time	Temp	Cond	pH	ORP	IDS	Turb	Vel
1054	27.0	1433	7.28	-62	943	-	initial
1057	23.0	1415	7.16	-124	938	32.5	0.5
1104	23.0	1413	7.02	-143	938	6.59	1
1110	22.8	1415	6.99	-135	939	2.94	1.5
1115	22.6	1414	6.94	-132	938	3.72	2
1120	22.7	1414	6.87	-125	938	3.77	2.5
1130	Sample time						

1320 Leaving Site

GAM

in station

0745

1-18-24

cloudy/  
cold

CMJC on site. ERIC MONTESANTO  
from HET on site.

Locate 053-733 & prepare  
towireline using 9512C tool,  
DTW 65.09 BTOC

Start descent @ 841

Registration Shows TD of 180'

Measured Depth of 188.48'

cam Depth factor + 4.99 for Bottom Sensor

[Depth factor of 0.28]

Start Logging @ 851

rate of ~ 165 ft/min - 18.2 ft/min

Sample Interval of 0.10

End of Log @ 0901

file: ~~073~~ CAM

053-733

Repeat Log, descend @ 0906

~ 30 ft/min

1-18-24

Start logging @ 0915

Depth Reading of 189.33  
+ 4.99

[Depth factor 0.28]

End Log @ ~ 0925

File: 053-733 Second

found what is believed to be 053-50832  
domestic well just to the east of the  
office trailer  
2 inch PVC melted at surface &  
remaining pipe settled into place  
Cut pipe @ Ground Surface

TD of 68001 BGS

(Clear area to back truck  
near to window hole, (Cut well  
to concrete surface.)

1044 Begin Descent @ ~ 30 ft/min

@ bottom 1047 65.79

+4.99

1048 Begin Logging ~ 17 ft/min

[Depth factor of 0.28]

*Rate in the Rain*

1-18-24

Stop Log @ 1052

Descend @ 1054

Bottom @ 66.09  
+4.99

Start Log @ 1057 ~ 17ft/min

Stop Log @ 1101

Go to Jennings to get Compression  
plug to seal the well.

Plug well with compression cap

Go to locate 053-5545z Rig  
Supply.Comb area around where SunRIS  
plots the well -923715 & 301101  
(DMS)

Unable to locate well

Go to locate 053-6713z in  
wooded area @ SE corner of property  
and unable to locate

1345 leave Site

CM, TM  
MET: EM  
0715 CM

55°; Cloudy &amp; Windy

1-22-24

0915 On-site; setting up equipment

1000 Tagging well; <sup>(TM)</sup> 177.16' 178.51' = TD, 0.92' = SU  
DTW = 64.92 BOC

1020 Tool in hole; prepping to log 053-733

(TM) Start log @ 1027: Start descent for  
Stop log @ calibration

1105 2nd calibration run; begin descent

1117 3rd calibration run

1130 Start log; ~20'/min

1140 Stop log

1143 Descend

1150 Start log; ~20'/min

1200 Stop log

1201 Descend

1206 Start log; ~20'/min

1215 Stop log

*Rite in the Rain*

16 CM, TM  
HET: EM

1-22-24

1229 Descend

1235 Start log; ~20'/min

1244 Stop log

file: 053-733\_01-22-24\_

12-35\_9512c\_10\_00

-174.50\_ORIG

1245 Descend

1254 Start log; ~20'/min

1303 Stop log

1305 Descend

1310 Start log; ~20'/min

1321 Stop log

file: 053-733\_01-22-24\_

~~12-35~~\_013-10\_9512c\_

cam .10\_0.50\_179.10\_ORIG

CALL CENTURY REGARDING THE DIFFERENCE  
IN READING WITH DEPTH FACTORS.

CALL GREG TO LOOK @ LAST FILE  
, LOOKS GOOD

PACK UP, HEAD BACK @ 1500

TM

17

*Rite in the Rain.*

**APPENDIX C**

**LABORATORY ANALYTICAL REPORTS**  
**w/CHAIN OF CUSTODY RECORDS**



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

July 20, 2021

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development/9403-016-0100

Order No.: 21070044

Dear Greg Miller:

Element Materials Technology Lafayette received 27 sample(s) on 7/1/2021 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344

Page 1 of 90



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 21070044

Date: 7/20/2021

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development/9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:20:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-001 **Matrix:** SOIL  
**Client Sample ID** HA-1 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	22.8	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.30	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.03	0.10		%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.05	0.10			1	7/9/2021
Soluble Calcium	1.02	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.31	0.05		meq/L	1	7/9/2021
Soluble Sodium	1.66	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	7/9/2021 6:22:13 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.95	1.84		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Barium	402	0.920		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Cadmium	< 0.460	0.460		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Chromium	13.2	0.920		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Lead	18.0	0.920		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Selenium	< 3.68	3.68		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Strontium	31.5	0.920		mg/Kg-dry	1	7/7/2021 8:52:23 PM
Zinc	11.5	0.920		mg/Kg-dry	1	7/7/2021 8:52:23 PM
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						

Qualifiers:						
*	Value exceeds Maximum Contaminant Level.			H	Holding times for preparation or analysis exceeded	
M	Matrix Interference			ND	Not Detected at the Reporting Limit	
R	RPD outside accepted recovery limits			RL	Reporting Limit	
S	Spike Recovery outside accepted recovery limits			SDL	Sample detection limit	
U	Analyte not detected			W	Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:20:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-001 **Matrix:** SOIL  
**Client Sample ID** HA-1 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	559	49.1		mg/Kg-dry	1	7/9/2021 3:51:10 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	15.7	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:30:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-002 **Matrix:** SOIL  
**Client Sample ID** HA-1 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	34.7	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.34	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	6.04	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.08	0.10			1	7/9/2021
Soluble Calcium	0.50	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.57	0.05		meq/L	1	7/9/2021
Soluble Sodium	2.25	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.105	0.105		mg/Kg-dry	1	7/9/2021 6:32:03 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.97	1.98		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Barium	517	0.988		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Cadmium	< 0.494	0.494		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Chromium	12.4	0.988		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Lead	13.7	0.988		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Selenium	< 3.95	3.95		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Strontium	21.7	0.988		mg/Kg-dry	1	7/7/2021 8:54:42 PM
Zinc	17.3	0.988		mg/Kg-dry	1	7/7/2021 8:54:42 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:30:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-002 **Matrix:** SOIL  
**Client Sample ID** HA-1 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	759	49.1		mg/Kg-dry	1	7/9/2021 4:02:43 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	18.5	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-003 **Matrix:** SOIL  
**Client Sample ID** HA-1 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	41.1	0.100		meq/100g	1	7/13/2021
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.32	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	7.90	0.10		%	1	7/13/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	2.91	0.10			1	7/9/2021
Soluble Calcium	0.60	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.32	0.05		meq/L	1	7/9/2021
Soluble Sodium	1.97	0.25		meq/L	1	7/9/2021
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.0995	0.0995		mg/Kg-dry	1	7/9/2021 6:34:20 AM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Arsenic	5.92	1.83		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Barium	356	0.916		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Cadmium	< 0.458	0.458		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Chromium	14.3	0.916		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Lead	13.5	0.916		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Selenium	< 3.66	3.66		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Strontium	20.9	0.916		mg/Kg-dry	1	7/7/2021 8:57:00 PM
Zinc	28.5	0.916		mg/Kg-dry	1	7/7/2021 8:57:00 PM
<b>29B METALS TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 8:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-003 **Matrix:** SOIL  
**Client Sample ID** HA-1 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	506	48.3		mg/Kg-dry	1	7/9/2021 4:05:03 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	20.5	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-004 **Matrix:** SOIL  
**Client Sample ID** HA-2 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.5	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.46	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	25.5	0.10	*	%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	19.5	0.10	*		1	7/9/2021
Soluble Calcium	1.31	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.52	0.05		meq/L	1	7/9/2021
Soluble Sodium	18.7	0.25		meq/L	1	7/9/2021
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	22.7	15.0		mg/Kg	1	7/8/2021 10:19:00 PM
TPH (Oil Range)	29.0	15.0		mg/Kg	1	7/2/2021 10:53:00 PM
Surr: 4-Terphenyl-d14	76.5	33 - 152		%Rec	1	7/2/2021 10:53:00 PM
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.105	0.105		mg/Kg-dry	1	7/9/2021 6:36:36 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	6.90	1.89		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Barium	4,640	0.944		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Cadmium	< 0.472	0.472		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Chromium	45.5	0.944		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Lead	69.7	0.944		mg/Kg-dry	1	7/7/2021 9:03:57 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-004 **Matrix:** SOIL  
**Client Sample ID** HA-2 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>STS</b>
Selenium	< 3.78	3.78		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Strontium	218	0.944		mg/Kg-dry	1	7/7/2021 9:03:57 PM
Zinc	33.2	0.944		mg/Kg-dry	1	7/7/2021 9:03:57 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	39,100	46.2		mg/Kg-dry	1	7/9/2021 4:07:21 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	18.8	1.00		wt%	1	7/2/2021 6:30:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-005 **Matrix:** SOIL  
**Client Sample ID** HA-2 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	35.2	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.64	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	39.7	0.10	*	%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	31.2	0.10	*		1	7/9/2021
Soluble Calcium	1.19	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.52	0.05		meq/L	1	7/9/2021
Soluble Sodium	28.9	0.25		meq/L	1	7/9/2021
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	1,300	150		mg/Kg	10	7/8/2021 10:33:00 PM
TPH (Oil Range)	< 100	100		mg/Kg	10	7/8/2021 10:33:00 PM
Surr: 4-Terphenyl-d14	46.0	33 - 152		%Rec	10	7/8/2021 10:33:00 PM
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.108	0.108		mg/Kg-dry	1	7/9/2021 6:43:53 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.64	1.92		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Barium	4,180	0.958		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Cadmium	< 0.479	0.479		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Chromium	37.6	0.958		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Lead	52.4	0.958		mg/Kg-dry	1	7/7/2021 9:06:16 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-005 **Matrix:** SOIL  
**Client Sample ID** HA-2 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>STS</b>
Selenium	< 3.83	3.83		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Strontium	162	0.958		mg/Kg-dry	1	7/7/2021 9:06:16 PM
Zinc	30.1	0.958		mg/Kg-dry	1	7/7/2021 9:06:16 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	30,800	48.2		mg/Kg-dry	1	7/9/2021 4:09:40 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	19.9	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-006 **Matrix:** SOIL  
**Client Sample ID** HA-2 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	40.2	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	4.42	0.10	*	mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	33.2	0.10	*	%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	36.5	0.10	*		1	7/9/2021
Soluble Calcium	1.31	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.64	0.05		meq/L	1	7/9/2021
Soluble Sodium	36.0	0.25		meq/L	1	7/9/2021
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	123	15.0		mg/Kg	1	7/8/2021 10:47:00 PM
TPH (Oil Range)	< 15.0	15.0		mg/Kg	1	7/2/2021 11:20:00 PM
Surr: 4-Terphenyl-d14	76.6	33 - 152		%Rec	1	7/2/2021 11:20:00 PM
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.101	0.101		mg/Kg-dry	1	7/9/2021 6:46:09 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.67	1.97		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Barium	1,510	0.984		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Cadmium	< 0.492	0.492		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Chromium	13.4	0.984		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Lead	15.5	0.984		mg/Kg-dry	1	7/7/2021 9:08:34 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 9:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-006 **Matrix:** SOIL  
**Client Sample ID** HA-2 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>STS</b>
Selenium	< 3.94	3.94		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Strontium	105	0.984		mg/Kg-dry	1	7/7/2021 9:08:34 PM
Zinc	19.3	0.984		mg/Kg-dry	1	7/7/2021 9:08:34 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	2,920	49.5		mg/Kg-dry	1	7/9/2021 4:11:59 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	18.1	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-007 **Matrix:** SOIL  
**Client Sample ID** HA-3 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	39.8	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.91	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	22.5	0.10	*	%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	8.94	0.10			1	7/9/2021
Soluble Calcium	0.74	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.45	0.05		meq/L	1	7/9/2021
Soluble Sodium	6.89	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.104	0.104		mg/Kg-dry	1	7/9/2021 6:48:25 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.48	1.84		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Barium	313	0.922		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Cadmium	< 0.461	0.461		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Chromium	11.1	0.922		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Lead	10.2	0.922		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Selenium	< 3.69	3.69		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Strontium	140	0.922		mg/Kg-dry	1	7/7/2021 9:10:53 PM
Zinc	28.8	0.922		mg/Kg-dry	1	7/7/2021 9:10:53 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:40:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-007 **Matrix:** SOIL  
**Client Sample ID** HA-3 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	478	47.6		mg/Kg-dry	1	7/9/2021 4:14:18 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	20.4	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-008 **Matrix:** SOIL  
**Client Sample ID** HA-3 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	36.5	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	5.24	0.10	*	mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	29.8	0.10	*	%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	67.4	0.10	*		1	7/9/2021
Soluble Calcium	0.62	0.02		meq/L	1	7/9/2021
Soluble Magnesium	< 0.05	0.05		meq/L	1	7/9/2021
Soluble Sodium	38.4	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0983	0.0983		mg/Kg-dry	1	7/9/2021 6:50:42 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	7.31	1.90		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Barium	365	0.948		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Cadmium	< 0.474	0.474		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Chromium	12.3	0.948		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Lead	12.6	0.948		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Selenium	< 3.79	3.79		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Strontium	163	0.948		mg/Kg-dry	1	7/7/2021 9:13:11 PM
Zinc	41.5	0.948		mg/Kg-dry	1	7/7/2021 9:13:11 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-008 **Matrix:** SOIL  
**Client Sample ID** HA-3 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	621	47.2		mg/Kg-dry	1	7/9/2021 4:16:37 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	20.3	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-009 **Matrix:** SOIL  
**Client Sample ID** HA-3 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	41.5	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.07	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	46.3	0.10	*	%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	19.7	0.10	*		1	7/9/2021
Soluble Calcium	0.93	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.44	0.05		meq/L	1	7/9/2021
Soluble Sodium	16.3	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0977	0.0977		mg/Kg-dry	1	7/9/2021 6:53:00 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.36	1.83		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Barium	495	0.913		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Cadmium	< 0.456	0.456		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Chromium	11.6	0.913		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Lead	12.2	0.913		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Selenium	< 3.65	3.65		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Strontium	147	0.913		mg/Kg-dry	1	7/7/2021 9:15:30 PM
Zinc	27.0	0.913		mg/Kg-dry	1	7/7/2021 9:15:30 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 10:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-009 **Matrix:** SOIL  
**Client Sample ID** HA-3 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	860	46.9		mg/Kg-dry	1	7/9/2021 4:18:56 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	18.6	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 3:55:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-010 **Matrix:** SOIL  
**Client Sample ID** HA-4 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	34.8	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.36	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	12.2	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	12.0	0.10	*		1	7/9/2021
Soluble Calcium	3.14	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.94	0.05		meq/L	1	7/9/2021
Soluble Sodium	17.1	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.102	0.102		mg/Kg-dry	1	7/9/2021 6:55:20 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.84	1.89		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Barium	3,640	0.944		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Cadmium	< 0.472	0.472		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Chromium	29.1	0.944		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Lead	22.6	0.944		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Selenium	< 3.78	3.78		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Strontium	187	0.944		mg/Kg-dry	1	7/7/2021 9:17:48 PM
Zinc	65.8	0.944		mg/Kg-dry	1	7/7/2021 9:17:48 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 3:55:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-010 **Matrix:** SOIL  
**Client Sample ID** HA-4 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	19,100	45.7		mg/Kg-dry	1	7/9/2021 4:32:49 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	24.2	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:00:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-011 **Matrix:** SOIL  
**Client Sample ID** HA-4 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	38.9	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	2.01	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	22.6	0.10	*	%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	15.1	0.10	*		1	7/9/2021
Soluble Calcium	1.31	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.69	0.05		meq/L	1	7/9/2021
Soluble Sodium	15.0	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.104	0.104		mg/Kg-dry	1	7/9/2021 6:57:36 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.43	1.88		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Barium	1,330	0.939		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Cadmium	< 0.469	0.469		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Chromium	18.9	0.939		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Lead	15.5	0.939		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Selenium	< 3.76	3.76		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Strontium	101	0.939		mg/Kg-dry	1	7/7/2021 9:20:08 PM
Zinc	36.9	0.939		mg/Kg-dry	1	7/7/2021 9:20:08 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:00:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-011 **Matrix:** SOIL  
**Client Sample ID** HA-4 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	2,330	48.7		mg/Kg-dry	1	7/9/2021 4:35:07 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	21.9	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:05:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-012 **Matrix:** SOIL  
**Client Sample ID** HA-4 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	40.2	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.65	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	32.8	0.10	*	%	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	24.0	0.10	*		1	7/9/2021
Soluble Calcium	1.83	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.90	0.05		meq/L	1	7/9/2021
Soluble Sodium	28.1	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0981	0.0981		mg/Kg-dry	1	7/9/2021 6:59:53 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.21	1.91		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Barium	1,530	0.953		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Cadmium	< 0.476	0.476		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Chromium	18.5	0.953		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Lead	14.6	0.953		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Selenium	< 3.81	3.81		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Strontium	132	0.953		mg/Kg-dry	1	7/7/2021 9:22:26 PM
Zinc	36.8	0.953		mg/Kg-dry	1	7/7/2021 9:22:26 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:05:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-012 **Matrix:** SOIL  
**Client Sample ID** HA-4 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	2,480	46.7		mg/Kg-dry	1	7/9/2021 4:37:25 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	22.7	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:55:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-013 **Matrix:** SOIL  
**Client Sample ID** HA-5 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	43.4	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.28	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	4.30	0.10		%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.72	0.10			1	7/9/2021
Soluble Calcium	3.16	0.02		meq/L	1	7/9/2021
Soluble Magnesium	1.10	0.05		meq/L	1	7/9/2021
Soluble Sodium	6.89	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.186	0.0974		mg/Kg-dry	1	7/9/2021 7:02:09 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	7.46	1.96		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Barium	3,320	0.982		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Cadmium	< 0.491	0.491		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Chromium	96.7	0.982		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Lead	33.7	0.982		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Selenium	< 3.93	3.93		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Strontium	511	0.982		mg/Kg-dry	1	7/7/2021 10:23:57 PM
Zinc	173	0.982		mg/Kg-dry	1	7/7/2021 10:23:57 PM
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
M	Matrix Interference		ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits		RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits		SDL	Sample detection limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 4:55:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-013 **Matrix:** SOIL  
**Client Sample ID** HA-5 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>STS</b>
True Total Barium	4,850	49.3		mg/Kg-dry	1	7/9/2021 4:39:44 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	29.7	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 5:00:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-014 **Matrix:** SOIL  
**Client Sample ID** HA-5 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.1	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.14	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B</b> Analyst: <b>JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.40	0.10		%	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>HEM, OIL &amp; GREASE</b>						
<b>SW9071B</b> Analyst: <b>HXW</b>						
HEM, Oil & Grease	0.92	0.05		% dry wt	1	7/2/2021 11:50:00 AM
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.75	0.10			1	7/9/2021
Soluble Calcium	2.55	0.02		meq/L	1	7/9/2021
Soluble Magnesium	1.32	0.05		meq/L	1	7/9/2021
Soluble Sodium	6.60	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>STS</b>						
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>SW8015B</b> <b>SW3550C</b> Analyst: <b>DF</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	768	150		mg/Kg	10	7/8/2021 9:11:00 PM
TPH (Oil Range)	545	100		mg/Kg	10	7/8/2021 9:11:00 PM
Surr: 4-Terphenyl-d14	57.3	33 - 152		%Rec	10	7/8/2021 9:11:00 PM
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.233	0.107		mg/Kg-dry	1	7/9/2021 7:04:46 AM
<b>29B/SW7471A</b> <b>SW7471A</b> Analyst: <b>BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
<b>SW6010B</b> <b>SW3050B</b> Analyst: <b>STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-014  
**Client Sample ID** HA-5 2-4

**Collection Date:** 6/29/2021 5:00:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>STS</b>
Arsenic	6.55	1.98		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Barium	4,230	0.989		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Cadmium	0.734	0.495		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Chromium	73.3	0.989		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Lead	55.2	0.989		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Selenium	< 3.96	3.96		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Strontium	354	0.989		mg/Kg-dry	1	7/7/2021 10:10:07 PM
Zinc	187	0.989		mg/Kg-dry	1	7/7/2021 10:10:07 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	30,700	46.9		mg/Kg-dry	1	7/9/2021 4:42:02 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	27.1	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 5:05:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-015 **Matrix:** SOIL  
**Client Sample ID** HA-5 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	38.1	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	5.40	0.10	*	mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B</b> Analyst: <b>JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.0	0.10		%	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>HEM, OIL &amp; GREASE</b>						
<b>SW9071B</b> Analyst: <b>HXW</b>						
HEM, Oil & Grease	3.27	0.05		% dry wt	1	7/2/2021 11:50:00 AM
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	12.9	0.10	*		1	7/9/2021
Soluble Calcium	14.2	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.65	0.05		meq/L	1	7/9/2021
Soluble Sodium	35.2	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>STS</b>						
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>SW8015B</b> <b>SW3550C</b> Analyst: <b>DF</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015</b>						
TPH (Diesel Range)	2,310	300		mg/Kg	20	7/8/2021 10:06:00 PM
TPH (Oil Range)	258	15.0		mg/Kg	1	7/2/2021 9:58:00 PM
Surr: 4-Terphenyl-d14	0	33 - 152	SD	%Rec	20	7/8/2021 10:06:00 PM
<b>NOTES:</b>						
SD - Surrogate diluted out due to dilution.						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.189	0.103		mg/Kg-dry	1	7/9/2021 7:12:23 AM
<b>29B/SW7471A</b> <b>SW7471A</b> Analyst: <b>BXB</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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**CLIENT:** ICON Environmental Services **Collection Date:** 6/29/2021 5:05:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-015 **Matrix:** SOIL  
**Client Sample ID** HA-5 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>STS</b>
Arsenic	5.26	1.95		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Barium	3,640	0.975		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Cadmium	0.518	0.488		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Chromium	31.6	0.975		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Lead	41.6	0.975		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Selenium	< 3.90	3.90		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Strontium	112	0.975		mg/Kg-dry	1	7/7/2021 10:12:25 PM
Zinc	99.9	0.975		mg/Kg-dry	1	7/7/2021 10:12:25 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	11,700	48.8		mg/Kg-dry	1	7/9/2021 4:44:21 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	37.3	1.00		wt%	1	7/2/2021 6:30:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-016 **Matrix:** SOIL  
**Client Sample ID** HA-6 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	23.1	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.07	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.10	0.10		%	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.74	0.10			1	7/9/2021
Soluble Calcium	5.39	0.02		meq/L	1	7/9/2021
Soluble Magnesium	1.83	0.05		meq/L	1	7/9/2021
Soluble Sodium	3.31	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.117	0.107		mg/Kg-dry	1	7/9/2021 7:15:01 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	6.99	1.87		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Barium	3,460	0.933		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Cadmium	0.586	0.466		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Chromium	102	0.933		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Lead	38.8	0.933		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Selenium	< 3.73	3.73		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Strontium	555	0.933		mg/Kg-dry	1	7/7/2021 10:14:43 PM
Zinc	190	0.933		mg/Kg-dry	1	7/7/2021 10:14:43 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-016 **Matrix:** SOIL  
**Client Sample ID** HA-6 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>STS</b>
True Total Barium	13,700	49.7		mg/Kg-dry	1	7/9/2021 4:46:40 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	16.1	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-017 **Matrix:** SOIL  
**Client Sample ID** HA-6 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	35.8	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.18	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	6.91	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	6.82	0.10			1	7/9/2021
Soluble Calcium	1.48	0.02		meq/L	1	7/9/2021
Soluble Magnesium	1.10	0.05		meq/L	1	7/9/2021
Soluble Sodium	7.74	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0973	0.0973		mg/Kg-dry	1	7/9/2021 7:17:39 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.12	1.87		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Barium	552	0.937		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Cadmium	< 0.469	0.469		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Chromium	10.9	0.937		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Lead	12.6	0.937		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Selenium	< 3.75	3.75		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Strontium	27.9	0.937		mg/Kg-dry	1	7/7/2021 10:17:01 PM
Zinc	15.9	0.937		mg/Kg-dry	1	7/7/2021 10:17:01 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

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WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-017 **Matrix:** SOIL  
**Client Sample ID** HA-6 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	1,050	46.9		mg/Kg-dry	1	7/9/2021 4:48:59 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	17.1	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-018 **Matrix:** SOIL  
**Client Sample ID** HA-6 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.1	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.70	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	9.05	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.25	0.10			1	7/9/2021
Soluble Calcium	1.07	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.62	0.05		meq/L	1	7/9/2021
Soluble Sodium	4.83	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.103	0.103		mg/Kg-dry	1	7/9/2021 7:19:56 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.15	1.94		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Barium	527	0.969		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Cadmium	< 0.485	0.485		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Chromium	9.90	0.969		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Lead	12.5	0.969		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Selenium	< 3.88	3.88		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Strontium	31.8	0.969		mg/Kg-dry	1	7/7/2021 10:19:19 PM
Zinc	17.6	0.969		mg/Kg-dry	1	7/7/2021 10:19:19 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 7:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-018 **Matrix:** SOIL  
**Client Sample ID** HA-6 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	699	48.1		mg/Kg-dry	1	7/9/2021 4:51:18 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	13.9	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-019 **Matrix:** SOIL  
**Client Sample ID** HA-7 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	32.3	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.71	0.10		mmhos/cm	1	7/8/2021 10:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.06	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.05	0.10			1	7/9/2021
Soluble Calcium	3.37	0.02		meq/L	1	7/9/2021
Soluble Magnesium	1.33	0.05		meq/L	1	7/9/2021
Soluble Sodium	3.14	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.109	0.101		mg/Kg-dry	1	7/9/2021 7:22:12 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.12	1.99		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Barium	3,080	0.997		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Cadmium	< 0.498	0.498		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Chromium	31.1	0.997		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Lead	33.5	0.997		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Selenium	< 3.99	3.99		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Strontium	113	0.997		mg/Kg-dry	1	7/7/2021 10:21:39 PM
Zinc	92.6	0.997		mg/Kg-dry	1	7/7/2021 10:21:39 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-019 **Matrix:** SOIL  
**Client Sample ID** HA-7 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	12,600	45.5		mg/Kg-dry	1	7/9/2021 4:53:37 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	17.4	1.00		wt%	1	7/2/2021 6:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-020 **Matrix:** SOIL  
**Client Sample ID** HA-7 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	35.5	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.90	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>LDNR 29-B</b> Analyst: <b>JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	8.16	0.10		%	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.93	0.10			1	7/9/2021
Soluble Calcium	1.23	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.85	0.05		meq/L	1	7/9/2021
Soluble Sodium	6.04	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.105	0.105		mg/Kg-dry	1	7/9/2021 7:24:52 AM
<b>29B/SW7471A</b> <b>SW7471A</b> Analyst: <b>BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.42	2.00		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Barium	454	0.998		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Cadmium	< 0.499	0.499		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Chromium	9.93	0.998		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Lead	13.7	0.998		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Selenium	< 3.99	3.99		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Strontium	23.9	0.998		mg/Kg-dry	1	7/9/2021 3:07:08 PM
Zinc	15.0	0.998		mg/Kg-dry	1	7/9/2021 3:07:08 PM
<b>SW6010B</b> <b>SW3050B</b> Analyst: <b>STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B</b> Analyst: <b>STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-020 **Matrix:** SOIL  
**Client Sample ID** HA-7 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>STS</b>
True Total Barium	823	46.3		mg/Kg-dry	1	7/9/2021 5:01:26 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	15.6	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-021 **Matrix:** SOIL  
**Client Sample ID** HA-7 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	31.4	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.86	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	8.28	0.10		%	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	5.68	0.10			1	7/9/2021
Soluble Calcium	1.19	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.82	0.05		meq/L	1	7/9/2021
Soluble Sodium	5.69	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.102	0.102		mg/Kg-dry	1	7/9/2021 7:34:47 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.96	1.96		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Barium	548	0.978		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Cadmium	< 0.489	0.489		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Chromium	9.62	0.978		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Lead	11.8	0.978		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Selenium	< 3.91	3.91		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Strontium	25.2	0.978		mg/Kg-dry	1	7/9/2021 3:14:05 PM
Zinc	17.1	0.978		mg/Kg-dry	1	7/9/2021 3:14:05 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 8:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-021 **Matrix:** SOIL  
**Client Sample ID** HA-7 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	812	45.8		mg/Kg-dry	1	7/9/2021 5:19:04 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	16.7	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 9:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-022 **Matrix:** SOIL  
**Client Sample ID** HA-8 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	27.4	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.51	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>LDNR 29-B</b> Analyst: <b>JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.64	0.10		%	1	7/13/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.12	0.10			1	7/9/2021
Soluble Calcium	2.93	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.85	0.05		meq/L	1	7/9/2021
Soluble Sodium	1.53	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B</b> <b>LDNR 29-B</b> Analyst: <b>STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	0.289	0.102		mg/Kg-dry	1	7/9/2021 7:49:34 AM
<b>29B/SW7471A</b> <b>SW7471A</b> Analyst: <b>BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.33	1.97		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Barium	4,620	0.986		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Cadmium	0.625	0.493		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Chromium	63.5	0.986		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Lead	50.3	0.986		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Selenium	< 3.94	3.94		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Strontium	178	0.986		mg/Kg-dry	1	7/9/2021 3:16:24 PM
Zinc	188	0.986		mg/Kg-dry	1	7/9/2021 3:16:24 PM
<b>SW6010B</b> <b>SW3050B</b> Analyst: <b>STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B</b> Analyst: <b>STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 9:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-022 **Matrix:** SOIL  
**Client Sample ID** HA-8 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	22,200	47.8		mg/Kg-dry	1	7/9/2021 5:26:00 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	16.6	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 9:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-023 **Matrix:** SOIL  
**Client Sample ID** HA-8 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	29.2	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.57	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	4.55	0.10		%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.37	0.10			1	7/9/2021
Soluble Calcium	1.19	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.70	0.05		meq/L	1	7/9/2021
Soluble Sodium	3.27	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.104	0.104		mg/Kg-dry	1	7/9/2021 7:52:10 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.89	1.88		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Barium	493	0.939		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Cadmium	< 0.470	0.470		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Chromium	9.88	0.939		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Lead	10.5	0.939		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Selenium	< 3.76	3.76		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Strontium	32.0	0.939		mg/Kg-dry	1	7/9/2021 3:18:42 PM
Zinc	14.9	0.939		mg/Kg-dry	1	7/9/2021 3:18:42 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 9:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-023 **Matrix:** SOIL  
**Client Sample ID** HA-8 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	988	47.5		mg/Kg-dry	1	7/9/2021 5:28:19 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	17.8	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:00:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-024 **Matrix:** SOIL  
**Client Sample ID** HA-8 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	27.1	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.06	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	8.95	0.10		%	1	7/13/2021
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	6.19	0.10			1	7/9/2021
Soluble Calcium	1.36	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.89	0.05		meq/L	1	7/9/2021
Soluble Sodium	6.57	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.103	0.103		mg/Kg-dry	1	7/9/2021 7:54:27 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.36	1.94		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Barium	355	0.971		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Cadmium	< 0.486	0.486		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Chromium	8.25	0.971		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Lead	9.05	0.971		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Selenium	< 3.88	3.88		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Strontium	23.9	0.971		mg/Kg-dry	1	7/9/2021 3:21:01 PM
Zinc	15.9	0.971		mg/Kg-dry	1	7/9/2021 3:21:01 PM
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						

Qualifiers:						
*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded			
M	Matrix Interference	ND	Not Detected at the Reporting Limit			
R	RPD outside accepted recovery limits	RL	Reporting Limit			
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit			
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode			



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:00:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-024 **Matrix:** SOIL  
**Client Sample ID** HA-8 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	451	46.8		mg/Kg-dry	1	7/9/2021 5:30:37 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	15.5	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-025 **Matrix:** SOIL  
**Client Sample ID** HA-9 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	20.5	0.100		meq/100g	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.01	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	17.3	0.10	*	%	1	7/13/2021
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	18.8	0.10	*		1	7/9/2021
Soluble Calcium	2.58	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.94	0.05		meq/L	1	7/9/2021
Soluble Sodium	25.0	0.25		meq/L	1	7/9/2021
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.109	0.109		mg/Kg-dry	1	7/9/2021 7:56:43 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.95	1.96		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Barium	2,630	0.979		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Cadmium	< 0.490	0.490		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Chromium	18.8	0.979		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Lead	23.0	0.979		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Selenium	< 3.92	3.92		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Strontium	129	0.979		mg/Kg-dry	1	7/9/2021 3:23:20 PM
Zinc	92.3	0.979		mg/Kg-dry	1	7/9/2021 3:23:20 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-025 **Matrix:** SOIL  
**Client Sample ID** HA-9 0-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	4,240	48.2		mg/Kg-dry	1	7/9/2021 5:37:33 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	15.9	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-026 **Matrix:** SOIL  
**Client Sample ID** HA-9 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.9	0.100		meq/100g	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	3.31	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	28.9	0.10	*	%	1	7/13/2021
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	21.8	0.10	*		1	7/9/2021
Soluble Calcium	1.60	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.79	0.05		meq/L	1	7/9/2021
Soluble Sodium	23.8	0.25		meq/L	1	7/9/2021
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.102	0.102		mg/Kg-dry	1	7/9/2021 7:59:21 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.27	1.89		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Barium	2,420	0.943		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Cadmium	< 0.472	0.472		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Chromium	12.8	0.943		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Lead	18.3	0.943		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Selenium	< 3.77	3.77		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Strontium	93.0	0.943		mg/Kg-dry	1	7/9/2021 3:30:17 PM
Zinc	15.7	0.943		mg/Kg-dry	1	7/9/2021 3:30:17 PM
<b>SW6010B SW3050B Analyst: STS</b>						
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						
<b>LDNR 29-B Analyst: STS</b>						

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-026 **Matrix:** SOIL  
**Client Sample ID** HA-9 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>STS</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	4,280	46.3		mg/Kg-dry	1	7/9/2021 5:39:52 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	16.4	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 21070044

Date Reported: 7/20/2021

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-027 **Matrix:** SOIL  
**Client Sample ID** HA-9 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	31.7	0.100		meq/100g	1	7/13/2021
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	3.77	0.10		mmhos/cm	1	7/8/2021 11:05:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	43.5	0.10	*	%	1	7/13/2021
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
Sodium Adsorption Ratio	25.5	0.10	*		1	7/9/2021
Soluble Calcium	1.72	0.02		meq/L	1	7/9/2021
Soluble Magnesium	0.94	0.05		meq/L	1	7/9/2021
Soluble Sodium	29.4	0.25		meq/L	1	7/9/2021
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.0974	0.0974		mg/Kg-dry	1	7/9/2021 8:01:37 AM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
Arsenic	2.57	1.90		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Barium	183	0.950		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Cadmium	< 0.475	0.475		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Chromium	6.97	0.950		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Lead	14.6	0.950		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Selenium	< 3.80	3.80		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Strontium	39.1	0.950		mg/Kg-dry	1	7/9/2021 3:32:36 PM
Zinc	13.3	0.950		mg/Kg-dry	1	7/9/2021 3:32:36 PM
<b>29B METALS TRUE TOTAL BARIUM</b>					<b>LDNR 29-B</b>	Analyst: <b>STS</b>

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **21070044**

Date Reported: **7/20/2021**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/30/2021 10:55:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 21070044-027 **Matrix:** SOIL  
**Client Sample ID** HA-9 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	342	49.8		mg/Kg-dry	1	7/9/2021 5:42:10 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	15.7	1.00		wt%	1	7/2/2021 9:30:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40208

Sample ID	<b>21061339-034ams</b>	SampType: <b>ms</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/1/2021</b>	RunNo: <b>100867</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>40208</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>7/2/2021</b>	SeqNo: <b>2462454</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	140	15.0	100.0	47.64	92.8	14.5	174				
Surr: 4-Terphenyl-d14	2.37		3.333		71.0	33	152				

Sample ID	<b>21061339-034amsd</b>	SampType: <b>msd</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/1/2021</b>	RunNo: <b>100867</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>40208</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>7/2/2021</b>	SeqNo: <b>2462455</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	134	15.0	100.0	47.64	86.3	14.5	174	140.4	4.72	48.8	
Surr: 4-Terphenyl-d14	2.38		3.333		71.4	33	152		0	40	

Sample ID	<b>lcsd-m40208</b>	SampType: <b>lcsd</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/1/2021</b>	RunNo: <b>100867</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>40208</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>7/2/2021</b>	SeqNo: <b>2462468</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	89.8	15.0	100.0	0	89.8	63.9	120	88.19	1.80	20.7	
Surr: 4-Terphenyl-d14	2.39		3.333		71.8	33	152		0	40	

Sample ID	<b>lcs-m40208</b>	SampType: <b>lcs</b>	TestCode: <b>8015_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>7/1/2021</b>	RunNo: <b>100867</b>					
Client ID:	<b>LCSS</b>	Batch ID: <b>40208</b>	TestNo: <b>SW8015B</b>	<b>SW3550C</b>	Analysis Date: <b>7/2/2021</b>	SeqNo: <b>2462469</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	88.2	15.0	100.0	0	88.2	63.9	120				
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**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40208

Sample ID	<b>ics-m40208</b>	SampType:	<b>ics</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>LCSS</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462469</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		2.49			3.333			74.8	33	152				

Sample ID	<b>mb-40208</b>	SampType:	<b>mblk</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>PBS</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462470</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 15.0		15.0										
TPH (Oil Range)		< 15.0		15.0										
Surr: 4-Terphenyl-d14		2.42			3.333			72.7	33	152				

Sample ID	<b>21061339-033ams</b>	SampType:	<b>ms</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2464808</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		724		150	100.0	587.3		136	23.4	123				S
Surr: 4-Terphenyl-d14		23.6			3.333			708	33	152				SM

**NOTES:**

S - Spike recovery outside of recovery limits. The method is in control for the TPH (Diesel Range) as indicated by the LCS/LCSD and sample MSD.

Sample ID	<b>21061339-033amsd</b>	SampType:	<b>msd</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2464809</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 21070044  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40208

Sample ID	<b>21061339-033amsd</b>	SampType:	<b>msd</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2464809</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		675		100	100.0	587.3		88.1	23.4	123	723.7	6.91	35.6	
Surr: 4-Terphenyl-d14		18.0			3.333			539	33	152		0	40	SM

Sample ID	<b>ics-d40208</b>	SampType:	<b>ics</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>LCSS</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2464822</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		74.1		15.0	100.0	0		74.1	63.4	109				
Surr: 4-Terphenyl-d14		3.10			3.333			92.9	33	152				

Sample ID	<b>icsd-d40208</b>	SampType:	<b>icsd</b>	TestCode:	<b>8015_DO_S</b>	Units:	<b>mg/Kg</b>	Prep Date:	<b>7/1/2021</b>	RunNo:	<b>100867</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>40208</b>	TestNo:	<b>SW8015B</b>		<b>SW3550C</b>	Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2464823</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		75.8		15.0	100.0	0		75.8	63.4	109	74.08	2.24	21.9	
Surr: 4-Terphenyl-d14		3.40			3.333			102	33	152		0	40	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40232

Sample ID <b>MB-40232</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>PBS</b>	Batch ID: <b>40232</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464180</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.100	0.100			

Sample ID <b>LCS-40232</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>LCSS</b>	Batch ID: <b>40232</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464181</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.853	0.100	0.8330	0	102 80 120

Sample ID <b>LCSD-40232</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>40232</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464182</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.864	0.100	0.8330	0	104 80 120 0.8529 1.25 20

Sample ID <b>21070044-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>HA-1 0-2</b>	Batch ID: <b>40232</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464185</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.886	0.108	0.8984	0.03126	95.1 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40232

Sample ID	<b>21070044-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100958</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>40232</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2464186</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.891		0.108	0.8965	0.03126	95.9	75	125	0.8859	0.611 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40233

Sample ID <b>MB-40233</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>PBS</b>	Batch ID: <b>40233</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464210</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.100	0.100			

Sample ID <b>LCS-40233</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>LCSS</b>	Batch ID: <b>40233</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464211</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.848	0.100	0.8330	0	102 80 120

Sample ID <b>LCSD-40233</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>40233</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464212</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.859	0.100	0.8330	0	103 80 120 0.8483 1.26 20

Sample ID <b>21070044-021AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100958</b>
Client ID: <b>HA-7 4-6</b>	Batch ID: <b>40233</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464217</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.754	0.0989	0.8242	0.02439	88.5 75 125

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 21070044  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40233

Sample ID	21070044-021AMSD	SampType:	MSD	TestCode:	HG_S_29B	Units:	mg/Kg-dry	Prep Date:	7/7/2021	RunNo:	100958		
Client ID:	HA-7 4-6	Batch ID:	40233	TestNo:	29B/SW7471	SW7471A		Analysis Date:	7/9/2021	SeqNo:	2464218		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.827		0.107	0.8938	0.02439	89.8	75	125	0.7541	9.20	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40241

Sample ID <b>MB-40241</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100918</b>						
Client ID: <b>PBS</b>	Batch ID: <b>40241</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>7/7/2021</b>	SeqNo: <b>2463512</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Selenium	< 4.00	4.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-40241</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100918</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40241</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>7/7/2021</b>	SeqNo: <b>2463513</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.8	2.00	50.00	0	99.6	80	120				
Barium	935	1.00	1,050	0	89.1	80	120				
Cadmium	49.1	0.500	50.00	0	98.2	80	120				
Chromium	46.4	1.00	50.00	0	92.8	80	120				
Lead	47.2	1.00	50.00	0	94.5	80	120				
Selenium	53.7	4.00	50.00	0	107	80	120				
Strontium	48.4	1.00	50.00	0	96.7	80	120				
Zinc	48.3	1.00	50.00	0	96.6	80	120				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40241

Sample ID	<b>LCSD-40241</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100918</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>40241</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>7/7/2021</b>	SeqNo:	<b>2463514</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.5	2.00	50.00	0	97.1	80	120	49.82	2.64	20	
Barium	927	1.00	1,050	0	88.3	80	120	935.3	0.881	20	
Cadmium	48.5	0.500	50.00	0	97.1	80	120	49.10	1.17	20	
Chromium	45.7	1.00	50.00	0	91.4	80	120	46.38	1.49	20	
Lead	46.6	1.00	50.00	0	93.2	80	120	47.25	1.36	20	
Selenium	53.4	4.00	50.00	0	107	80	120	53.75	0.689	20	
Strontium	47.8	1.00	50.00	0	95.7	80	120	48.37	1.07	20	
Zinc	47.7	1.00	50.00	0	95.5	80	120	48.29	1.17	20	

Sample ID	<b>21061187-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100918</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>40241</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>7/7/2021</b>	SeqNo:	<b>2463516</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	65.7	1.96	49.12	13.09	107	75	125				
Barium	248	0.982	49.12	213.6	71.0	75	125				S
Cadmium	51.1	0.491	49.12	1.524	101	75	125				
Chromium	68.3	0.982	49.12	22.21	93.8	75	125				
Lead	205	0.982	49.12	221.1	-32.8	75	125				S
Selenium	83.9	3.93	49.12	1.195	168	75	125				S
Strontium	129	0.982	49.12	77.86	103	75	125				
Zinc	2,230	0.982	49.12	1,359	1,780	75	125				S

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40241

Sample ID	<b>21061187-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100918</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>40241</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>7/7/2021</b>	SeqNo:	<b>2463517</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic	60.8	1.83	45.78	13.09	104	75	125	65.72	7.72	20	
Barium	232	0.916	45.78	213.6	39.3	75	125	248.4	7.03	20	S
Cadmium	47.6	0.458	45.78	1.524	101	75	125	51.08	7.12	20	
Chromium	63.4	0.916	45.78	22.21	90.0	75	125	68.28	7.38	20	
Lead	191	0.916	45.78	221.1	-66.5	75	125	205.0	7.27	20	S
Selenium	77.7	3.66	45.78	1.195	167	75	125	83.93	7.72	20	S
Strontium	120	0.916	45.78	77.86	92.3	75	125	128.6	6.87	20	
Zinc	2,080	0.916	45.78	1,359	1,580	75	125	2,232	6.98	20	S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40247

Sample ID <b>MB-40247</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>						
Client ID: <b>PBS</b>	Batch ID: <b>40247</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464768</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Selenium	< 4.00	4.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-40247</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>40247</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464771</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.7	2.00	50.00	0	97.3	80	120				
Barium	48.0	1.00	50.00	0	95.9	80	120				
Cadmium	49.3	0.500	50.00	0	98.6	80	120				
Chromium	47.3	1.00	50.00	0	94.6	80	120				
Lead	48.5	1.00	50.00	0	97.0	80	120				
Selenium	50.9	4.00	50.00	0	102	80	120				
Strontium	47.9	1.00	50.00	0	95.8	80	120				
Zinc	48.8	1.00	50.00	0	97.6	80	120				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40247

Sample ID	<b>LCSD-40247</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100978</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>40247</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2464772</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.2	2.00	50.00	0	96.4	80	120	48.67	0.989	20	
Barium	48.0	1.00	50.00	0	96.0	80	120	47.96	0.115	20	
Cadmium	49.5	0.500	50.00	0	99.0	80	120	49.30	0.356	20	
Chromium	47.3	1.00	50.00	0	94.7	80	120	47.30	0.0782	20	
Lead	48.7	1.00	50.00	0	97.5	80	120	48.48	0.547	20	
Selenium	50.8	4.00	50.00	0	102	80	120	50.90	0.279	20	
Strontium	47.9	1.00	50.00	0	95.9	80	120	47.88	0.106	20	
Zinc	48.8	1.00	50.00	0	97.6	80	120	48.79	0.0307	20	

Sample ID	<b>21070044-020AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100978</b>
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>40247</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2464774</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.0	1.85	46.36	4.421	83.3	75	125				
Barium	512	0.927	46.36	453.6	126	75	125				S
Cadmium	40.8	0.464	46.36	0.03394	87.9	75	125				
Chromium	54.1	0.927	46.36	9.932	95.3	75	125				
Lead	51.0	0.927	46.36	13.68	80.6	75	125				
Selenium	60.1	3.71	46.36	0	130	75	125				S
Strontium	64.9	0.927	46.36	23.89	88.5	75	125				
Zinc	60.9	0.927	46.36	14.97	99.0	75	125				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40247

Sample ID	<b>21070044-020AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100978</b>
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>40247</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2464775</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	45.8	1.97	49.26	4.421	84.1	75	125	43.03	6.32	20	
Barium	544	0.985	49.26	453.6	183	75	125	511.8	6.08	20	S
Cadmium	43.3	0.493	49.26	0.03394	87.8	75	125	40.80	5.90	20	
Chromium	57.4	0.985	49.26	9.932	96.4	75	125	54.12	5.92	20	
Lead	54.7	0.985	49.26	13.68	83.3	75	125	51.03	6.93	20	
Selenium	63.8	3.94	49.26	0	130	75	125	60.09	5.99	20	S
Strontium	68.9	0.985	49.26	23.89	91.5	75	125	64.91	6.03	20	
Zinc	64.6	0.985	49.26	14.97	101	75	125	60.85	5.98	20	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40249

Sample ID <b>MB-40249</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>
Client ID: <b>PBS</b>	Batch ID: <b>40249</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464789</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	< 50.0	50.0			

Sample ID <b>LCS-40249</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>
Client ID: <b>LCSS</b>	Batch ID: <b>40249</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464790</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	4,670	50.0	5,000	0	93.5 75 125

Sample ID <b>LCSD-40249</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>40249</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464791</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	4,900	50.0	5,000	0	98.1 75 125 4,675 4.80 20

Sample ID <b>21070044-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/7/2021</b>	RunNo: <b>100978</b>
Client ID: <b>HA-1 0-2</b>	Batch ID: <b>40249</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2464795</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	5,250	46.8	4,682	559.4	100 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	H Holding times for preparation or analysis exceeded	M Matrix Interference
ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40249

Sample ID	<b>21070044-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/7/2021</b>	RunNo:	<b>100978</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>40249</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2464796</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		5,000		49.9	4,985	559.4	89.1	75	125	5,245	4.80 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40260

Sample ID	<b>21070044-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>40260</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466895</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		2.12		0.10						2.03	4.34 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40261

Sample ID	<b>21070044-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>40261</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466854</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.2		0.100						22.77	2.63 20

Sample ID	<b>ics-40261</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>40261</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466873</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		19.9		0.100	25.00	0	79.7	76	124		

Sample ID	<b>icsd-40261</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>40261</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466874</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		20.2		0.100	25.00	0	81.0	76	124	19.92	1.64 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40268

Sample ID <b>MB-40268</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/8/2021</b>	RunNo: <b>101011</b>
Client ID: <b>PBS</b>	Batch ID: <b>40268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2465668</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	< 50.0	50.0			

Sample ID <b>LCS-40268</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/8/2021</b>	RunNo: <b>101011</b>
Client ID: <b>LCSS</b>	Batch ID: <b>40268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2465670</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	4,630	50.0	5,000	0	92.7 75 125

Sample ID <b>LCSD-40268</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/8/2021</b>	RunNo: <b>101011</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>40268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2465672</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	4,660	50.0	5,000	0	93.3 75 125 4,634 0.633 20

Sample ID <b>21070044-021AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/8/2021</b>	RunNo: <b>101011</b>
Client ID: <b>HA-7 4-6</b>	Batch ID: <b>40268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/9/2021</b>	SeqNo: <b>2465677</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	5,270	49.1	4,907	811.7	90.8 75 125

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40268

Sample ID	<b>21070044-021AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101011</b>		
Client ID:	<b>HA-7 4-6</b>	Batch ID:	<b>40268</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2465678</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		5,310		48.4	4,845	811.7	92.8	75	125	5,266	0.775	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40270

Sample ID	<b>21070044-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101045</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>40270</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2466590</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.05	0.10						2.05	0.17	20	
Soluble Calcium	1.02	0.02						1.02	0.60	20	
Soluble Magnesium	0.31	0.05						0.31	0.26	20	
Soluble Sodium	1.67	0.25						1.66	0.42	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40271

Sample ID	<b>21070044-020ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101045</b>		
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>40271</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2466610</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		5.88		0.10						5.93	0.71	20	
Soluble Calcium		1.23		0.02						1.23	0.09	20	
Soluble Magnesium		0.85		0.05						0.85	0.14	20	
Soluble Sodium		6.00		0.25						6.04	0.66	20	

Sample ID	<b>21070049-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101045</b>		
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40271</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2466619</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		2.77		0.10						2.73	1.60	20	
Soluble Calcium		126		0.02						126.6	0.10	20	
Soluble Magnesium		0.94		0.05						0.93	0.16	20	
Soluble Sodium		22.1		0.25						21.80	1.56	20	

Sample ID	<b>21070050-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>7/8/2021</b>	RunNo:	<b>101045</b>		
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40271</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/9/2021</b>	SeqNo:	<b>2466621</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio		2.58		0.10						2.49	3.45	20	
Soluble Calcium		116		0.02						116.5	0.80	20	
Soluble Magnesium		0.91		0.05						0.91	0.04	20	
Soluble Sodium		19.7		0.25						19.06	3.06	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40278

Sample ID	<b>21070044-020ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>40278</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466915</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		7.93		0.10						8.16	2.86 20

Sample ID	<b>21070049-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>40278</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466924</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		5.53		0.10						6.48	15.8 20

Sample ID	<b>21070050-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>40278</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466926</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		9.18		0.10						9.32	1.51 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40279

Sample ID	<b>21070044-020ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>40279</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466876</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		34.8		0.100						35.52	2.08 20

Sample ID	<b>21070049-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40279</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466885</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		5.36		0.100						5.390	0.558 20

Sample ID	<b>21070050-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>40279</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466887</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		5.58		0.100						6.400	13.7 20

Sample ID	<b>lcs-40279</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>40279</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466888</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		19.9		0.100	25.00	0	79.7	76	124		

**Qualifiers:** \* Value exceeds Maximum Contaminant Level. H Holding times for preparation or analysis exceeded M Matrix Interference  
 ND Not Detected at the Reporting Limit R RPD outside accepted recovery limits RL Reporting Limit  
 S Spike Recovery outside accepted recovery limits SDL Sample detection limit U Analyte not detected  
 W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 21070044  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 40279

Sample ID	<b>lcsd-40279</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>7/9/2021</b>	RunNo:	<b>101060</b>		
Client ID:	<b>LCSS02</b>	Batch ID:	<b>40279</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>7/13/2021</b>	SeqNo:	<b>2466889</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity		19.8		0.100	25.00	0	79.2	76	124	19.93	0.654	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100826

Sample ID	<b>MB-R100826</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HEM_S</b>	Units:	<b>% dry wt</b>	Prep Date:		RunNo:	<b>100826</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R100826</b>	TestNo:	<b>SW9071B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462888</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		< 0.05		0.05							

Sample ID	<b>LCS-R100826</b>	SampType:	<b>LCS</b>	TestCode:	<b>HEM_S</b>	Units:	<b>% dry wt</b>	Prep Date:		RunNo:	<b>100826</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>R100826</b>	TestNo:	<b>SW9071B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462889</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.22		0.05	0.20	0	112	70	130		

Sample ID	<b>LCSD-R100826</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HEM_S</b>	Units:	<b>% dry wt</b>	Prep Date:		RunNo:	<b>100826</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R100826</b>	TestNo:	<b>SW9071B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462890</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		0.22		0.05	0.20	0	111	70	130	0.22	1.12 40

Sample ID	<b>21070044-014BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HEM_S</b>	Units:	<b>% dry wt</b>	Prep Date:		RunNo:	<b>100826</b>
Client ID:	<b>HA-5 2-4</b>	Batch ID:	<b>R100826</b>	TestNo:	<b>SW9071B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462891</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
HEM, Oil & Grease		1.08		0.05	0.27	0.92	56.0	70	130		S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the LCS/LCSD.

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100826

Sample ID	<b>21070044-014BDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>HEM_S</b>	Units:	<b>% dry wt</b>	Prep Date:		RunNo:	<b>100826</b>		
Client ID:	<b>HA-5 2-4</b>	Batch ID:	<b>R100826</b>	TestNo:	<b>SW9071B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2462893</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
HEM, Oil & Grease		0.94		0.05						0.92	1.55	40	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100896

Sample ID	<b>21070044-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>100896</b>
Client ID:	<b>HA-1 0-2</b>	Batch ID:	<b>R100896</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2463064</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture		15.4		1.00						15.70	1.93 20

Sample ID	<b>21070044-020ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>100896</b>
Client ID:	<b>HA-7 2-4</b>	Batch ID:	<b>R100896</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/2/2021</b>	SeqNo:	<b>2463084</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture		17.2		1.00						15.60	9.76 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100933

Sample ID <b>MB-R100933</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100933</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R100933</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463876</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID <b>LCS1-R100933</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100933</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R100933</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463877</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.48	0.10	0.46	0	104	90	110				

Sample ID <b>LCS2-R100933</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100933</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R100933</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463878</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	56.7	0.10	53.00	0	107	90	110				

Sample ID <b>21070044-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100933</b>						
Client ID: <b>HA-1 0-2</b>	Batch ID: <b>R100933</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463880</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.30	0.10						0.30	0	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100934

Sample ID <b>MB-R100934</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100934</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R100934</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463901</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID <b>LCS1-R100934</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100934</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R100934</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463902</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.48	0.10	0.46	0	105	90	110				

Sample ID <b>LCS2-R100934</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100934</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R100934</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463903</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	55.9	0.10	53.00	0	105	90	110				

Sample ID <b>21070044-020ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>100934</b>						
Client ID: <b>HA-7 2-4</b>	Batch ID: <b>R100934</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/8/2021</b>	SeqNo: <b>2463905</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.90	0.10						0.90	0.44	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **21070044**  
 20-Jul-21

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R100934

Sample ID	<b>21070049-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>100934</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R100934</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2463914</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		16.4		0.10						16.38	0.06 20 *

Sample ID	<b>21070050-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>100934</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R100934</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>7/8/2021</b>	SeqNo:	<b>2463916</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		15.4		0.10						15.38	0.26 20 *

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **21070044**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>7/1/2021 3:00:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>7/1/2021 3:37:25 PM</b>	
Reviewed By:	<b>Caitlin Duplantis</b>	<b>7/14/2021 11:23:54 AM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Element

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0° C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Improper error correction(s) made by client  
 No sampler's signature by client on p.3 of COC

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good	Not Present			



# Chain of Custody

Laboratory Number: **21070044**

**Client Information:** **Billing Information:** **PO Number:** **Quote Number:** **Required QC Level:**

Company Name: **ICON environmental** **SAVE**

Contact Name: **ICON environmental**

Address: **SAVE**

City, State Zip: **Ext**

Phone Number: **Ext**

Fax Number: **Ext**

E-mail Address: **Ext**

**Project Name/Number:** **Castex Development**

**Quote Number:** **9A03-016-0100**

**Sampler's Signature:** *[Signature]*

**Shipping Method:** **UPS / FedEx / NOW** **DHL / Element / Hand / Mail**

**Matrix Code:**

DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 SOL = Solid  
 O = Oil  
 SO = Soil  
 F = Food  
 SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Page 1 of 3

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/IRIS	Turn Time <input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Rush turn times (Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests		Comments
			Date	Time				Matrix	Requested Tests	
HA-1	0-2		6.29.21	0820	G	SO				
HA-1	2-A		6.29.21	0830	G	SO				
HA-1	4-G		6.29.21	0840	G	SO				
HA-2	0-2		6.29.21	0940	G	SO				
HA-2	2-A		6.29.21	0945	G	SO				
HA-2	4-G		6.29.21	0950	G	SO				
HA-3	0-2		6.29.21	1040	G	SO				
HA-3	2-A		6.29.21	1045	G	SO				
HA-3	4-G		6.29.21	1050	G	SO				

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<i>[Signature]</i>	0020 7-1-21 1300	<i>[Signature]</i>	7-1-21 1300	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 1,500
<i>[Signature]</i>	7-1-21 1500	<i>[Signature]</i>	7-1-21 1500	

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.

Element Materials Technology reserves the right to return unused sample portions.

8100 North US-31  
 Columbus, IN 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Ley Road, Suite 100  
 Fort Wayne, IN 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN 46580 USA  
 P 574-267-3365  
 F 574-268-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN 46626 USA  
 P 574-277-0707  
 F 574-273-5699

2417 W. Pinhook Rd  
 Lafayette, LA 70508 USA  
 P 337-235-0483  
 F 337-233-6540



# Chain of Custody

Laboratory Number: **21076 044**

Company Name: **ICON**  
 Contact Name:  
 Address:  
 City, State Zip:  
 Phone Number:  
 Fax Number:  
 E-mail Address:

Client Information:  
 Billing Information: **same**  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Ext:  
 Ext:

Project Name/Number: **Castex Development**  
**QA03-016-0100**  
 Sampler's Signature: *[Signature]*  
 Shipping Method: **UPS / FedEx / NOW**  
**DHL / Element / Hand / Mail**

Page 2 of 3  
 Matrix Code: **7/1/21**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 SOL = Solid  
 O = Oil  
 SO = Soil  
 F = Food  
 SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/IRIS	Turn Time <input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information			Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> SO <sub>4</sub>	Requested Tests	Comments
			Date		Time					
			Date	Time	Matrix					
HA-4	0-2		6.29.21	1555	G	SO				
HA-4	2-4		6.29.21	1600	G	SO				
HA-4	4-6		6.29.21	1605	G	SO				
HA-5	0-2		6.29.21	1655	G	SO				
HA-5	2-4		6.29.21	1700	G	SO				
HA-5	4-6		6.29.21	1705	G	SO				
HA-6	0-2		6.30.21	0745	G	SO				
HA-6	2-4		6.30.21	0750	G	SO				
HA-6	4-6		6.30.21	0755	G	SO				

Relinquished by	Date/Time	Received by	Date/Time	Field Notes
<i>[Signature]</i>	6-30-21 1500	<i>[Signature]</i>	6-30-21 1500	
<i>[Signature]</i>	7-1-21 1800	<i>[Signature]</i>	7-1-21 1300	
<i>[Signature]</i>	7-1-21 1500	<i>[Signature]</i>	7-1-21 1500	

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 P 574-267-3305  
 F 574-269-6560

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 South Bend, IN  
 46628 USA  
 P 574-277-0707  
 F 574-273-5690

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0483  
 F 337-233-6540



# Chain of Custody

Laboratory Number: **2070044**

Client Information: **ICON** Billing Information: **SAME** PO Number: **9403-016-0100** Project Name/Number: **Castex** Page 3 of 3

Company Name: **ICON** Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:

Required QC Level: Bill Monthly:  Yes  No Shipping Method: **UPS / FedEx / NOW** **DHL / Element** **Hand / Mail**

Matrix Code: DW = Drinking Water, WW = Waste Water, GW = Ground Water, AQ = Aqueous, OT = Other, SL = Sludge, SOL = Solid, C = Oil, SO = Soil, F = Food, SW = Swab, NG = Natural Gas, NGL = Natural Gas Liquid, PW = Produced Water, CF = Completion Fluid

Sample ID/Description	Which Regulations Apply:		Turn Time	Rush turn times will incur a surcharge and must be pre-approved by lab.	Collection Information		Container	Pres.	Requested Tests	Comments
	Drinking Water	Distribution			Date	Time				
HA-7	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	0845	G	SO	P/G	-	X	
HA-7	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	0850	G	SO	P/G	-	X	
HA-7	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	0855	G	SO	P/G	-	X	
HA-8	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	0950	G	SO	P/G	-	X	
HA-8	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	0955	G	SO	P/G	-	X	
HA-8	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	1000	G	SO	P/G	-	X	
HA-9	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	1045	G	SO	P/G	-	X	
HA-9	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	1050	G	SO	P/G	-	X	
HA-9	<input type="checkbox"/>	<input type="checkbox"/>	6:30-21	1055	G	SO	P/G	-	X	

Relinquished by	Date/Time	Received by	Date/Time	Field Notes
<i>[Signature]</i>	6-30-21 1500	<i>[Signature]</i>	6-30-21 1700	Received at lab on ice? <input type="checkbox"/> Yes <input type="checkbox"/> No Temp: 1.5°C
<i>[Signature]</i>	7-1-21 1300	<i>[Signature]</i>	7-1-21 1300	
<i>[Signature]</i>	7-1-21 1500	<i>[Signature]</i>	7-1-21 1520	

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 909 Executive Dr, Warsaw, IN 46580 USA, P 574-267-3305, F 574-269-6669  
 3371 Cleveland Road, Suite 100A, South Bend, IN 46628 USA, P 574-277-0767, F 574-273-5999  
 2417 W. Pinhook Rd, Lafayette, LA 70508 USA, P 337-235-0483, F 337-233-6540



Element Materials Technology Lafayette  
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Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

March 12, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development 9403-016-0100

Order No.: 22021200

Dear Greg Miller:

Element Materials Technology Lafayette received 7 sample(s) on 2/25/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22021200

Date: 3/12/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 2:45:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-001 **Matrix:** SOLID  
**Client Sample ID** CD-1 (0-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	14.5	0.100		meq/100g	1	3/9/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.33	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.52	0.10		%	1	3/9/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	0.81	0.10			1	3/9/2022
Soluble Calcium	1.50	0.02		meq/L	1	3/9/2022
Soluble Magnesium	0.60	0.05		meq/L	1	3/9/2022
Soluble Sodium	0.83	0.25		meq/L	1	3/9/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0926	0.0926		mg/Kg-dry	1	3/8/2022 7:11:12 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	31.9	1.25		mg/Kg-dry	5	3/8/2022 1:04:04 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.54	1.85		mg/Kg-dry	1	3/8/2022 9:22:56 PM
Barium	5,590	9.26		mg/Kg-dry	10	3/9/2022 6:30:00 PM
Cadmium	< 0.463	0.463		mg/Kg-dry	1	3/8/2022 9:22:56 PM
Chromium	9.53	0.926		mg/Kg-dry	1	3/8/2022 9:22:56 PM
Lead	15.6	0.926		mg/Kg-dry	1	3/8/2022 9:22:56 PM
Strontium	38.1	0.926		mg/Kg-dry	1	3/8/2022 9:22:56 PM
Zinc	12.8	0.926		mg/Kg-dry	1	3/8/2022 9:22:56 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 2:45:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-001 **Matrix:** SOLID  
**Client Sample ID** CD-1 (0-2)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	13,000	48.2		mg/Kg-dry	1	3/8/2022 11:19:43 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	9.50	1.00		wt%	1	2/28/2022 9:00:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 2:55:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-002 **Matrix:** SOLID  
**Client Sample ID** CD-1 (4-6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	27.2	0.100		meq/100g	1	3/9/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.58	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	4.49	0.10		%	1	3/9/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.57	0.10			1	3/9/2022
Soluble Calcium	0.66	0.02		meq/L	1	3/9/2022
Soluble Magnesium	0.46	0.05		meq/L	1	3/9/2022
Soluble Sodium	3.43	0.25		meq/L	1	3/9/2022
<b>LDNR 29-B LDNR 29-B Analyst: STS</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	3/8/2022 7:13:31 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
<b>SW9056A Analyst: SGP</b>						
Chloride	117	2.50		mg/Kg-dry	10	3/8/2022 1:45:27 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
<b>SW6010B SW3050B Analyst: STS</b>						
Arsenic	3.77	1.97		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Barium	172	0.983		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Cadmium	< 0.492	0.492		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Chromium	10.6	0.983		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Lead	9.27	0.983		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Strontium	14.5	0.983		mg/Kg-dry	1	3/8/2022 9:25:13 PM
Zinc	12.7	0.983		mg/Kg-dry	1	3/8/2022 9:25:13 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 2:55:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-002 **Matrix:** SOLID  
**Client Sample ID** CD-1 (4-6)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	1,050	45.7		mg/Kg-dry	1	3/8/2022 11:22:00 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	13.7	1.00		wt%	1	2/28/2022 9:00:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 3:10:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-003 **Matrix:** SOLID  
**Client Sample ID** CD-1 (10-12)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	36.6	0.100		meq/100g	1	3/9/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.37	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.50	0.10		%	1	3/9/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>STS</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.02	0.10			1	3/9/2022
Soluble Calcium	0.94	0.02		meq/L	1	3/9/2022
Soluble Magnesium	0.63	0.05		meq/L	1	3/9/2022
Soluble Sodium	1.79	0.25		meq/L	1	3/9/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.102	0.102		mg/Kg-dry	1	3/8/2022 7:15:48 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	34.6	2.50		mg/Kg-dry	10	3/8/2022 1:59:14 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>STS</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	7.74	1.89		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Barium	325	0.945		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Cadmium	< 0.472	0.472		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Chromium	15.5	0.945		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Lead	13.1	0.945		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Strontium	28.2	0.945		mg/Kg-dry	1	3/8/2022 9:27:30 PM
Zinc	43.7	0.945		mg/Kg-dry	1	3/8/2022 9:27:30 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 3:10:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-003 **Matrix:** SOLID  
**Client Sample ID** CD-1 (10-12)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						Analyst: <b>STS</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	1,460	48.2		mg/Kg-dry	1	3/8/2022 11:24:18 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	19.1	1.00		wt%	1	2/28/2022 9:00:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 3:10:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-004 **Matrix:** SOLID  
**Client Sample ID** CD-1 (22-24)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.38	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	2.81	0.500		mg/L	2	3/10/2022 7:15:28 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	34.0	2.50		mg/Kg-dry	10	3/8/2022 2:13:01 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	24.0	1.00		wt%	1	2/28/2022 9:00:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 4:15:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-005 **Matrix:** SOLID  
**Client Sample ID** CD-1 (36-38)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.34	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3.16	0.500		mg/L	2	3/10/2022 7:29:16 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	18.7	1.25		mg/Kg-dry	5	3/8/2022 2:26:48 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	22.2	1.00		wt%	1	2/28/2022 9:00:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/23/2022 4:40:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-006 **Matrix:** SOLID  
**Client Sample ID** CD-1 (46-48)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.59	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	39.1	2.50		mg/Kg-dry	10	3/8/2022 2:40:35 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	26.1	1.00		wt%	1	2/28/2022 9:00:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22021200

Date Reported: 3/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 2/24/2022 8:20:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22021200-007 **Matrix:** SOLID  
**Client Sample ID** CD-1 (56-58)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.62	0.10		mmhos/cm	1	3/8/2022 10:55:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	4.06	0.500		mg/L	2	3/10/2022 7:43:04 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	60.0	2.50		mg/Kg-dry	10	3/8/2022 2:54:23 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	22.3	1.00		wt%	1	2/28/2022 9:00:00 AM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42879

Sample ID <b>MB-42879</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>
Client ID: <b>PBS</b>	Batch ID: <b>42879</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645727</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	< 50.0	50.0			

Sample ID <b>LCS-42879</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>
Client ID: <b>LCSS</b>	Batch ID: <b>42879</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645728</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	7,490	50.0	7,500	0	99.9 75 125

Sample ID <b>LCSD-42879</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>42879</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645729</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	7,500	50.0	7,500	0	100 75 125 7,491 0.146 20

Sample ID <b>22021047-019AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>42879</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645731</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
True Total Barium	8,250	48.2	7,225	377.9	109 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42879

Sample ID	<b>22021047-019AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/4/2022</b>	RunNo:	<b>107626</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42879</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2645732</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		7,110		48.9	7,331	377.9	91.8	75	125	8,247	14.9	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42880

Sample ID <b>MB-42880</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>						
Client ID: <b>PBS</b>	Batch ID: <b>42880</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645812</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-42880</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/4/2022</b>	RunNo: <b>107626</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>42880</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/8/2022</b>	SeqNo: <b>2645813</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.3	2.00	50.00	0	107	80	120				
Barium	53.8	1.00	50.00	0	108	80	120				
Cadmium	54.2	0.500	50.00	0	108	80	120				
Chromium	53.7	1.00	50.00	0	107	80	120				
Lead	53.8	1.00	50.00	0	108	80	120				
Strontium	54.2	1.00	50.00	0	108	80	120				
Zinc	54.0	1.00	50.00	0	108	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42880

Sample ID	<b>LCSD-42880</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/4/2022</b>	RunNo:	<b>107626</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>42880</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2645814</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.9	2.00	50.00	0	106	80	120	53.32	0.759	20	
Barium	52.8	1.00	50.00	0	106	80	120	53.83	1.93	20	
Cadmium	53.0	0.500	50.00	0	106	80	120	54.17	2.26	20	
Chromium	52.6	1.00	50.00	0	105	80	120	53.66	1.94	20	
Lead	53.1	1.00	50.00	0	106	80	120	53.76	1.14	20	
Strontium	53.0	1.00	50.00	0	106	80	120	54.17	2.18	20	
Zinc	52.9	1.00	50.00	0	106	80	120	53.99	2.00	20	

Sample ID	<b>22021047-014AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/4/2022</b>	RunNo:	<b>107626</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42880</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2645816</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	51.7	1.90	47.41	6.968	94.3	75	125				
Barium	323	0.948	47.41	271.3	110	75	125				
Cadmium	44.2	0.474	47.41	0.1568	93.0	75	125				
Chromium	59.7	0.948	47.41	13.23	98.0	75	125				
Lead	53.4	0.948	47.41	11.25	88.9	75	125				
Strontium	171	0.948	47.41	127.2	92.1	75	125				
Zinc	96.2	0.948	47.41	49.47	98.6	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42880

Sample ID	<b>22021047-014AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/4/2022</b>	RunNo:	<b>107626</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42880</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2645817</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	52.9	1.93	48.13	6.968	95.3	75	125	51.67	2.26	20	
Barium	331	0.963	48.13	271.3	124	75	125	323.2	2.38	20	
Cadmium	45.0	0.481	48.13	0.1568	93.1	75	125	44.24	1.68	20	
Chromium	61.0	0.963	48.13	13.23	99.2	75	125	59.68	2.17	20	
Lead	54.9	0.963	48.13	11.25	90.7	75	125	53.40	2.76	20	
Strontium	174	0.963	48.13	127.2	97.7	75	125	170.9	1.97	20	
Zinc	98.8	0.963	48.13	49.47	102	75	125	96.21	2.63	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42888

Sample ID	<b>MB-42888</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/7/2022</b>	RunNo:	<b>107556</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>42888</b>	TestNo:	<b>29B/SW7471</b>	<b>SW7471A</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643768</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		< 0.100		0.100							

Sample ID	<b>LCS-42888</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/7/2022</b>	RunNo:	<b>107556</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>42888</b>	TestNo:	<b>29B/SW7471</b>	<b>SW7471A</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643769</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.864		0.100	0.8330	0	104	80	120		

Sample ID	<b>LCSD-42888</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/7/2022</b>	RunNo:	<b>107556</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>42888</b>	TestNo:	<b>29B/SW7471</b>	<b>SW7471A</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643770</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.883		0.100	0.8330	0	106	80	120	0.8640	2.14 20

Sample ID	<b>22020955-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/7/2022</b>	RunNo:	<b>107556</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42888</b>	TestNo:	<b>29B/SW7471</b>	<b>SW7471A</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643773</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.884		0.100	0.8345	0.03043	102	75	125		

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42888

Sample ID	<b>22020955-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>3/7/2022</b>	RunNo:	<b>107556</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42888</b>	TestNo:	<b>29B/SW7471</b>	<b>SW7471A</b>		Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643774</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.892		0.0993	0.8271	0.03043	104	75	125	0.8845	0.837	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42922

Sample ID	<b>22021217-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	<b>%</b>	Prep Date:	<b>3/8/2022</b>	RunNo:	<b>107667</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42922</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>3/9/2022</b>	SeqNo:	<b>2647374</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		44.3		0.10						42.64	3.91	20	*

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42923

Sample ID	<b>22021217-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>3/8/2022</b>	RunNo:	<b>107667</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42923</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>3/9/2022</b>	SeqNo:	<b>2647356</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		40.9		0.100						40.72	0.441 20

Sample ID	<b>lcs-42923</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>3/8/2022</b>	RunNo:	<b>107667</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>42923</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>3/9/2022</b>	SeqNo:	<b>2647363</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		23.2		0.100	25.00	0	92.6	76	124		

Sample ID	<b>lcsd-42923</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>3/8/2022</b>	RunNo:	<b>107667</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>42923</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>3/9/2022</b>	SeqNo:	<b>2647364</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.5		0.100	25.00	0	90.2	76	124	23.15	2.67 20

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 42933

Sample ID	<b>22021217-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>3/8/2022</b>	RunNo:	<b>107689</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>42933</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>3/9/2022</b>	SeqNo:	<b>2648058</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	7.99	0.10						7.95	0.48	20	
Soluble Calcium	1.61	0.02						1.60	0.58	20	
Soluble Magnesium	0.95	0.05						0.94	0.86	20	
Soluble Sodium	9.04	0.25						8.96	0.82	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107555

Sample ID	<b>MB-R107554</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>107555</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R107555</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643727</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		< 0.10		0.10							

Sample ID	<b>LCS1-R107554</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>107555</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107555</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643728</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.49		0.10	0.50	0	96.4	90	110		

Sample ID	<b>LCS2-R107554</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>107555</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107555</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643729</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		55.6		0.10	53.00	0	105	90	110		

Sample ID	<b>22021217-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>107555</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107555</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2643743</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		1.32		0.10						1.31	0.38 20

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107602

Sample ID	<b>mblk</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>107602</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R107602</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2644920</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		< 0.250		0.250							

Sample ID	<b>ics</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>107602</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>R107602</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2644921</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.98		0.250	10.00	0	99.8	80	120		

Sample ID	<b>icsd</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>107602</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R107602</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2644922</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.99		0.250	10.00	0	99.9	80	120	9.976	0.184 15

Sample ID	<b>22030271-003bms</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>107602</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107602</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2644928</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		7,840		125	2,500	4,762	123	80	120		S

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107602

Sample ID	<b>22030271-003bmsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>107602</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107602</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/8/2022</b>	SeqNo:	<b>2644929</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		7,810		125	2,500	4,762	122	80	120	7,845	0.405	15	S

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107615

Sample ID	<b>22021217-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>107615</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107615</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/28/2022</b>	SeqNo:	<b>2645463</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		20.7		1.00						20.60	0.48	20	

Sample ID	<b>22021219-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>107615</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107615</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/28/2022</b>	SeqNo:	<b>2645484</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		21.4		1.00						17.40	20.6	20	R

**NOTES:**  
 R - High RPD due to suspected sample non-homogeneity.

Sample ID	<b>22021219-021ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>107615</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107615</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/28/2022</b>	SeqNo:	<b>2645505</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		45.8		1.00						46.30	1.09	20	

Sample ID	<b>22021219-042ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>107615</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107615</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/28/2022</b>	SeqNo:	<b>2645644</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		40.7		1.00						33.40	19.7	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107615

Sample ID	<b>22021219-061ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>107615</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107615</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>2/28/2022</b>	SeqNo:	<b>2645646</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		41.9		1.00						42.20	0.71	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107725

Sample ID	<b>mblk</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107725</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R107725</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/10/2022</b>	SeqNo:	<b>2649061</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		< 0.250		0.250							

Sample ID	<b>ics</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107725</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R107725</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/10/2022</b>	SeqNo:	<b>2649062</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		10.1		0.250	10.00	0	101	80	120		

Sample ID	<b>icsd</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107725</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R107725</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/10/2022</b>	SeqNo:	<b>2649063</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		10.1		0.250	10.00	0	101	80	120	10.1	0.09 15

Sample ID	<b>22021219-035ams</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107725</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107725</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/10/2022</b>	SeqNo:	<b>2649074</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		3,880		12.5	250.0	3,757	47.3	80	120		ES

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22021200  
 12-Mar-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R107725

Sample ID	<b>22021219-035amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107725</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107725</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/10/2022</b>	SeqNo:	<b>2649075</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		3,890		12.5	250.0	3,757	53.9	80	120	3,875	0.426	15	ES

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control for the analyte as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22021200**

RcptNo: 1

Logged by: **Danielle Hollier** **2/25/2022 8:55:00 AM**

*Danielle Hollier*

Completed By: **Danielle Hollier** **2/25/2022 2:30:09 PM**

*Danielle Hollier*

Reviewed By: **Cristina Thibeaux** **2/26/2022 11:30:09 AM**

*Cristina Thibeaux*

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Jason Sills"/>	Date:	<input type="text" value="2/25/2022"/>
By Whom:	<input type="text" value="Cristina Thibeaux"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="please clarify metals needed"/>		
Client Instructions:	<input type="text" value="As.Ba.Cd.Cr.Sr.Zn.Pb.Hq. TT Ba (no Se)"/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------



# Chain of Custody

Laboratory Number: **2202/200**

Client Information: **ICON Env**  
 Contact Name: **Susan Ellis**  
 Address: **2049 Commercial Dr**  
 City, State Zip: **Port Allen LA 70767**  
 Phone Number: **225 344 8410**  
 Fax Number:  
 E-mail Address:

Billing Information:  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No  
 Ext:

Project Name/Number: **Castex Development**  
**9403-06-0100**  
 Sample's Signature: *[Signature]*  
 Shipping Method: **UPS / FedEx / NOW**  
**DHL / Element / Hand / Mail**

Page 1 of 1  
**Matrix Code**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 O = Oil  
 F = Food  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply:		Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container	Pres.	Requested Tests	Comments
	<input type="checkbox"/> RCRA	<input type="checkbox"/> POTW						
	Date	Time	Collection Information	Quantity	Type	NaOH, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>		
			Grab / Composite					
CD-1 (0-2)	2-23-22	1445	G	1	P	-	Leach test	* As, Ba, Cd, Cr, Sr, Zn, Pb, Hg, Tl, Ba (no Se) CCT 2/25/22
CD-1 (4-6)		1455					SAR/ESP	
CD-1 (10-12)		1510					EC	
CD-1 (22-24)		1540						
CD-1 (36-38)		1615						
CD-1 (46-48)		1640						
CD-1 (56-58)	2-24-22	820						

Relinquished by	Date/Time	Received by	Date/Time
<i>[Signature]</i>	2-25-22 0855	<i>[Signature]</i>	2-25-22 0855

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
 Columbus, IN  
 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Lev Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580 USA  
 P 574-267-3305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628 USA  
 P 574-277-0707  
 F 574-273-5689

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0483  
 F 337-233-6540



Element Materials Technology Lafayette  
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Website: www.element.com

April 06, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX: (225) 344-6654

RE: Castex Development/9403-016-0100

Order No.: 22030557

Dear Greg Miller:

Element Materials Technology Lafayette received 18 sample(s) on 3/11/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 22030557

Date: 4/6/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development/9403-016-0100

---

4/6/2022: This report is being re-issued and replaces the original report in its entirety. The report was corrected to include the full testing suite for CD-4 (8-10) as was requested on the COC. (rev01e)

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/3/2022 3:00:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-001 **Matrix:** SOIL  
**Client Sample ID** CD-2 14-16

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	16.3	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	7,120	182		mg/Kg-dry	500	3/18/2022 11:39:49 AM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	21.9	1.00		wt%	1	3/14/2022 11:00:00 AM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/3/2022 3:30:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-002 **Matrix:** SOIL  
**Client Sample ID** CD-2 28-30

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	20.5	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3,680	71.5		mg/Kg-dry	500	3/18/2022 11:53:27 AM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	22.5	1.00		wt%	1	3/14/2022 11:00:00 AM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/3/2022 3:55:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-003 **Matrix:** SOIL  
**Client Sample ID** CD-2 38-40

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	27.1	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3,860	54.1		mg/Kg-dry	500	3/18/2022 12:07:14 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	21.7	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-004  
**Client Sample ID** CD-2 46-48

**Collection Date:** 3/3/2022 4:15:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	12.0	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	1,550	21.1		mg/Kg-dry	200	3/18/2022 12:21:02 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	20.1	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/4/2022 7:30:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-005 **Matrix:** SOIL  
**Client Sample ID** CD-2 52-54

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	5.72	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	1,560	24.9		mg/Kg-dry	100	3/18/2022 12:34:49 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	29.7	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/4/2022 7:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-006 **Matrix:** SOIL  
**Client Sample ID** CD-2 60-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	4.44	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	694	14.5		mg/Kg-dry	100	3/18/2022 12:48:36 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	26.1	1.00		wt%	1	3/14/2022 11:00:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/8/2022 11:20:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-007 **Matrix:** SOIL  
**Client Sample ID** CD-3 18-20

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	4.92	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	2,440	47.1		mg/Kg-dry	100	3/18/2022 1:02:24 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	22.3	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/8/2022 11:45:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-008 **Matrix:** SOIL  
**Client Sample ID** CD-3 28-30

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	28.7	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	4,170	56.4		mg/Kg-dry	500	3/18/2022 1:16:11 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	20.6	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/8/2022 12:25:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-009 **Matrix:** SOIL  
**Client Sample ID** CD-3 44-46

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	24.9	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	7,470	116		mg/Kg-dry	500	3/18/2022 1:57:34 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	30.0	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/8/2022 12:45:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-010 **Matrix:** SOIL  
**Client Sample ID** CD-3 52-54

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	24.1	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	4,850	75.8		mg/Kg-dry	500	3/18/2022 2:11:21 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	25.9	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-011  
**Client Sample ID** CD-3 60-62

**Collection Date:** 3/8/2022 1:05:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	4.31	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	620	13.8		mg/Kg-dry	100	3/18/2022 2:25:09 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	23.2	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/8/2022 1:15:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-012 **Matrix:** SOIL  
**Client Sample ID** CD-3 64-66

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	2.35	0.10		mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	365	8.11		mg/Kg-dry	50	3/18/2022 2:38:56 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	23.2	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-013  
**Client Sample ID** CD-4 8-10

**Collection Date:** 3/9/2022 4:00:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	18.4	0.100		meq/100g	1	4/5/2022
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	23.9	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	28.4	0.10	*	%	1	4/5/2022
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	25.4	0.10	*		1	4/4/2022
Soluble Calcium	44.7	0.02		meq/L	1	4/4/2022
Soluble Magnesium	24.0	0.05		meq/L	1	4/4/2022
Soluble Sodium	149	0.25		meq/L	1	4/4/2022
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.106	0.106		mg/Kg-dry	1	4/4/2022 6:20:54 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	1,210	25.0		mg/L	100	4/5/2022 3:07:27 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	4,320	71.6		mg/Kg-dry	500	3/18/2022 2:52:43 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	3.60	1.91		mg/Kg-dry	1	4/1/2022 9:55:25 AM
Barium	329	0.957		mg/Kg-dry	1	4/1/2022 9:55:25 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- B Analyte detected in the associated Method Blank
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-013  
**Client Sample ID** CD-4 8-10

**Collection Date:** 3/9/2022 4:00:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>MRB</b>
Cadmium	< 0.478	0.478		mg/Kg-dry	1	4/1/2022 9:55:25 AM
Chromium	8.15	0.957		mg/Kg-dry	1	4/1/2022 9:55:25 AM
Lead	5.47	0.957		mg/Kg-dry	1	4/1/2022 9:55:25 AM
Strontium	28.8	0.957		mg/Kg-dry	1	4/1/2022 9:55:25 AM
Zinc	18.0	0.957		mg/Kg-dry	1	4/1/2022 9:55:25 AM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	424	93.9		mg/Kg-dry	1	4/5/2022 3:16:01 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	17.9	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/9/2022 4:25:00 PM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-014 **Matrix:** SOIL  
**Client Sample ID** CD-4 22-24

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	1.54	0.10		mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	704	24.1		mg/Kg-dry	50	3/18/2022 3:06:31 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	22.7	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-015  
**Client Sample ID** CD-4 32-34

**Collection Date:** 3/9/2022 4:50:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	1.60	0.10		mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	76.6	5.32		mg/Kg-dry	50	3/18/2022 3:20:19 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	21.9	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/10/2022 8:00:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-016 **Matrix:** SOIL  
**Client Sample ID** CD-4 46-48

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	3.79	0.10		mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	812	21.2		mg/Kg-dry	100	3/18/2022 3:34:05 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	24.0	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/10/2022 8:25:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-017 **Matrix:** SOIL  
**Client Sample ID** CD-4 56-58

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	6.35	0.10	*	mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	1,880	26.6		mg/Kg-dry	100	3/18/2022 3:47:53 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	30.7	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22030557

Date Reported: 4/6/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/10/2022 8:50:00 AM  
**Project:** Castex Development/9403-016-0100  
**Lab ID:** 22030557-018 **Matrix:** SOIL  
**Client Sample ID** CD-4 66-68

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.81	0.10		mmhos/cm	1	3/18/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	77.1	4.02		mg/Kg-dry	20	3/18/2022 4:01:40 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	27.7	1.00		wt%	1	3/14/2022 11:00:00 AM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43009

Sample ID: <b>MB-43009</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108080</b>
Client ID: <b>PBS</b>	Batch ID: <b>43009</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2658621</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.100	0.100			

Sample ID: <b>LCS-43009</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108080</b>
Client ID: <b>LCSS</b>	Batch ID: <b>43009</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2658622</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.891	0.100	0.8330	0	107 80 120

Sample ID: <b>LCSD-43009</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108080</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43009</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2658625</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.908	0.100	0.8330	0	109 80 120 0.8911 1.87 20

Sample ID: <b>22030587-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108080</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43009</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2658637</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.918	0.0995	0.8290	0.06220	103 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43009

Sample ID: <b>22030587-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108080</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43009</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2658638</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.972	0.102	0.8463	0.06220	107	75	125	0.9181	5.67	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43052

Sample ID: <b>MB-43052</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/17/2022</b>	RunNo: <b>108040</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43052</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657429</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-43052</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/17/2022</b>	RunNo: <b>108040</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43052</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657430</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	50.0	2.00	50.00	0	99.9	80	120				
Barium	46.6	1.00	50.00	0	93.1	80	120				
Cadmium	48.7	0.500	50.00	0	97.3	80	120				
Chromium	46.8	1.00	50.00	0	93.6	80	120				
Lead	47.6	1.00	50.00	0	95.1	80	120				
Strontium	47.0	1.00	50.00	0	94.1	80	120				
Zinc	48.5	1.00	50.00	0	97.0	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43052

Sample ID: <b>LCSD-43052</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/17/2022</b>	RunNo: <b>108040</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43052</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657431</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.3	2.00	50.00	0	98.6	80	120	49.97	1.34	20	
Barium	46.3	1.00	50.00	0	92.6	80	120	46.56	0.519	20	
Cadmium	48.0	0.500	50.00	0	96.0	80	120	48.66	1.34	20	
Chromium	46.5	1.00	50.00	0	93.0	80	120	46.82	0.662	20	
Lead	47.3	1.00	50.00	0	94.7	80	120	47.57	0.472	20	
Strontium	46.8	1.00	50.00	0	93.5	80	120	47.04	0.595	20	
Zinc	47.8	1.00	50.00	0	95.7	80	120	48.49	1.35	20	

Sample ID: <b>22030586-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/17/2022</b>	RunNo: <b>108040</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43052</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657440</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	53.5	1.85	46.36	9.349	95.2	75	125				
Barium	1,080	0.927	46.36	970.7	228	75	125				S
Cadmium	43.4	0.464	46.36	0.3340	93.0	75	125				
Chromium	66.9	0.927	46.36	20.65	99.7	75	125				
Lead	79.4	0.927	46.36	39.09	87.0	75	125				
Strontium	166	0.927	46.36	120.8	97.9	75	125				
Zinc	117	0.927	46.36	69.68	103	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43052

Sample ID: <b>22030586-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/17/2022</b>	RunNo: <b>108040</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43052</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657441</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	54.6	1.91	47.82	9.349	94.7	75	125	53.48	2.11	20	
Barium	1,100	0.956	47.82	970.7	280	75	125	1,077	2.56	20	S
Cadmium	44.4	0.478	47.82	0.3340	92.1	75	125	43.44	2.20	20	
Chromium	68.4	0.956	47.82	20.65	99.8	75	125	66.87	2.26	20	
Lead	81.0	0.956	47.82	39.09	87.6	75	125	79.43	1.93	20	
Strontium	170	0.956	47.82	120.8	102	75	125	166.2	2.00	20	
Zinc	120	0.956	47.82	69.68	105	75	125	117.4	2.25	20	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43066

Sample ID: <b>22030450-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>3/21/2022</b>	RunNo: <b>108072</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43066</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2658433</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	6.44	0.10						6.45	0.16	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43067

Sample ID: <b>lcs-43067</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>107981</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43067</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2655965</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	20.8	0.100	25.00	0	83.2	76	124				

Sample ID: <b>lcsd-43067</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>107981</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43067</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2655966</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	21.1	0.100	25.00	0	84.4	76	124	20.80	1.48	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43067

Sample ID: <b>22030450-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108072</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43067</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2658408</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	38.0	0.100						37.88	0.369	20	

Sample ID: <b>lcs-43067</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108072</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43067</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2658413</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	20.8	0.100	25.00	0	83.2	76	124				

Sample ID: <b>lcsd-43067</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108072</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43067</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2658414</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	21.1	0.100	25.00	0	84.4	76	124	20.80	1.48	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43072

Sample ID: <b>MB-43072</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108010</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43072</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2656421</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50.0 50.0

Sample ID: <b>LCS-43072</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108010</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43072</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2656422</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 7,510 50.0 7,500 0 100 75 125

Sample ID: <b>LCSD-43072</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108010</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43072</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2656423</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 7,510 50.0 7,500 0 100 75 125 7,511 0.0126 20

Sample ID: <b>22030089-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108010</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43072</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2656425</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 9,530 46.3 6,938 2,832 96.5 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43072

Sample ID: <b>22030089-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/21/2022</b>	RunNo: <b>108010</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43072</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2656426</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	9,310	45.8	6,874	2,832	94.3	75	125	9,526	2.27	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43101

Sample ID: <b>22030450-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>3/23/2022</b>	RunNo: <b>108047</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43101</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2657681</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	5.88	0.10						5.81	1.13	20	
Soluble Calcium	1.22	0.02						1.21	0.63	20	
Soluble Magnesium	0.97	0.05						0.97	0.58	20	
Soluble Sodium	6.15	0.25						6.06	1.43	20	

Sample ID: <b>22030673-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>3/23/2022</b>	RunNo: <b>108047</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43101</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2657753</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	3.17	0.10						3.12	1.47	20	
Soluble Calcium	0.28	0.02						0.28	0.05	20	
Soluble Magnesium	0.29	0.05						0.29	0.23	20	
Soluble Sodium	1.70	0.25						1.67	1.52	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43200

Sample ID: <b>22031042-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>3/30/2022</b>	RunNo: <b>108425</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43200</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671110</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	2.33	0.10						2.42	3.79	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43201

Sample ID: <b>22031042-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108425</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43201</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671082</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	32.4	0.100						32.17	0.805	20	

Sample ID: <b>lcs-43201</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108425</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43201</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671096</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	22.2	0.100	25.00	0	88.8	76	124				

Sample ID: <b>lcsd-43201</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108425</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43201</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671097</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	22.1	0.100	25.00	0	88.4	76	124	22.21	0.451	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43214

Sample ID: <b>22031201-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108333</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43214</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2667986</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.2	1.95	48.76	4.842	84.8	75	125				
Barium	318	0.975	48.76	279.8	77.4	75	125				
Cadmium	42.7	0.488	48.76	0.2354	87.1	75	125				
Chromium	59.9	0.975	48.76	13.21	95.8	75	125				
Lead	55.3	0.975	48.76	12.16	88.5	75	125				
Strontium	81.9	0.975	48.76	37.17	91.7	75	125				
Zinc	87.1	0.975	48.76	40.08	96.5	75	125				

Sample ID: <b>22031201-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108333</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43214</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2667987</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.7	1.97	49.19	4.842	81.0	75	125	46.17	3.27	20	
Barium	339	0.984	49.19	279.8	120	75	125	317.5	6.44	20	
Cadmium	40.9	0.492	49.19	0.2354	82.6	75	125	42.71	4.43	20	
Chromium	58.0	0.984	49.19	13.21	91.0	75	125	59.93	3.29	20	
Lead	52.6	0.984	49.19	12.16	82.3	75	125	55.30	4.91	20	
Strontium	80.8	0.984	49.19	37.17	88.7	75	125	81.89	1.32	20	
Zinc	84.9	0.984	49.19	40.08	91.0	75	125	87.13	2.63	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43214

Sample ID: <b>LCS-43214</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108333</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43214</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668132</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.8	2.00	50.00	0	95.6	80	120				
Barium	50.8	1.00	50.00	0	102	80	120				
Cadmium	48.5	0.500	50.00	0	97.0	80	120				
Chromium	49.9	1.00	50.00	0	99.7	80	120				
Lead	48.9	1.00	50.00	0	97.8	80	120				
Strontium	49.6	1.00	50.00	0	99.2	80	120				
Zinc	47.3	1.00	50.00	0	94.5	80	120				

Sample ID: <b>LCSD-43214</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108333</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43214</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668133</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.8	2.00	50.00	0	93.7	80	120	47.81	2.04	20	
Barium	49.5	1.00	50.00	0	99.1	80	120	50.81	2.54	20	
Cadmium	47.6	0.500	50.00	0	95.2	80	120	48.49	1.83	20	
Chromium	48.8	1.00	50.00	0	97.6	80	120	49.85	2.13	20	
Lead	48.1	1.00	50.00	0	96.2	80	120	48.92	1.70	20	
Strontium	48.3	1.00	50.00	0	96.6	80	120	49.58	2.63	20	
Zinc	46.2	1.00	50.00	0	92.4	80	120	47.27	2.33	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
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RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43214

Sample ID: <b>MB-43214</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>3/30/2022</b>	RunNo: <b>108333</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43214</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2672424</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
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	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43233

Sample ID: <b>MB-43233</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/1/2022</b>	RunNo: <b>108372</b>
Client ID: <b>PBS</b>	Batch ID: <b>43233</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>4/4/2022</b>	SeqNo: <b>2669140</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury < 0.100 0.100

Sample ID: <b>LCS-43233</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/1/2022</b>	RunNo: <b>108372</b>
Client ID: <b>LCSS</b>	Batch ID: <b>43233</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>4/4/2022</b>	SeqNo: <b>2669141</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.870 0.100 0.8330 0 104 80 120

Sample ID: <b>LCSD-43233</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/1/2022</b>	RunNo: <b>108372</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43233</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>4/4/2022</b>	SeqNo: <b>2669142</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.873 0.100 0.8330 0 105 80 120 0.8702 0.274 20

Sample ID: <b>22030557-013AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/1/2022</b>	RunNo: <b>108372</b>
Client ID: <b>CD-4 8-10</b>	Batch ID: <b>43233</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>4/4/2022</b>	SeqNo: <b>2669145</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Mercury 0.959 0.109 0.9048 0 106 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
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RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43233

Sample ID: <b>22030557-013AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/1/2022</b>	RunNo: <b>108372</b>						
Client ID: <b>CD-4 8-10</b>	Batch ID: <b>43233</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>4/4/2022</b>	SeqNo: <b>2669146</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.900	0.101	0.8420	0	107	75	125	0.9589	6.28	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43261

Sample ID: <b>22031201-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>4/1/2022</b>	RunNo: <b>108415</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43261</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2670801</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	1.08	0.10						1.02	5.80	20	
Soluble Calcium	1.41	0.02						1.40	0.72	20	
Soluble Magnesium	0.85	0.05						0.84	0.61	20	
Soluble Sodium	1.14	0.25						1.08	6.14	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43268

Sample ID: <b>MB-43268</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/4/2022</b>	RunNo: <b>108455</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2672180</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 100 100

Sample ID: <b>LCS-43268</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/4/2022</b>	RunNo: <b>108455</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2672181</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 7,570 100 7,500 0 101 75 125

Sample ID: <b>LCSD-43268</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/4/2022</b>	RunNo: <b>108455</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2672182</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 7,510 100 7,500 0 100 75 125 7,569 0.797 20

Sample ID: <b>22030557-013AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/4/2022</b>	RunNo: <b>108455</b>						
Client ID: <b>CD-4 8-10</b>	Batch ID: <b>43268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2672186</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,630 98.1 4,907 424.2 85.7 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** 43268

Sample ID: <b>22030557-013AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/4/2022</b>	RunNo: <b>108455</b>						
Client ID: <b>CD-4 8-10</b>	Batch ID: <b>43268</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2672187</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	4,490	94.8	4,739	424.2	85.8	75	125	4,632	3.10	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R107902

Sample ID: <b>22030007-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>107902</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R107902</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/2/2022</b>	SeqNo: <b>2654085</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	28.3	1.00						31.50	10.7	20	

Sample ID: <b>22030557-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>107902</b>						
Client ID: <b>CD-2 14-16</b>	Batch ID: <b>R107902</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/14/2022</b>	SeqNo: <b>2654112</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	21.3	1.00						21.90	2.78	20	

Sample ID: <b>22030586-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>107902</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R107902</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/14/2022</b>	SeqNo: <b>2654132</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	64.1	1.00						64.80	1.09	20	

Sample ID: <b>22030586-021ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>107902</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R107902</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/14/2022</b>	SeqNo: <b>2654152</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	75.5	1.00						68.40	9.87	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R107902

Sample ID: <b>22030450-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>107902</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R107902</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/14/2022</b>	SeqNo: <b>2654173</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	23.2	1.00						23.20	0	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R107923

Sample ID: <b>MB-R107919</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>107923</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R107923</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2654561</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	< 0.10	0.10									
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Sample ID: <b>LCS1-R107919</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>107923</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R107923</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2654562</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	0.53	0.10	0.50	0	105	90	110				
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Sample ID: <b>LCS2-R107919</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>107923</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R107923</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2654563</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	56.1	0.10	53.00	0	106	90	110				
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Sample ID: <b>22030557-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>107923</b>						
Client ID: <b>CD-2 14-16</b>	Batch ID: <b>R107923</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2654565</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	16.4	0.10						16.31	0.43	20	*
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R107953

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>107953</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R107953</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2655315</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>107953</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R107953</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2655315</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>107953</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R107953</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2655317</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120	10.19	0.0157	15	

Sample ID: <b>22030853-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>107953</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R107953</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2655320</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,070	50.0	1,000	98.17	96.8	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R107953

Sample ID: <b>22030853-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>107953</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R107953</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/18/2022</b>	SeqNo: <b>2655321</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,100	50.0	1,000	98.17	101	80	120	1,066	3.48	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R108069

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108069</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108069</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2658254</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108069</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108069</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2658255</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108069</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R108069</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2658256</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.0	0.250	10.00	0	100	80	120	10.05	0.549	15	

Sample ID: <b>22030586-042ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108069</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R108069</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2658258</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	8,850	125	2,500	6,402	97.8	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R108069

Sample ID: <b>22030586-042amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108069</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R108069</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/23/2022</b>	SeqNo: <b>2658259</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9,240	125	2,500	6,402	114	80	120	8,846	4.36	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R108449

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108449</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108449</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671784</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108449</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108449</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671785</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.91	0.250	10.00	0	99.1	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108449</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R108449</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671786</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.94	0.250	10.00	0	99.4	80	120	9.913	0.287	15	

Sample ID: <b>22031447-007ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108449</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R108449</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671794</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3,930	50.0	1,000	2,956	97.5	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22030557  
 06-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/9403-016-0100

**BatchID:** R108449

Sample ID: <b>22031447-007amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108449</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R108449</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>4/5/2022</b>	SeqNo: <b>2671795</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3,980	50.0	1,000	2,956	102	80	120	3,931	1.15	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



# Sample Log-In Check List

Client Name: ICON\_ENV

Work Order Number: 22030557

RcptNo: 1

Logged by:	Tammy Thibodeaux	3/11/2022 11:32:00 AM	<i>Tammy Thibodeaux</i>
Completed By:	Tammy Thibodeaux	3/11/2022 12:06:07 PM	<i>Tammy Thibodeaux</i>
Reviewed By:	Buffy Bryant	3/25/2022 11:38:24 AM	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------





element™

# Chain of Custody

Laboratory Number: 22030557

<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page <u>2</u> of <u>2</u>
Company Name:	<u>Icon Env</u>				<u>Castex</u>	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge    SOL = Solid O = Oil        SO = Soil F = Food      SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
Contact Name:				Quote Number:		
Address:				Required QC Level		
City, State Zip:				Bill Monthly		
Phone Number:	Ext: <u>same</u>	Ext:		<input type="checkbox"/> Yes	Shipping Method:	
Fax Number:				<input type="checkbox"/> No	<u>UPS / FedEx / NOW</u> DHL / Element / Hand / Mail	
E-mail Address:						

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests							Comments		
					Quantity	Type	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	EC	Soluble Chloride	% Moisture	SAR/ESP		CEC	Leachate
<input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Date:    Time:    Grab / Composite:    Matrix:												
CD-3	(52-54)	3-8-22	1245	G	SOL	1	P	-	X	X	X			
CD-3	(60-62)	↓	1305						X	X	X			
CD-3	(64-66)	↓	1315						X	X	X			
CD-4	(8-10)	3-9-22	1600						X	X	X	X	X	
CD-4	(22-24)	↓	1625						X	X	X			
CD-4	(32-34)	↓	1650						X	X	X			
CD-4	(46-48)	3-10-22	800						X	X	X			
CD-4	(56-58)	↓	825						X	X	X			
CD-4	(66-68)	↓	850						X	X	X			

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<u>[Signature]</u>	<u>3/11/22 1130</u>	<u>[Signature]</u>	<u>3/11/22 1130</u>	
2					Received at lab on ice?
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
Columbus, IN  
47201 USA  
P 812-375-0531  
F 812-375-0731

328 Ley Road, Suite 100  
Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-269-6569

3371 Cleveland Road, Suite 100A  
South Bend, IN  
46628 USA  
P 574-277-0707  
F 574-273-5699

2417 W. Pinhook Rd  
Lafayette, LA  
70508 USA  
P 337-235-0483  
F 337-235-6540

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Castex-ICON Report-000425



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April 12, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100).

Order No.: 22030947

Dear Greg Miller:

Element Materials Technology Lafayette received 6 sample(s) on 3/21/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22030947

Date: 4/12/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100).

---

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/17/2022 8:25:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-2A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.210	0.131		mg/L	1	3/24/2022 11:57:00 PM
TPH (Oil Range)	< 0.121	0.121		mg/L	1	3/23/2022 2:22:00 AM
Surr: 4-Terphenyl-d14	146	51.4 - 146	SM	%Rec	1	3/24/2022 11:57:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	0.263	0.150		mg/L	1	3/23/2022 4:59:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.8	70 - 130		%Rec	1	3/23/2022 4:59:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: CRM
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	5	3/24/2022 3:43:00 PM
Ethylbenzene	< 0.0250	0.0250		mg/L	5	3/24/2022 3:43:00 PM
m,p-Xylene	< 0.0500	0.0500		mg/L	5	3/24/2022 3:43:00 PM
o-Xylene	< 0.0250	0.0250		mg/L	5	3/24/2022 3:43:00 PM
Toluene	< 0.0500	0.0500		mg/L	5	3/24/2022 3:43:00 PM
Xylenes, Total	< 0.250	0.250		mg/L	5	3/24/2022 3:43:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	5	3/24/2022 3:43:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:01:07 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	13,100	250		mg/L	1000	3/25/2022 4:19:25 PM
Sulfate	94.7	25.0		mg/L	100	3/25/2022 5:29:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	7.14	0.100		mg/L	10	4/6/2022 2:01:25 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:21:31 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-001  
**Client Sample ID** CD-2A

**Collection Date:** 3/17/2022 8:25:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	2,630	5.00		mg/L	10	4/6/2022 2:01:25 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:21:31 PM
Iron	52.1	0.500		mg/L	10	4/6/2022 2:01:25 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:21:31 PM
Magnesium	821	5.00		mg/L	10	4/6/2022 2:01:25 PM
Manganese	17.5	0.100		mg/L	10	4/6/2022 2:01:25 PM
Potassium	32.7	5.00		mg/L	1	3/30/2022 3:21:31 PM
Sodium	4,640	50.0		mg/L	10	4/6/2022 2:01:25 PM
Strontium	19.9	0.100		mg/L	10	4/6/2022 2:01:25 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:21:31 PM
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	81.0	2.50		µg/L	10	3/30/2022 10:38:29 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	148	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	148	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	20,300	1,000		mg/L	100	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/17/2022 10:50:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-2B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	3/23/2022 4:23:00 AM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	3/23/2022 4:23:00 AM
Surr: 4-Terphenyl-d14	155	51.4 - 146	S	%Rec	1	3/23/2022 4:23:00 AM

**NOTES:**

S: High surrogate recovery indicates high bias. Data deemed acceptable as no target analytes were observed in the sample.

<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/23/2022 5:26:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	98.0	70 - 130		%Rec	1	3/23/2022 5:26:00 PM

<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>CRM</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/23/2022 5:26:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/23/2022 5:26:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/23/2022 5:26:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/23/2022 5:26:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/23/2022 5:26:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/23/2022 5:26:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.6	70 - 130		%Rec	1	3/23/2022 5:26:00 PM

<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:37:29 AM

<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	2,450	50.0		mg/L	200	3/25/2022 4:33:20 PM
Sulfate	15.2	5.00		mg/L	20	3/25/2022 5:42:55 PM

<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP, DISSOLVED</b>						

Qualifiers:						
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded			
M	Matrix Interference	ND	Not Detected at the Reporting Limit			
R	RPD outside accepted recovery limits	RL	Reporting Limit			
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit			
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode			



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/17/2022 10:50:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-2B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	3.93	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/28/2022 6:51:11 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Iron	13.1	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Lead	< 0.0100	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Manganese	2.10	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Strontium	4.68	0.0100		mg/L	1	3/28/2022 6:51:11 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/28/2022 6:51:11 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>						
Arsenic	8.55	2.50		µg/L	10	3/30/2022 9:59:15 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	152	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	152	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	4,060	100		mg/L	10	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/17/2022 1:40:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-003 **Matrix:** AQUEOUS  
**Client Sample ID** CD-3A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.266	0.128		mg/L	1	3/25/2022 12:27:00 AM
TPH (Oil Range)	< 0.118	0.118		mg/L	1	3/23/2022 5:24:00 AM
Surr: 4-Terphenyl-d14	146	51.4 - 146	SM	%Rec	1	3/25/2022 12:27:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 4:10:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.2	70 - 130		%Rec	1	3/24/2022 4:10:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: CRM
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 4:10:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 4:10:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 4:10:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 4:10:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 4:10:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 4:10:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.6	70 - 130		%Rec	1	3/24/2022 4:10:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:03:25 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	21,400	500		mg/L	2000	3/28/2022 2:49:35 PM
Sulfate	< 25.0	25.0		mg/L	100	3/25/2022 5:56:50 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	36.5	0.100		mg/L	10	4/6/2022 2:08:17 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:32:59 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-003  
**Client Sample ID** CD-3A

**Collection Date:** 3/17/2022 1:40:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	1,320	5.00		mg/L	10	4/6/2022 2:08:17 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:32:59 PM
Iron	19.4	0.500		mg/L	10	4/6/2022 2:08:17 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:32:59 PM
Magnesium	412	5.00		mg/L	10	4/6/2022 2:08:17 PM
Manganese	8.14	0.100		mg/L	10	4/6/2022 2:08:17 PM
Potassium	49.8	5.00		mg/L	1	3/30/2022 3:32:59 PM
Sodium	15,100	50.0		mg/L	10	4/6/2022 2:08:17 PM
Strontium	53.7	0.100		mg/L	10	4/6/2022 2:08:17 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:32:59 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	55.8	2.50		µg/L	10	3/30/2022 10:58:06 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>BXB</b>
Alkalinity, Bicarbonate (As CaCO3)	355	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	355	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	35,800	1,000		mg/L	100	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/18/2022 8:10:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-004 **Matrix:** AQUEOUS  
**Client Sample ID** CD-3B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.409	0.133		mg/L	1	3/25/2022 12:58:00 AM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	3/23/2022 5:55:00 AM
Surr: 4-Terphenyl-d14	155	51.4 - 146	SM	%Rec	1	3/25/2022 12:58:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 4:37:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	90.8	70 - 130		%Rec	1	3/24/2022 4:37:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	5	3/30/2022 5:35:00 PM
Ethylbenzene	< 0.0250	0.0250		mg/L	5	3/30/2022 5:35:00 PM
m,p-Xylene	< 0.0500	0.0500		mg/L	5	3/30/2022 5:35:00 PM
o-Xylene	< 0.0250	0.0250		mg/L	5	3/30/2022 5:35:00 PM
Toluene	< 0.0500	0.0500		mg/L	5	3/30/2022 5:35:00 PM
Xylenes, Total	< 0.250	0.250		mg/L	5	3/30/2022 5:35:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	80.6	70 - 130		%Rec	5	3/30/2022 5:35:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:05:44 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	3,520	50.0		mg/L	200	3/25/2022 7:34:14 PM
Sulfate	152	5.00		mg/L	20	3/25/2022 8:15:59 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	2.42	0.0100		mg/L	1	3/30/2022 3:35:17 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:35:17 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/18/2022 8:10:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-004 **Matrix:** AQUEOUS  
**Client Sample ID** CD-3B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	808	0.500		mg/L	1	3/30/2022 3:35:17 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:35:17 PM
Iron	12.1	0.0500		mg/L	1	3/30/2022 3:35:17 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:35:17 PM
Magnesium	231	0.500		mg/L	1	3/30/2022 3:35:17 PM
Manganese	2.50	0.0100		mg/L	1	3/30/2022 3:35:17 PM
Potassium	18.4	5.00		mg/L	1	3/30/2022 3:35:17 PM
Sodium	858	5.00		mg/L	1	3/30/2022 3:35:17 PM
Strontium	5.36	0.0100		mg/L	1	3/30/2022 3:35:17 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:35:17 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	9.43	2.50		µg/L	10	3/30/2022 11:00:56 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>BXB</b>
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	142	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	142	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	6,020	250		mg/L	25	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/18/2022 9:00:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-005 **Matrix:** AQUEOUS  
**Client Sample ID** CD-1B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	3/23/2022 6:56:00 AM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	3/23/2022 6:56:00 AM
Surr: 4-Terphenyl-d14	161	51.4 - 146	S	%Rec	1	3/23/2022 6:56:00 AM
<b>NOTES:</b>						
S: High surrogate recovery indicates high bias. Data deemed acceptable as no target analytes were observed in the sample.						
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 5:04:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.8	70 - 130		%Rec	1	3/24/2022 5:04:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>CRM</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:04:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:04:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 5:04:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:04:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 5:04:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 5:04:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.4	70 - 130		%Rec	1	3/24/2022 5:04:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
<b>MERCURY IN GROUND WATER,TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:08:01 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	71.7	5.00		mg/L	20	3/25/2022 8:29:53 PM
Sulfate	25.3	5.00		mg/L	20	3/25/2022 8:29:53 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-005  
**Client Sample ID** CD-1B

**Collection Date:** 3/18/2022 9:00:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.397	0.0100		mg/L	1	3/30/2022 3:37:35 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:37:35 PM
Calcium	57.0	0.500		mg/L	1	3/30/2022 3:37:35 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:37:35 PM
Iron	2.82	0.0500		mg/L	1	3/30/2022 3:37:35 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:37:35 PM
Magnesium	16.6	0.500		mg/L	1	3/30/2022 3:37:35 PM
Manganese	0.456	0.0100		mg/L	1	3/30/2022 3:37:35 PM
Potassium	< 5.00	5.00		mg/L	1	3/30/2022 3:37:35 PM
Sodium	71.9	5.00		mg/L	1	3/30/2022 3:37:35 PM
Strontium	0.323	0.0100		mg/L	1	3/30/2022 3:37:35 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:37:35 PM
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	9.17	2.50		µg/L	10	3/30/2022 11:04:04 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	272	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	272	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	388	10.0		mg/L	1	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/18/2022 9:55:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-006 **Matrix:** AQUEOUS  
**Client Sample ID** CD-1A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.131	0.131		mg/L	1	3/23/2022 7:26:00 AM
TPH (Oil Range)	< 0.121	0.121		mg/L	1	3/23/2022 7:26:00 AM
Surr: 4-Terphenyl-d14	151	51.4 - 146	S	%Rec	1	3/23/2022 7:26:00 AM

**NOTES:**

S: High surrogate recovery indicates high bias. Data deemed acceptable as no target analytes were observed in the sample.

<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 5:32:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.0	70 - 130		%Rec	1	3/24/2022 5:32:00 PM

<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: CRM
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:32:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:32:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 5:32:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 5:32:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 5:32:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 5:32:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.8	70 - 130		%Rec	1	3/24/2022 5:32:00 PM

<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER,TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:10:20 AM

<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	29.2	2.50		mg/L	10	3/25/2022 8:43:48 PM
Sulfate	30.5	2.50		mg/L	10	3/25/2022 8:43:48 PM

<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22030947

Date Reported: 4/12/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22030947-006  
**Client Sample ID** CD-1A

**Collection Date:** 3/18/2022 9:55:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>		<b>SW6010B</b>			Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.286	0.0100		mg/L	1	3/30/2022 3:39:53 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:39:53 PM
Calcium	36.0	0.500		mg/L	1	3/30/2022 3:39:53 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:39:53 PM
Iron	0.0985	0.0500		mg/L	1	3/30/2022 3:39:53 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:39:53 PM
Magnesium	12.1	0.500		mg/L	1	3/30/2022 3:39:53 PM
Manganese	0.192	0.0100		mg/L	1	3/30/2022 3:39:53 PM
Potassium	< 5.00	5.00		mg/L	1	3/30/2022 3:39:53 PM
Sodium	78.8	5.00		mg/L	1	3/30/2022 3:39:53 PM
Strontium	0.191	0.0100		mg/L	1	3/30/2022 3:39:53 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:39:53 PM
<b>RCRA METALS - SW6010/7470A</b>		<b>SW6020A</b>			Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	< 2.50	2.50		µg/L	10	3/30/2022 11:06:54 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>		<b>SM2320 B</b>			Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	250	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	250	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>SM2540C</b>			Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	370	10.0		mg/L	1	3/22/2022 7:22:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43088

Sample ID	<b>22030947-002ddup</b>	SampType:	<b>DUP</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/22/2022</b>	RunNo:	<b>108036</b>
Client ID:	<b>CD-2B</b>	Batch ID:	<b>43088</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2657083</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.131	0.131						0	0	40	
TPH (Oil Range)	< 0.121	0.121						0	0	40	
Surr: 4-Terphenyl-d14	0.0867		0.05763		151	51.4	146		0	0	S

**NOTES:**

S: High surrogate recovery indicates high bias. Data deemed acceptable as no target analytes were observed in the sample.

Sample ID	<b>22030947-004ddup</b>	SampType:	<b>DUP</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/22/2022</b>	RunNo:	<b>108036</b>
Client ID:	<b>CD-3B</b>	Batch ID:	<b>43088</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2657086</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	< 0.122	0.122						0	0	40	

Sample ID	<b>LCSD-M43088</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/22/2022</b>	RunNo:	<b>108036</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43088</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2657091</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.30	0.125	1.783	0	129	70	130	2.233	2.98	23.2	
Surr: 4-Terphenyl-d14	0.0904		0.05941		152	51.4	146		0	40	S

Sample ID	<b>lcs-m43088</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/22/2022</b>	RunNo:	<b>108036</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>43088</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2657092</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43088

Sample ID	<b>ics-m43088</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657092</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.23	0.125	1.789	0	125	70	130				
Surr: 4-Terphenyl-d14	0.0879		0.05963		147	51.4	146				S

Sample ID	<b>mb-43088</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>					
Client ID:	<b>PBW</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/22/2022</b>	SeqNo: <b>2657093</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.135	0.135									
TPH (Oil Range)	< 0.125	0.125									
Surr: 4-Terphenyl-d14	0.0794		0.05933		134	51.4	146				

Sample ID	<b>22030947-004ddup</b>	SampType: <b>DUP</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>					
Client ID:	<b>CD-3B</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/25/2022</b>	SeqNo: <b>2661837</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	0.305	0.132						0.4087	29.0	40	
Surr: 4-Terphenyl-d14	0.0831		0.05804		143	51.4	146		0	0	

Sample ID	<b>ics-d43088</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2661838</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43088

Sample ID <b>lcs-d43088</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>						
Client ID: <b>LCSSW</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2661838</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.20	0.136	1.789	0	123	70	130				
Surr: 4-Terphenyl-d14	0.0838		0.05965		141	51.4	146				

Sample ID <b>lcsd-d43088</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/22/2022</b>	RunNo: <b>108036</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43088</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/24/2022</b>	SeqNo: <b>2661839</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.10	0.135	1.782	0	118	70	130	2.204	4.73	14.1	
Surr: 4-Terphenyl-d14	0.0786		0.05940		132	51.4	146		0	40	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43113

Sample ID	<b>MB-43113</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661010</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-43113</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661011</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0107		0.000200	0.01000	0		107	80	120				

Sample ID	<b>LCSD-43113</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661014</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0106		0.000200	0.01000	0		106	80	120	0.01065	0.286	20	

Sample ID	<b>22030813-004DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661017</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0105		0.000200	0.01000	0		105	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43113

Sample ID	<b>22030813-004DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661018</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0109		0.000200	0.01000	0	109	75	125	0.01054	3.35	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43114

Sample ID	<b>MB-43114</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661097</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-43114</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661098</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0105		0.000200	0.01000	0		105	80	120				

Sample ID	<b>LCSD-43114</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661099</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0110		0.000200	0.01000	0		110	80	120	0.01054	3.93	20	

Sample ID	<b>22030947-002BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>CD-2B</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661104</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00996		0.000200	0.01000	0		99.6	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43114

Sample ID	<b>22030947-002BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>		
Client ID:	<b>CD-2B</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661105</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00963		0.000200	0.01000	0	96.3	75	125	0.009958	3.36	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43123

Sample ID	<b>22031105-008cdup</b>	SampType:	<b>DUP</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663275</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0609			0.05712			107	51.4	146		0	0	

Sample ID	<b>lcs-d43123</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663285</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0580			0.05991			96.8	51.4	146				

Sample ID	<b>lcsd-d43123</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663287</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0570			0.05997			95.0	51.4	146		0	40	

Sample ID	<b>lcsd-m43123</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663289</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0599			0.05931			101	51.4	146		0	40	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43123

Sample ID	<b>ics-m43123</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663290</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0585      0.05975      97.8      51.4      146

Sample ID	<b>mb-43123</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>%Rec</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663291</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0579      0.05977      97.0      51.4      146

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>MB-43133</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665788</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0500	0.0500									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-43133</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665789</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.489	0.0100	0.5000	0	97.9	80	120				
Cadmium	0.469	0.00500	0.5000	0	93.8	80	120				
Calcium	48.9	0.500	50.00	0	97.7	80	120				
Chromium	0.489	0.0100	0.5000	0	97.9	80	120				
Iron	0.531	0.0500	0.5000	0	106	80	120				
Lead	0.475	0.0100	0.5000	0	94.9	80	120				
Magnesium	48.5	0.500	50.00	0	96.9	80	120				
Manganese	0.487	0.0100	0.5000	0	97.5	80	120				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>LC3-43133</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>			
Client ID:	<b>LC3W</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665789</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium		48.5		5.00	50.00	0		96.9	80	120				
Sodium		47.8		10.0	50.00	0		95.7	80	120				
Strontium		0.487		0.0100	0.5000	0		97.4	80	120				
Zinc		0.475		0.0100	0.5000	0		95.1	80	120				

Sample ID	<b>LCSD-43133</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665790</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.494		0.0100	0.5000	0		98.7	80	120	0.4893	0.885	20	
Cadmium		0.470		0.00500	0.5000	0		93.9	80	120	0.4691	0.0895	20	
Calcium		49.0		0.500	50.00	0		98.1	80	120	48.87	0.309	20	
Chromium		0.492		0.0100	0.5000	0		98.4	80	120	0.4893	0.577	20	
Iron		0.512		0.0500	0.5000	0		102	80	120	0.5309	3.55	20	
Lead		0.481		0.0100	0.5000	0		96.2	80	120	0.4746	1.36	20	
Magnesium		48.5		0.500	50.00	0		97.0	80	120	48.45	0.0944	20	
Manganese		0.484		0.0100	0.5000	0		96.9	80	120	0.4874	0.591	20	
Potassium		48.7		5.00	50.00	0		97.3	80	120	48.47	0.393	20	
Sodium		48.6		10.0	50.00	0		97.2	80	120	47.83	1.56	20	
Strontium		0.491		0.0100	0.5000	0		98.2	80	120	0.4872	0.779	20	
Zinc		0.475		0.0100	0.5000	0		95.0	80	120	0.4754	0.116	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>22030947-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108270</b>					
Client ID:	<b>CD-2A</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665794</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.512	0.00500	0.5000	0.001390	102	75	125				
Chromium	0.436	0.0100	0.5000	0	87.2	75	125				
Lead	0.419	0.0100	0.5000	0	83.7	75	125				
Potassium	94.5	5.00	50.00	32.65	124	75	125				
Zinc	0.492	0.0100	0.5000	0	98.5	75	125				

Sample ID	<b>22030947-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108270</b>					
Client ID:	<b>CD-2A</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665795</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.523	0.00500	0.5000	0.001390	104	75	125	0.5117	2.22	20	
Chromium	0.444	0.0100	0.5000	0	88.8	75	125	0.4361	1.77	20	
Lead	0.421	0.0100	0.5000	0	84.2	75	125	0.4185	0.550	20	
Potassium	104	5.00	50.00	32.65	142	75	125	94.48	9.37	20	S
Zinc	0.502	0.0100	0.5000	0	100	75	125	0.4924	1.89	20	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>22030947-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108501</b>					
Client ID:	<b>CD-2A</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>4/6/2022</b>	SeqNo: <b>2673529</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	7.58	0.100	0.5000	7.139	87.6	75	125				
Calcium	2,650	5.00	50.00	2,630	30.2	75	125				S
Iron	51.6	0.500	0.5000	52.13	-99.1	75	125				S
Magnesium	857	5.00	50.00	821.4	70.5	75	125				S
Manganese	17.7	0.100	0.5000	17.51	43.2	75	125				S
Sodium	4,610	100	50.00	4,640	-58.8	75	125				S
Strontium	20.1	0.100	0.5000	19.89	49.2	75	125				S

Sample ID	<b>22030947-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108501</b>					
Client ID:	<b>CD-2A</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>4/6/2022</b>	SeqNo: <b>2673530</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	7.87	0.100	0.5000	7.139	147	75	125	7.577	3.82	20	S
Calcium	2,880	5.00	50.00	2,630	496	75	125	2,645	8.43	20	S
Iron	54.2	0.500	0.5000	52.13	412	75	125	51.64	4.82	20	S
Magnesium	941	5.00	50.00	821.4	240	75	125	856.7	9.41	20	S
Manganese	18.5	0.100	0.5000	17.51	202	75	125	17.73	4.39	20	S
Sodium	5,030	100	50.00	4,640	783	75	125	4,611	8.73	20	S
Strontium	21.1	0.100	0.5000	19.89	238	75	125	20.14	4.58	20	S

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43135

Sample ID	<b>MB-43135</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665629</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.250		0.250										

Sample ID	<b>LCS-43135</b>	SampType:	<b>LCS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665630</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		462		5.00	500.0	0		92.4	80	120				

Sample ID	<b>LCSD-43135</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665631</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		465		5.00	500.0	0		93.0	80	120	462.0	0.610	20	

Sample ID	<b>22030947-001BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>CD-2A</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665634</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		538		5.00	500.0	80.97		91.4	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43135

Sample ID	<b>22030947-001BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>		
Client ID:	<b>CD-2A</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>	Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665635</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		548		5.00	500.0	80.97	93.4	75	125	538.0	1.80	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R107983

Sample ID	<b>MB-R107983</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107983</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R107983</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2656948</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		< 10.0		10.0										

Sample ID	<b>LCS-R107983</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107983</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R107983</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2656949</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		1,010		10.0	1,000	0		101	85	115				

Sample ID	<b>LCSD-R107983</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107983</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R107983</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2656950</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		1,010		10.0	1,000	0		101	85	115	1,006	0.199	10	

Sample ID	<b>22030959-001CDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107983</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R107983</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2656958</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		1,470		50.0							1,455	1.03	10	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R107983

Sample ID	<b>22030959-001CDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>107983</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R107983</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/22/2022</b>	SeqNo:	<b>2656958</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108066

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658080</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.6		0.150	12.50	0		100	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658081</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.5		0.150	12.50	0		100	80	130	12.56	0.463	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658082</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0484			0.05000			96.8	70	130				

Sample ID	<b>22030784-002AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658085</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		14.7		0.150	12.50	1.469		106	70	130				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0716			0.05000			143	70	130				SM

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108066

Sample ID	<b>22030784-002AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658085</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID	<b>22030784-002AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108066</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108066</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658086</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		14.9		0.150	12.50	1.469		107	70	130	14.72	1.17	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0730			0.05000			146	70	130		0	20	SM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108067

Sample ID	BTEX LCS	SampType:	LCS	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	108067	
Client ID:	LCSW	Batch ID:	R108067	TestNo:	SW8021B	Analysis Date:	3/23/2022	SeqNo:	2658095		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0451	0.00500	0.05000	0	90.2	72	120				
Ethylbenzene	0.0495	0.00500	0.05000	0	99.0	76	129				
m,p-Xylene	0.0993	0.0100	0.1000	0	99.3	75	125				
o-Xylene	0.0479	0.00500	0.05000	0	95.8	75	125				
Toluene	0.0495	0.0100	0.05000	0	99.0	78	120				
Xylenes, Total	0.147	0.0500	0.1500	0	98.1	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0485		0.05000		97.0	70	130				

Sample ID	BTEX LCSD	SampType:	LCSD	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	108067	
Client ID:	LCSS02	Batch ID:	R108067	TestNo:	SW8021B	Analysis Date:	3/23/2022	SeqNo:	2658096		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0437	0.00500	0.05000	0	87.4	72	120	0.04510	3.15	20	
Ethylbenzene	0.0481	0.00500	0.05000	0	96.2	76	129	0.04950	2.87	20	
m,p-Xylene	0.0957	0.0100	0.1000	0	95.7	75	125	0.09930	3.69	20	
o-Xylene	0.0464	0.00500	0.05000	0	92.8	75	125	0.04790	3.18	20	
Toluene	0.0478	0.0100	0.05000	0	95.6	78	120	0.04950	3.49	20	
Xylenes, Total	0.142	0.0500	0.1500	0	94.7	75	125	0.1472	3.53	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0482		0.05000		96.4	70	130		0	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108067

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108067</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108067</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/23/2022</b>	SeqNo:	<b>2658097</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0459		0.05000		91.8	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132

Sample ID	<b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108132</b>
Client ID:	<b>PBW</b>	Batch ID: <b>R108132</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/25/2022</b>	SeqNo: <b>2660550</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	< 0.250	0.250				
Sulfate	< 0.250	0.250				

Sample ID	<b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108132</b>
Client ID:	<b>LCSW</b>	Batch ID: <b>R108132</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/25/2022</b>	SeqNo: <b>2660551</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	10.1	0.250	10.00	0	101	80 120
Sulfate	10.2	0.250	10.00	0	102	80 120

Sample ID	<b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108132</b>
Client ID:	<b>LCSS02</b>	Batch ID: <b>R108132</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/25/2022</b>	SeqNo: <b>2660552</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	10.1	0.250	10.00	0	101	80 120 10.14 0.676 15
Sulfate	10.1	0.250	10.00	0	101	80 120 10.24 1.02 15

Sample ID	<b>22030587-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108132</b>
Client ID:	<b>ZZZZZ</b>	Batch ID: <b>R108132</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>3/25/2022</b>	SeqNo: <b>2660554</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	3,600	50.0	1,000	2,631	97.0	80 120

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132

Sample ID	<b>22030587-001ams</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108132</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660554</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		1,340		50.0	1,000	291.5	105	80	120				

Sample ID	<b>22030587-001amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108132</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660555</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		3,600		50.0	1,000	2,631	97.1	80	120	3,601	0.0363	15	
Sulfate		1,340		50.0	1,000	291.5	105	80	120	1,339	0.0603	15	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132-2

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660595</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		< 0.250		0.250										
Sulfate		< 0.250		0.250										

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660596</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120				
Sulfate		10.2		0.250	10.00	0		102	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660597</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120	10.11	0.102	15	
Sulfate		10.2		0.250	10.00	0		102	80	120	10.25	0.102	15	

Sample ID	<b>22030947-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>CD-3B</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660600</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5,190		50.0	1,000	3,524		167	80	120				ES

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132-2

Sample ID	<b>22030947-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>CD-3B</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660600</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		1,220		50.0	1,000	157.9	106	80	120				

Sample ID	<b>22030947-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>CD-3B</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660601</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5,210		50.0	1,000	3,524	168	80	120	5,192	0.259	15	ES
Sulfate		1,210		50.0	1,000	157.9	105	80	120	1,217	0.719	15	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control for the analyte as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108145

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660905</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0437	0.00500	0.05000	0	87.4	72	120				
Ethylbenzene		0.0484	0.00500	0.05000	0	96.8	76	129				
m,p-Xylene		0.0969	0.0100	0.1000	0	96.9	75	125				
o-Xylene		0.0469	0.00500	0.05000	0	93.8	75	125				
Toluene		0.0480	0.0100	0.05000	0	96.0	78	120				
Xylenes, Total		0.144	0.0500	0.1500	0	95.9	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0484		0.05000		96.8	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660906</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0440	0.00500	0.05000	0	88.0	72	120	0.04370	0.684	20	
Ethylbenzene		0.0485	0.00500	0.05000	0	97.0	76	129	0.04840	0.206	20	
m,p-Xylene		0.0973	0.0100	0.1000	0	97.3	75	125	0.09690	0.412	20	
o-Xylene		0.0470	0.00500	0.05000	0	94.0	75	125	0.04690	0.213	20	
Toluene		0.0481	0.0100	0.05000	0	96.2	78	120	0.04800	0.208	20	
Xylenes, Total		0.144	0.0500	0.1500	0	96.3	75	125	0.1439	0.347	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0464		0.05000		92.8	70	130		0	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108145

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660907</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00100	0.00100									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0474		0.05000		94.8	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108148

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660990</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.8		0.150	12.50	0		102	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660991</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.7		0.150	12.50	0		101	80	130	12.76	0.636	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660992</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0484			0.05000			96.8	70	130				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108191

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108191</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108191</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2662771</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		< 0.250		0.250										

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108191</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108191</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2662772</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		9.96		0.250	10.00	0		99.6	80	120				

Sample ID	<b>22031157-016AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108191</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R108191</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2662797</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		4.88		0.250	5.000	0		97.6	80	120				

Sample ID	<b>22031157-016AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108191</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R108191</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2662798</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		4.95		0.250	5.000	0		99.1	80	120	4.880	1.48	15	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108234

Sample ID <b>MB-R108234</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>108234</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108234</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2664041</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Phenolphthalein	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID <b>LCS-R108234</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>108234</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108234</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2664042</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	48.0	20.0	50.00	0	96.0	90	110				
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Sample ID <b>22030936-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>108234</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R108234</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2664044</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 1.00	1.00						0	0	20	
Alkalinity, Carbonate (As CaCO3)	< 1.00	1.00						0	0	20	
Alkalinity, Phenolphthalein	< 1.00	1.00						0	0	20	
Alkalinity, Total (As CaCO3)	< 1.00	1.00						0	0	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108260

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665518</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.250	0.250									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665519</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.9	0.250	20.00	0	99.5	80	120				

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665520</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.9	0.250	20.00	0	99.6	80	120	19.90	0.139	20	

Sample ID <b>22030947-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>CD-2B</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665523</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	210	2.50	200.0	8.555	101	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108260

Sample ID	<b>22030947-002BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>					
Client ID:	<b>CD-2B</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665524</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	208	2.50	200.0	8.555	99.9	75	125	209.7	0.617	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	BTEX LCS	SampType: LCS	TestCode: 8021_BTEX_	Units: mg/L	Prep Date:	RunNo: 108275					
Client ID:	LCSW	Batch ID: R108275	TestNo: SW8021B	Analysis Date: 3/30/2022	SeqNo: 2666040						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0458	0.00500	0.05000	0	91.6	72	120				
Ethylbenzene	0.0463	0.00500	0.05000	0	92.6	76	129				
m,p-Xylene	0.0922	0.0100	0.1000	0	92.2	75	125				
o-Xylene	0.0461	0.00500	0.05000	0	92.2	75	125				
Toluene	0.0459	0.0100	0.05000	0	91.8	78	120				
Xylenes, Total	0.138	0.0500	0.1500	0	92.2	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0423		0.05000		84.6	70	130				

Sample ID	BTEX LCSD	SampType: LCSD	TestCode: 8021_BTEX_	Units: mg/L	Prep Date:	RunNo: 108275					
Client ID:	LCSS02	Batch ID: R108275	TestNo: SW8021B	Analysis Date: 3/30/2022	SeqNo: 2666042						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0474	0.00500	0.05000	0	94.8	72	120	0.04580	3.43	20	
Ethylbenzene	0.0477	0.00500	0.05000	0	95.4	76	129	0.04630	2.98	20	
m,p-Xylene	0.0961	0.0100	0.1000	0	96.1	75	125	0.09220	4.14	20	
o-Xylene	0.0472	0.00500	0.05000	0	94.4	75	125	0.04610	2.36	20	
Toluene	0.0472	0.0100	0.05000	0	94.4	78	120	0.04590	2.79	20	
Xylenes, Total	0.143	0.0500	0.1500	0	95.6	75	125	0.1383	3.62	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0418		0.05000		83.6	70	130		0	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108275</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108275</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666044</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00100	0.00100									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0405		0.05000		81.0	70	130				

Sample ID	<b>22031155-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108275</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108275</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666060</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0469	0.00500	0.05000	0	93.8	26	161				
Ethylbenzene	0.0455	0.00500	0.05000	0	91.0	66	153				
m,p-Xylene	0.0932	0.0100	0.1000	0.0007000	92.5	48	154				
o-Xylene	0.0453	0.00500	0.05000	0.0001000	90.4	48	154				
Toluene	0.0459	0.0100	0.05000	0	91.8	68	141				
Xylenes, Total	0.139	0.0500	0.1500	0.0009000	91.8	48	154				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0396		0.05000		79.2	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	<b>22031155-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108275</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108275</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666061</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0343	0.00500	0.05000	0	68.6	26	161	0.04690	31.0	20	R
Ethylbenzene	0.0331	0.00500	0.05000	0	66.2	66	153	0.04550	31.6	20	R
m,p-Xylene	0.0675	0.0100	0.1000	0.0007000	66.8	48	154	0.09320	32.0	20	R
o-Xylene	0.0332	0.00500	0.05000	0.0001000	66.2	48	154	0.04530	30.8	20	R
Toluene	0.0336	0.0100	0.05000	0	67.2	68	141	0.04590	30.9	20	RS
Xylenes, Total	0.101	0.0500	0.1500	0.0009000	66.6	48	154	0.1386	31.6	20	R
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0404		0.05000		80.8	70	130		0	20	

**NOTES:**

S - Spike recovery outside of recovery limits. The method is in control for the analyte as indicated by the LCS/LCSD and sample MS.  
 R - MS/MSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both LCS/LCSD.

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108303</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108303</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2668547</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Manganese	< 0.0100	0.0100									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108303</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108303</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2668548</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.495	0.0100	0.5000	0	99.1	80	120				
Cadmium	0.482	0.00500	0.5000	0	96.4	80	120				
Chromium	0.492	0.0100	0.5000	0	98.4	80	120				
Iron	0.500	0.0100	0.5000	0	99.9	80	120				
Lead	0.493	0.0100	0.5000	0	98.5	80	120				
Manganese	0.492	0.0100	0.5000	0	98.5	80	120				
Strontium	0.494	0.0100	0.5000	0	98.8	80	120				
Zinc	0.500	0.0100	0.5000	0	100	80	120				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668549</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.495	0.0100	0.5000	0	99.0	80	120	0.4954	0.0525	20	
Cadmium		0.482	0.00500	0.5000	0	96.5	80	120	0.4822	0.0187	20	
Chromium		0.491	0.0100	0.5000	0	98.3	80	120	0.4919	0.110	20	
Iron		0.499	0.0100	0.5000	0	99.9	80	120	0.4995	0.0501	20	
Lead		0.493	0.0100	0.5000	0	98.6	80	120	0.4926	0.112	20	
Manganese		0.491	0.0100	0.5000	0	98.2	80	120	0.4925	0.329	20	
Strontium		0.492	0.0100	0.5000	0	98.4	80	120	0.4941	0.377	20	
Zinc		0.499	0.0100	0.5000	0	99.7	80	120	0.5002	0.302	20	

Sample ID	<b>22031105-008BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>	
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668552</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.830	0.0100	0.5000	0.3534	95.3	75	125				
Cadmium		0.490	0.00500	0.5000	0	98.0	75	125				
Chromium		0.487	0.0100	0.5000	0	97.5	75	125				
Iron		1.13	0.0100	0.5000	0.6638	92.9	75	125				
Lead		0.480	0.0100	0.5000	0	96.1	75	125				
Manganese		0.685	0.0100	0.5000	0.2111	94.8	75	125				
Strontium		0.810	0.0100	0.5000	0.3316	95.7	75	125				
Zinc		0.507	0.0100	0.5000	0	101	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22030947  
 12-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID	<b>22031105-008BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668555</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.836	0.0100	0.5000	0.3534	96.5	75	125	0.8297	0.765	20	
Cadmium	0.498	0.00500	0.5000	0	99.6	75	125	0.4901	1.62	20	
Chromium	0.491	0.0100	0.5000	0	98.1	75	125	0.4874	0.677	20	
Iron	1.14	0.0100	0.5000	0.6638	94.3	75	125	1.128	0.615	20	
Lead	0.483	0.0100	0.5000	0	96.6	75	125	0.4804	0.513	20	
Manganese	0.689	0.0100	0.5000	0.2111	95.7	75	125	0.6851	0.634	20	
Strontium	0.814	0.0100	0.5000	0.3316	96.5	75	125	0.8100	0.480	20	
Zinc	0.511	0.0100	0.5000	0	102	75	125	0.5067	0.800	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22030947**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>3/21/2022 12:50:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>3/21/2022 1:11:34 PM</b>	
Reviewed By:	<b>Buffy Bryant</b>	<b>4/8/2022 3:02:02 PM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Element

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0° C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.1	Good	Not Present			



# Chain of Custody

## Laboratory Number: 22030914

**Client Information:**  
 Company Name: Iron Env  
 Contact Name: J. Sill  
 Address: 2049 Commercial Dr  
 City, State Zip: Post Allen La 70767  
 Phone Number: 225 344 8490  
 Fax Number: Ext.  
 E-mail Address: Ext.

**Billing Information:**  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No  
 UPS / FedEx / NOW  
 DHL (Element) Hand / Mail

**Project Name/Number:** Castex Development  
 9403-016-0100  
**Sampler's Signature:** [Signature]  
**Shipping Method:** [Signature]

**Matrix Code:**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 O = Oil  
 F = Food  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid  
 SOL = Solid  
 SO = Soil  
 SW = Swab  
 Natural Gas

Sample ID/Description	Which Regulations Apply:		Turn Time	Collection Information		Rush Turn Times (will incur a surcharge and must be pre-approved by lab.)	Container	Pres.	Requested Tests			Comments					
	RCRA	POTW		NPDES	USDA/FDA				RECAP/RI/SC	Date	Time		Grab/Composite	Matrix	Quantity	Type	G=Glass, V=Vial
CD-2a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3-17-22	8:25	G	AQ	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub>	X	X	X	Metals (Heavy)	Metals (Trace)	Chlorides	TDS	TPH - Vio	Metals As Ba Cd Cr Fe Mn Pb Sr Zn Hg
CD-2b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓	10:50	↓	↓	↓	X	X	X	X	X	X	X	X	Cations K Na Mg Ca
CD-3a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3-18-22	8:10	↓	↓	↓	X	X	X	X	X	X	X	X	Anions Sulfate
CD-3b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓	9:00	↓	↓	↓	X	X	X	X	X	X	X	X	ALK Carbonate
CD-1b	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	↓	9:55	↓	↓	↓	X	X	X	X	X	X	X	X	ALK Bicarbonate
CD-1a	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>														

Relinquished by	Date/Time	Received by	Date/Time	Field Notes
[Signature]	3-21-22 10:10	Robert Steiner	3-21-22 10:10	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 3.1°C
Robert Steiner	3-21-22 12:50	[Signature]	3-21-22 12:50	

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.

Element Materials Technology reserves the right to return unused sample portions.

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 Columbus, IN 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Lay Road, Suite 100  
 Fort Wayne, IN 46825 USA  
 P 260-471-7000  
 F 260-471-7177

909 Executive Dr  
 Warsaw, IN 46580 USA  
 P 574-267-3105  
 F 574-269-5889

3371 Cleveland Road, Suite 100A  
 South Bend, IN 46628 USA  
 P 574-271-9707  
 F 574-273-5695

2417 W. Pinhook Rd  
 Lafayette, LA 70508 USA  
 P 337-235-0483  
 F 337-233-6540



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April 13, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100).

Order No.: 22031105

Dear Greg Miller:

Element Materials Technology Lafayette received 14 sample(s) on 3/23/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
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Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22031105

Date: 4/13/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100).

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 11:25:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-001 **Matrix:** SOLID  
**Client Sample ID** CD-5 26-28

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.82	0.10		mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	155	5.00		mg/Kg-dry	20	4/1/2022 9:08:52 AM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	28.7	1.00		wt%	1	3/24/2022 12:00:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 11:55:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-002 **Matrix:** SOLID  
**Client Sample ID** CD-5 38-40

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	1.08	0.10		mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	186	5.00		mg/Kg-dry	20	4/1/2022 9:22:47 AM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	20.9	1.00		wt%	1	3/24/2022 12:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 12:30:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-003 **Matrix:** SOLID  
**Client Sample ID** CD-5 52-54

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.83	0.10		mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	145	5.00		mg/Kg-dry	20	4/1/2022 9:36:42 AM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	19.9	1.00		wt%	1	3/24/2022 12:00:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 12:40:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-004 **Matrix:** SOLID  
**Client Sample ID** CD-5 56-58

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	9.34	0.10	*	mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	2,500	50.0		mg/Kg-dry	200	4/1/2022 9:50:37 AM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	17.3	1.00		wt%	1	3/24/2022 12:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 12:50:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-005 **Matrix:** SOLID  
**Client Sample ID** CD-5 60-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	18.3	0.10	*	mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	5,340	125		mg/Kg-dry	500	4/1/2022 10:04:32 AM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	24.5	1.00		wt%	1	3/24/2022 12:00:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 1:45:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-006 **Matrix:** SOLID  
**Client Sample ID** CD-5 68-70

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	17.9	0.10	*	mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	5,290	125		mg/Kg-dry	500	4/1/2022 10:18:27 AM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	25.6	1.00		wt%	1	3/24/2022 12:00:00 PM

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/14/2022 1:50:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-007 **Matrix:** SOLID  
**Client Sample ID** CD-5 70-72

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	8.26	0.10	*	mmhos/cm	1	3/31/2022 11:00:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	2,190	50.0		mg/Kg-dry	200	4/1/2022 10:32:21 AM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	28.9	1.00		wt%	1	3/24/2022 12:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 11:00:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-008 **Matrix:** AQUEOUS  
**Client Sample ID** CD-1C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.128	0.128		mg/L	1	3/28/2022 6:12:00 PM
TPH (Oil Range)	< 0.118	0.118		mg/L	1	3/28/2022 6:12:00 PM
Surr: 4-Terphenyl-d14	103	51.4 - 146		%Rec	1	3/28/2022 6:12:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 6:53:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.8	70 - 130		%Rec	1	3/24/2022 6:53:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: CRM
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 6:53:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 6:53:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 6:53:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 6:53:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 6:53:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 6:53:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	92.0	70 - 130		%Rec	1	3/24/2022 6:53:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:52:58 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	40.9	5.00		mg/L	20	3/25/2022 10:49:03 PM
Sulfate	16.8	5.00		mg/L	20	3/25/2022 10:49:03 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.353	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/28/2022 6:53:28 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-008  
**Client Sample ID** CD-1C

**Collection Date:** 3/21/2022 11:00:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Iron	0.664	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Lead	< 0.0100	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Manganese	0.211	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Strontium	0.332	0.0100		mg/L	1	3/28/2022 6:53:28 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/28/2022 6:53:28 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	< 2.50	2.50		µg/L	10	3/30/2022 10:10:26 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	280	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	280	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	413	10.0		mg/L	1	3/24/2022 7:53:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 1:45:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-009 **Matrix:** AQUEOUS  
**Client Sample ID** CD-4A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	3/28/2022 7:14:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	3/28/2022 7:14:00 PM
Surr: 4-Terphenyl-d14	92.9	51.4 - 146		%Rec	1	3/28/2022 7:14:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 7:20:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	3/24/2022 7:20:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: CRM
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:20:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:20:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 7:20:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:20:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 7:20:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 7:20:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.4	70 - 130		%Rec	1	3/24/2022 7:20:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:17:53 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	372	12.5		mg/L	50	3/25/2022 11:02:59 PM
Sulfate	23.6	1.25		mg/L	5	3/25/2022 11:16:54 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.481	0.0100		mg/L	1	3/30/2022 3:42:10 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:42:10 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 1:45:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-009 **Matrix:** AQUEOUS  
**Client Sample ID** CD-4A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	88.2	0.500		mg/L	1	3/30/2022 3:42:10 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:42:10 PM
Iron	0.413	0.0500		mg/L	1	3/30/2022 3:42:10 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:42:10 PM
Magnesium	29.4	0.500		mg/L	1	3/30/2022 3:42:10 PM
Manganese	0.359	0.0100		mg/L	1	3/30/2022 3:42:10 PM
Potassium	< 5.00	5.00		mg/L	1	3/30/2022 3:42:10 PM
Sodium	317	5.00		mg/L	1	3/30/2022 3:42:10 PM
Strontium	2.58	0.0100		mg/L	1	3/30/2022 3:42:10 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/30/2022 3:42:10 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	27.5	2.50		µg/L	10	3/30/2022 11:09:41 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	428	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	428	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	1,080	50.0		mg/L	5	3/24/2022 7:53:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 3:00:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-010 **Matrix:** AQUEOUS  
**Client Sample ID** CD-4B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	3/28/2022 7:45:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	3/28/2022 7:45:00 PM
Surr: 4-Terphenyl-d14	98.2	51.4 - 146		%Rec	1	3/28/2022 7:45:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/30/2022 6:02:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	3/30/2022 6:02:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:02:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:02:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/30/2022 6:02:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:02:00 PM
Toluene	0.0172	0.0100		mg/L	1	3/30/2022 6:02:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/30/2022 6:02:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	82.6	70 - 130		%Rec	1	3/30/2022 6:02:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:55:16 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	1,230	25.0		mg/L	100	3/25/2022 11:30:49 PM
Sulfate	39.1	2.50		mg/L	10	3/25/2022 11:44:45 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	1.09	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/28/2022 7:04:54 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-010  
**Client Sample ID** CD-4B

**Collection Date:** 3/21/2022 3:00:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Iron	5.12	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Lead	< 0.0100	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Manganese	1.09	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Strontium	2.46	0.0100		mg/L	1	3/28/2022 7:04:54 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/28/2022 7:04:54 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	18.7	2.50		µg/L	10	3/30/2022 10:21:41 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	210	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	210	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	2,020	50.0		mg/L	5	3/24/2022 7:53:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 4:25:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-011 **Matrix:** AQUEOUS  
**Client Sample ID** CD-5A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.129	0.129		mg/L	1	3/28/2022 8:15:00 PM
TPH (Oil Range)	< 0.119	0.119		mg/L	1	3/28/2022 8:15:00 PM
Surr: 4-Terphenyl-d14	107	51.4 - 146		%Rec	1	3/28/2022 8:15:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/30/2022 6:29:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	3/30/2022 6:29:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:29:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:29:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/30/2022 6:29:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:29:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/30/2022 6:29:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/30/2022 6:29:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	82.8	70 - 130		%Rec	1	3/30/2022 6:29:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:20:11 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	250	12.5		mg/L	50	3/25/2022 11:58:39 PM
Sulfate	11.8	1.25		mg/L	5	3/26/2022 12:12:34 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.927	0.0100		mg/L	1	3/30/2022 3:44:28 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/30/2022 3:44:28 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL	Reporting Limit	S Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U Analyte not detected
W	Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/21/2022 4:25:00 PM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-011 **Matrix:** AQUEOUS  
**Client Sample ID** CD-5A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	131	0.500		mg/L	1	3/30/2022 3:44:28 PM
Chromium	< 0.0100	0.0100		mg/L	1	3/30/2022 3:44:28 PM
Iron	1.08	0.0500		mg/L	1	3/30/2022 3:44:28 PM
Lead	< 0.0100	0.0100		mg/L	1	3/30/2022 3:44:28 PM
Magnesium	34.3	0.500		mg/L	1	3/30/2022 3:44:28 PM
Manganese	0.558	0.0100		mg/L	1	3/30/2022 3:44:28 PM
Potassium	< 5.00	5.00		mg/L	1	3/30/2022 3:44:28 PM
Sodium	143	5.00		mg/L	1	3/30/2022 3:44:28 PM
Strontium	0.623	0.0100		mg/L	1	3/30/2022 3:44:28 PM
Zinc	0.0101	0.0100		mg/L	1	3/30/2022 3:44:28 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	13.4	2.50		µg/L	10	3/30/2022 11:12:29 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	505	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	505	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	835	50.0		mg/L	5	3/24/2022 7:53:00 AM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-012  
**Client Sample ID** Dup

**Collection Date:** 3/21/2022

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.131	0.131		mg/L	1	3/28/2022 8:46:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	3/28/2022 8:46:00 PM
Surr: 4-Terphenyl-d14	103	51.4 - 146		%Rec	1	3/28/2022 8:46:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/30/2022 6:56:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	3/30/2022 6:56:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:56:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:56:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/30/2022 6:56:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/30/2022 6:56:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/30/2022 6:56:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/30/2022 6:56:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	81.8	70 - 130		%Rec	1	3/30/2022 6:56:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:57:34 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	44.3	5.00		mg/L	20	3/26/2022 12:26:29 AM
Sulfate	17.0	5.00		mg/L	20	3/26/2022 12:26:29 AM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.360	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/28/2022 7:07:11 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-012  
**Client Sample ID** Dup

**Collection Date:** 3/21/2022

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Iron	0.594	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Lead	< 0.0100	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Manganese	0.215	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Strontium	0.337	0.0100		mg/L	1	3/28/2022 7:07:11 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/28/2022 7:07:11 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
Arsenic	< 2.50	2.50		µg/L	10	3/30/2022 10:24:30 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>BXB</b>
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	278	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	278	20.0		mgCaCO <sub>3</sub> /L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	404	10.0		mg/L	1	3/24/2022 7:53:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 3/23/2022 10:20:00 AM  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-013 **Matrix:** AQUEOUS  
**Client Sample ID** CD-5B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.128	0.128		mg/L	1	3/28/2022 9:17:00 PM
TPH (Oil Range)	< 0.119	0.119		mg/L	1	3/28/2022 9:17:00 PM
Surr: 4-Terphenyl-d14	105	51.4 - 146		%Rec	1	3/28/2022 9:17:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/30/2022 7:23:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	3/30/2022 7:23:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	0.0154	0.00500		mg/L	1	3/30/2022 7:23:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/30/2022 7:23:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/30/2022 7:23:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/30/2022 7:23:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/30/2022 7:23:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/30/2022 7:23:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	80.6	70 - 130		%Rec	1	3/30/2022 7:23:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	3/28/2022 7:59:52 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	12,900	250		mg/L	1000	3/26/2022 12:40:23 AM
Sulfate	< 25.0	25.0		mg/L	100	3/26/2022 1:22:07 AM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	25.1	0.0100		mg/L	1	3/28/2022 7:09:28 PM
Cadmium	< 0.00500	0.00500		mg/L	1	3/28/2022 7:09:28 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-013  
**Client Sample ID** CD-5B

**Collection Date:** 3/23/2022 10:20:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	3/28/2022 7:09:28 PM
Iron	54.1	0.100		mg/L	10	4/12/2022 2:03:07 PM
Lead	< 0.0100	0.0100		mg/L	1	3/28/2022 7:09:28 PM
Manganese	8.70	0.0100		mg/L	1	3/28/2022 7:09:28 PM
Strontium	27.6	0.100		mg/L	10	4/12/2022 2:03:07 PM
Zinc	< 0.0100	0.0100		mg/L	1	3/28/2022 7:09:28 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	3.13	2.50		µg/L	10	3/30/2022 10:27:18 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	158	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
Alkalinity, Total (As CaCO3)	158	20.0		mgCaCO3/L	1	3/30/2022 3:59:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	21,300	1,000		mg/L	100	3/24/2022 7:53:00 AM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22031105

Date Reported: 4/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).  
**Lab ID:** 22031105-014  
**Client Sample ID** Trip Blank

**Collection Date:** 3/23/2022

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8015B</b>	Analyst: CRM	
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	3/24/2022 7:47:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	3/24/2022 7:47:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8021B</b>	Analyst: CRM	
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:47:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:47:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	3/24/2022 7:47:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	3/24/2022 7:47:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	3/24/2022 7:47:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	3/24/2022 7:47:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.2	70 - 130		%Rec	1	3/24/2022 7:47:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43113

Sample ID <b>MB-43113</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108149</b>
Client ID: <b>PBW</b>	Batch ID: <b>43113</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2661010</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.000200	0.000200			

Sample ID <b>LCS-43113</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108149</b>
Client ID: <b>LCSW</b>	Batch ID: <b>43113</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2661011</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0107	0.000200	0.01000	0	107 80 120

Sample ID <b>LCSD-43113</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108149</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43113</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2661014</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0106	0.000200	0.01000	0	106 80 120 0.01065 0.286 20

Sample ID <b>22030813-004DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108149</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43113</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2661017</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43113

Sample ID	<b>22030813-004DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108149</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43113</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661018</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0109		0.000200	0.01000	0	109	75	125	0.01054	3.35	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43114

Sample ID	<b>MB-43114</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661097</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-43114</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661098</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0105		0.000200	0.01000	0		105	80	120				

Sample ID	<b>LCSD-43114</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661099</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0110		0.000200	0.01000	0		110	80	120	0.01054	3.93	20	

Sample ID	<b>22030947-002BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661104</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00996		0.000200	0.01000	0		99.6	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43114

Sample ID	<b>22030947-002BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108150</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43114</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2661105</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00963		0.000200	0.01000	0	96.3	75	125	0.009958	3.36	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43123

Sample ID	<b>22031105-008cdup</b>	SampType:	<b>DUP</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>
Client ID:	<b>CD-1C</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663275</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.130	0.130						0	0	40	
TPH (Oil Range)	< 0.120	0.120						0	0	40	R
Surr: 4-Terphenyl-d14	0.0609		0.05712		107	51.4	146		0	0	

**NOTES:**

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected. The method is in control as indicated by the LCS/LCSD.

Sample ID	<b>lcs-d43123</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>
Client ID:	<b>LCSSW</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663285</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.87	0.136	1.797	0	104	70	130				
Surr: 4-Terphenyl-d14	0.0580		0.05991		96.8	51.4	146				

Sample ID	<b>lcsd-d43123</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/24/2022</b>	RunNo:	<b>108202</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43123</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2663287</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.86	0.136	1.799	0	103	70	130	1.870	0.744	14.1	
Surr: 4-Terphenyl-d14	0.0570		0.05997		95.0	51.4	146		0	40	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43123

Sample ID	<b>lcsd-m43123</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108202</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>43123</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2663289</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.10	0.125	1.779	0	118	70	130	2.091	0.434	23.2	
Surr: 4-Terphenyl-d14	0.0599		0.05931		101	51.4	146		0	40	

Sample ID	<b>lcs-m43123</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108202</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>43123</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2663290</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.09	0.125	1.793	0	117	70	130				
Surr: 4-Terphenyl-d14	0.0585		0.05975		97.8	51.4	146				

Sample ID	<b>mb-43123</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>3/24/2022</b>	RunNo: <b>108202</b>					
Client ID:	<b>PBW</b>	Batch ID: <b>43123</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>3/28/2022</b>	SeqNo: <b>2663291</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.136	0.136									
TPH (Oil Range)	< 0.126	0.126									
Surr: 4-Terphenyl-d14	0.0579		0.05977		97.0	51.4	146				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>MB-43133</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665788</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0500	0.0500									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-43133</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665789</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.489	0.0100	0.5000	0	97.9	80	120				
Cadmium	0.469	0.00500	0.5000	0	93.8	80	120				
Calcium	48.9	0.500	50.00	0	97.7	80	120				
Chromium	0.489	0.0100	0.5000	0	97.9	80	120				
Iron	0.531	0.0500	0.5000	0	106	80	120				
Lead	0.475	0.0100	0.5000	0	94.9	80	120				
Magnesium	48.5	0.500	50.00	0	96.9	80	120				
Manganese	0.487	0.0100	0.5000	0	97.5	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>LCS-43133</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665789</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium		48.5		5.00	50.00	0		96.9	80	120				
Sodium		47.8		10.0	50.00	0		95.7	80	120				
Strontium		0.487		0.0100	0.5000	0		97.4	80	120				
Zinc		0.475		0.0100	0.5000	0		95.1	80	120				

Sample ID	<b>LCSD-43133</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108270</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43133</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665790</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.494		0.0100	0.5000	0		98.7	80	120	0.4893	0.885	20	
Cadmium		0.470		0.00500	0.5000	0		93.9	80	120	0.4691	0.0895	20	
Calcium		49.0		0.500	50.00	0		98.1	80	120	48.87	0.309	20	
Chromium		0.492		0.0100	0.5000	0		98.4	80	120	0.4893	0.577	20	
Iron		0.512		0.0500	0.5000	0		102	80	120	0.5309	3.55	20	
Lead		0.481		0.0100	0.5000	0		96.2	80	120	0.4746	1.36	20	
Magnesium		48.5		0.500	50.00	0		97.0	80	120	48.45	0.0944	20	
Manganese		0.484		0.0100	0.5000	0		96.9	80	120	0.4874	0.591	20	
Potassium		48.7		5.00	50.00	0		97.3	80	120	48.47	0.393	20	
Sodium		48.6		10.0	50.00	0		97.2	80	120	47.83	1.56	20	
Strontium		0.491		0.0100	0.5000	0		98.2	80	120	0.4872	0.779	20	
Zinc		0.475		0.0100	0.5000	0		95.0	80	120	0.4754	0.116	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>22030947-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108270</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665794</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.512	0.00500	0.5000	0.001390	102	75	125				
Chromium	0.436	0.0100	0.5000	0	87.2	75	125				
Lead	0.419	0.0100	0.5000	0	83.7	75	125				
Potassium	94.5	5.00	50.00	32.65	124	75	125				
Zinc	0.492	0.0100	0.5000	0	98.5	75	125				

Sample ID	<b>22030947-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108270</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665795</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.523	0.00500	0.5000	0.001390	104	75	125	0.5117	2.22	20	
Chromium	0.444	0.0100	0.5000	0	88.8	75	125	0.4361	1.77	20	
Lead	0.421	0.0100	0.5000	0	84.2	75	125	0.4185	0.550	20	
Potassium	104	5.00	50.00	32.65	142	75	125	94.48	9.37	20	S
Zinc	0.502	0.0100	0.5000	0	100	75	125	0.4924	1.89	20	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43133

Sample ID	<b>22030947-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108501</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>4/6/2022</b>	SeqNo: <b>2673529</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	7.58	0.100	0.5000	7.139	87.6	75	125				
Calcium	2,650	5.00	50.00	2,630	30.2	75	125				S
Iron	51.6	0.500	0.5000	52.13	-99.1	75	125				S
Magnesium	857	5.00	50.00	821.4	70.5	75	125				S
Manganese	17.7	0.100	0.5000	17.51	43.2	75	125				S
Sodium	4,610	100	50.00	4,640	-58.8	75	125				S
Strontium	20.1	0.100	0.5000	19.89	49.2	75	125				S

Sample ID	<b>22030947-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>3/25/2022</b>	RunNo: <b>108501</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43133</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>4/6/2022</b>	SeqNo: <b>2673530</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	7.87	0.100	0.5000	7.139	147	75	125	7.577	3.82	20	S
Calcium	2,880	5.00	50.00	2,630	496	75	125	2,645	8.43	20	S
Iron	54.2	0.500	0.5000	52.13	412	75	125	51.64	4.82	20	S
Magnesium	941	5.00	50.00	821.4	240	75	125	856.7	9.41	20	S
Manganese	18.5	0.100	0.5000	17.51	202	75	125	17.73	4.39	20	S
Sodium	5,030	100	50.00	4,640	783	75	125	4,611	8.73	20	S
Strontium	21.1	0.100	0.5000	19.89	238	75	125	20.14	4.58	20	S

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43135

Sample ID	<b>MB-43135</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665629</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.250		0.250										

Sample ID	<b>LCS-43135</b>	SampType:	<b>LCS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665630</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		462		5.00	500.0	0		92.4	80	120				

Sample ID	<b>LCSD-43135</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665631</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		465		5.00	500.0	0		93.0	80	120	462.0	0.610	20	

Sample ID	<b>22030947-001BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665634</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		538		5.00	500.0	80.97		91.4	75	125				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** 43135

Sample ID	<b>22030947-001BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>3/25/2022</b>	RunNo:	<b>108263</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43135</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665635</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		548		5.00	500.0	80.97	93.4	75	125	538.0	1.80	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108055

Sample ID	<b>22031117-002BDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660892</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		225		10.0						222.0	1.34 10

Sample ID	<b>MB-R108055</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660893</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		< 10.0		10.0							

Sample ID	<b>LCS-R108055</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660894</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		1,030		10.0	1,000	0	103	85	115		

Sample ID	<b>LCSD-R108055</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660895</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		1,020		10.0	1,000	0	102	85	115	1,032	0.974 10

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108055

Sample ID	<b>LCSD-R108055</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660895</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22031105-012ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108055</b>
Client ID:	<b>Dup</b>	Batch ID:	<b>R108055</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660904</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable)	399	10.0							404.0	1.25	10
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132-2

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660595</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		< 0.250		0.250										
Sulfate		< 0.250		0.250										

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660596</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120				
Sulfate		10.2		0.250	10.00	0		102	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660597</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120	10.11	0.102	15	
Sulfate		10.2		0.250	10.00	0		102	80	120	10.25	0.102	15	

Sample ID	<b>22030947-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660600</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5,190		50.0	1,000	3,524		167	80	120				ES

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108132-2

Sample ID	<b>22030947-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660600</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		1,220		50.0	1,000	157.9	106	80	120				

Sample ID	<b>22030947-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108132</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108132-2</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>3/25/2022</b>	SeqNo:	<b>2660601</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5,210		50.0	1,000	3,524	168	80	120	5,192	0.259	15	ES
Sulfate		1,210		50.0	1,000	157.9	105	80	120	1,217	0.719	15	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control for the analyte as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108145

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660905</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0437	0.00500	0.05000	0	87.4	72	120				
Ethylbenzene		0.0484	0.00500	0.05000	0	96.8	76	129				
m,p-Xylene		0.0969	0.0100	0.1000	0	96.9	75	125				
o-Xylene		0.0469	0.00500	0.05000	0	93.8	75	125				
Toluene		0.0480	0.0100	0.05000	0	96.0	78	120				
Xylenes, Total		0.144	0.0500	0.1500	0	95.9	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0484		0.05000		96.8	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660906</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0440	0.00500	0.05000	0	88.0	72	120	0.04370	0.684	20	
Ethylbenzene		0.0485	0.00500	0.05000	0	97.0	76	129	0.04840	0.206	20	
m,p-Xylene		0.0973	0.0100	0.1000	0	97.3	75	125	0.09690	0.412	20	
o-Xylene		0.0470	0.00500	0.05000	0	94.0	75	125	0.04690	0.213	20	
Toluene		0.0481	0.0100	0.05000	0	96.2	78	120	0.04800	0.208	20	
Xylenes, Total		0.144	0.0500	0.1500	0	96.3	75	125	0.1439	0.347	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0464		0.05000		92.8	70	130		0	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108145

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108145</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108145</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660907</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00100	0.00100									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0474		0.05000		94.8	70	130				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108148

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>LCSSW</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660990</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.8		0.150	12.50	0		102	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660991</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.7		0.150	12.50	0		101	80	130	12.76	0.636	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108148</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108148</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2660992</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0484			0.05000			96.8	70	130				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108234

Sample ID	<b>MB-R108234</b>	SampType:	<b>MBLK</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>108234</b>		
Client ID:	<b>PBW</b>	Batch ID:	<b>R108234</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2664041</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0											
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0											
Alkalinity, Phenolphthalein	< 20.0	20.0											
Alkalinity, Total (As CaCO3)	< 20.0	20.0											

Sample ID	<b>LCS-R108234</b>	SampType:	<b>LCS</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>108234</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108234</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2664042</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	48.0	20.0	50.00	0	96.0	90	110						
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Sample ID	<b>22030936-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>108234</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108234</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2664044</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 1.00	1.00								0	0	20	
Alkalinity, Carbonate (As CaCO3)	< 1.00	1.00								0	0	20	
Alkalinity, Phenolphthalein	< 1.00	1.00								0	0	20	
Alkalinity, Total (As CaCO3)	< 1.00	1.00								0	0	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108260

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665518</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.250	0.250									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665519</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.9	0.250	20.00	0	99.5	80	120				

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665520</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.9	0.250	20.00	0	99.6	80	120	19.90	0.139	20	

Sample ID <b>22030947-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>108260</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R108260</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2665523</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	210	2.50	200.0	8.555	101	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108260

Sample ID	<b>22030947-002BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_D</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>108260</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108260</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2665524</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		208		2.50	200.0	8.555	99.9	75	125	209.7	0.617	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108274

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108274</b>			
Client ID:	<b>LCSSW</b>	Batch ID:	<b>R108274</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666006</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.3		0.150	12.50	0		90.1	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108274</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108274</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666007</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.9		0.150	12.50	0		94.9	80	130	11.26	5.19	20	

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108274</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R108274</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666008</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0480			0.05000			96.0	70	130				

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	BTEX LCS	SampType:	LCS	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	108275	
Client ID:	LCSW	Batch ID:	R108275	TestNo:	SW8021B	Analysis Date:	3/30/2022	SeqNo:	2666040		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0458	0.00500	0.05000	0	91.6	72	120				
Ethylbenzene	0.0463	0.00500	0.05000	0	92.6	76	129				
m,p-Xylene	0.0922	0.0100	0.1000	0	92.2	75	125				
o-Xylene	0.0461	0.00500	0.05000	0	92.2	75	125				
Toluene	0.0459	0.0100	0.05000	0	91.8	78	120				
Xylenes, Total	0.138	0.0500	0.1500	0	92.2	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0423		0.05000		84.6	70	130				

Sample ID	BTEX LCSD	SampType:	LCSD	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	108275	
Client ID:	LCSS02	Batch ID:	R108275	TestNo:	SW8021B	Analysis Date:	3/30/2022	SeqNo:	2666042		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0474	0.00500	0.05000	0	94.8	72	120	0.04580	3.43	20	
Ethylbenzene	0.0477	0.00500	0.05000	0	95.4	76	129	0.04630	2.98	20	
m,p-Xylene	0.0961	0.0100	0.1000	0	96.1	75	125	0.09220	4.14	20	
o-Xylene	0.0472	0.00500	0.05000	0	94.4	75	125	0.04610	2.36	20	
Toluene	0.0472	0.0100	0.05000	0	94.4	78	120	0.04590	2.79	20	
Xylenes, Total	0.143	0.0500	0.1500	0	95.6	75	125	0.1383	3.62	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0418		0.05000		83.6	70	130		0	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108275</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R108275</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666044</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00100	0.00100									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0405		0.05000		81.0	70	130				

Sample ID	<b>22031155-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108275</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108275</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>3/30/2022</b>	SeqNo:	<b>2666060</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0469	0.00500	0.05000	0	93.8	26	161				
Ethylbenzene	0.0455	0.00500	0.05000	0	91.0	66	153				
m,p-Xylene	0.0932	0.0100	0.1000	0.0007000	92.5	48	154				
o-Xylene	0.0453	0.00500	0.05000	0.0001000	90.4	48	154				
Toluene	0.0459	0.0100	0.05000	0	91.8	68	141				
Xylenes, Total	0.139	0.0500	0.1500	0.0009000	91.8	48	154				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0396		0.05000		79.2	70	130				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108275

Sample ID	<b>22031155-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>108275</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R108275</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>3/30/2022</b>	SeqNo: <b>2666061</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0343	0.00500	0.05000	0	68.6	26	161	0.04690	31.0	20	R
Ethylbenzene	0.0331	0.00500	0.05000	0	66.2	66	153	0.04550	31.6	20	R
m,p-Xylene	0.0675	0.0100	0.1000	0.0007000	66.8	48	154	0.09320	32.0	20	R
o-Xylene	0.0332	0.00500	0.05000	0.0001000	66.2	48	154	0.04530	30.8	20	R
Toluene	0.0336	0.0100	0.05000	0	67.2	68	141	0.04590	30.9	20	RS
Xylenes, Total	0.101	0.0500	0.1500	0.0009000	66.6	48	154	0.1386	31.6	20	R
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0404		0.05000		80.8	70	130		0	20	

**NOTES:**

S - Spike recovery outside of recovery limits. The method is in control for the analyte as indicated by the LCS/LCSD and sample MS.  
 R - MS/MSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108284

Sample ID	<b>MB-R108280</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>108284</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R108284</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/31/2022</b>	SeqNo:	<b>2666387</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		< 0.10		0.10							

Sample ID	<b>LCS1-R108280</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>108284</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108284</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/31/2022</b>	SeqNo:	<b>2666388</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.49		0.10	0.50	0	97.0	90	110		

Sample ID	<b>LCS2-R108280</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>108284</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108284</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/31/2022</b>	SeqNo:	<b>2666389</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		54.7		0.10	53.00	0	103	90	110		

Sample ID	<b>22031105-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>108284</b>
Client ID:	<b>CD-5 26-28</b>	Batch ID:	<b>R108284</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>3/31/2022</b>	SeqNo:	<b>2666392</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.82		0.10						0.82	0.37 20

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>		
Client ID:	<b>PBW</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668547</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		< 0.0100		0.0100									
Cadmium		< 0.00500		0.00500									
Chromium		< 0.0100		0.0100									
Iron		< 0.0100		0.0100									
Lead		< 0.0100		0.0100									
Manganese		< 0.0100		0.0100									
Strontium		< 0.0100		0.0100									
Zinc		< 0.0100		0.0100									

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668548</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.495		0.0100	0.5000	0	99.1	80	120				
Cadmium		0.482		0.00500	0.5000	0	96.4	80	120				
Chromium		0.492		0.0100	0.5000	0	98.4	80	120				
Iron		0.500		0.0100	0.5000	0	99.9	80	120				
Lead		0.493		0.0100	0.5000	0	98.5	80	120				
Manganese		0.492		0.0100	0.5000	0	98.5	80	120				
Strontium		0.494		0.0100	0.5000	0	98.8	80	120				
Zinc		0.500		0.0100	0.5000	0	100	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668549</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.495	0.0100	0.5000	0	99.0	80	120	0.4954	0.0525	20	
Cadmium		0.482	0.00500	0.5000	0	96.5	80	120	0.4822	0.0187	20	
Chromium		0.491	0.0100	0.5000	0	98.3	80	120	0.4919	0.110	20	
Iron		0.499	0.0100	0.5000	0	99.9	80	120	0.4995	0.0501	20	
Lead		0.493	0.0100	0.5000	0	98.6	80	120	0.4926	0.112	20	
Manganese		0.491	0.0100	0.5000	0	98.2	80	120	0.4925	0.329	20	
Strontium		0.492	0.0100	0.5000	0	98.4	80	120	0.4941	0.377	20	
Zinc		0.499	0.0100	0.5000	0	99.7	80	120	0.5002	0.302	20	

Sample ID	<b>22031105-008BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>	
Client ID:	<b>CD-1C</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668552</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.830	0.0100	0.5000	0.3534	95.3	75	125				
Cadmium		0.490	0.00500	0.5000	0	98.0	75	125				
Chromium		0.487	0.0100	0.5000	0	97.5	75	125				
Iron		1.13	0.0100	0.5000	0.6638	92.9	75	125				
Lead		0.480	0.0100	0.5000	0	96.1	75	125				
Manganese		0.685	0.0100	0.5000	0.2111	94.8	75	125				
Strontium		0.810	0.0100	0.5000	0.3316	95.7	75	125				
Zinc		0.507	0.0100	0.5000	0	101	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108303

Sample ID	<b>22031105-008BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>108303</b>
Client ID:	<b>CD-1C</b>	Batch ID:	<b>R108303</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>3/28/2022</b>	SeqNo:	<b>2668555</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.836	0.0100	0.5000	0.3534	96.5	75	125	0.8297	0.765	20	
Cadmium	0.498	0.00500	0.5000	0	99.6	75	125	0.4901	1.62	20	
Chromium	0.491	0.0100	0.5000	0	98.1	75	125	0.4874	0.677	20	
Iron	1.14	0.0100	0.5000	0.6638	94.3	75	125	1.128	0.615	20	
Lead	0.483	0.0100	0.5000	0	96.6	75	125	0.4804	0.513	20	
Manganese	0.689	0.0100	0.5000	0.2111	95.7	75	125	0.6851	0.634	20	
Strontium	0.814	0.0100	0.5000	0.3316	96.5	75	125	0.8100	0.480	20	
Zinc	0.511	0.0100	0.5000	0	102	75	125	0.5067	0.800	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108362

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>108362</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R108362</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668704</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>108362</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R108362</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668705</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>108362</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R108362</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668706</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120	10.08	0.0141	15	

Sample ID <b>22030991-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>108362</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R108362</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>4/1/2022</b>	SeqNo: <b>2668708</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,860	39.8	795.0	1,038	103	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceeded
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108362

Sample ID	<b>22030991-001amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>108362</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R108362</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/1/2022</b>	SeqNo:	<b>2668709</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		1,860		39.8	795.0	1,038	104	80	120	1,861	0.226	15	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22031105  
 13-Apr-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100).

**BatchID:** R108461

Sample ID	<b>22031105-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>108461</b>		
Client ID:	<b>CD-5 26-28</b>	Batch ID:	<b>R108461</b>	TestNo:	<b>SM2540G</b>			Analysis Date:	<b>3/24/2022</b>	SeqNo:	<b>2672362</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		28.4		1.00						28.70	1.05	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		

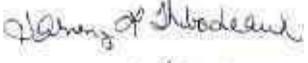
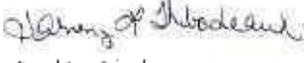


# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22031105**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>3/23/2022 3:29:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>3/23/2022 6:20:33 PM</b>	
Reviewed By:	<b>Buffy Bryant</b>	<b>4/5/2022 7:55:56 AM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0° C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Improper error correction(s) made by client

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.0	Good	Not Present			





# Chain of Custody

Laboratory Number: **220310A**

Company Name: **Iron Env**  
 Contact Name: **same**  
 Address: **same**  
 City, State Zip: **same**  
 Phone Number: **same**  
 Fax Number: **same**  
 E-mail Address: **same**

### Client Information:

PO Number:

Quote Number:

Required QC Level:

Bill Monthly:

Project Name/Number: **Castex**

Page **2** of **2**

Which Regulations Apply:  
 RCRA  
 POTW  
 NPDES  
 USDA/FDA  
 RECAP/IRIS

Turn Time:  
 Standard  
 RUSH  
 1 Day  
 2 Day  
 Other

Container:  
 Type: **Poly Vial**  
 Quantity: **6**

Pres.:  
 Yes  
 No

Requested Tests:  
**Chlorides**  
**TDS**  
**Total Metals**  
**Amions**

Comments:  
**see 3/23/02**

Collection Information:  
 Date: **3-21-02**  
 Time: **1100**  
 Matrix: **AQ**

Shipping Method:  
 UPS / FedEx / NOW  
 DHL / Element / Hand / Mail

Relinquished by: **[Signature]**

Date/Time: **3/23/02 1358**

Received by: **[Signature]**

Date/Time: **3/23/02 1520**

Field Notes:  
 Received at lab on ice? **3.0**  
 Yes  No  
 Temp: **4.5**

Relinquished by: **[Signature]**

Date/Time: **3/23/02 1358**

Received by: **[Signature]**

Date/Time: **3/23/02 1520**

8800 North US 31  
 Columbus, IN  
 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Loy Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580 USA  
 P 574-267-3305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628 USA  
 P 574-277-4707  
 F 574-275-5699

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0483  
 F 337-235-6540



Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

April 22, 2022

Mr. Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castey Development / 9403-016-  
Pace Project No.: 30476855

Dear Mr. Miller:

Enclosed are the analytical results for sample(s) received by the laboratory on March 31, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Karen L. Smetanka  
karen.smetanka@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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**BP/Castex-Ltd Adm-Apx I-000539**



## CERTIFICATIONS

Project: Castey Development / 9403-016-

Pace Project No.: 30476855

### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castey Development / 9403-016-  
Pace Project No.: 30476855

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30476855001	CD-2a	Water	03/17/22 08:25	03/31/22 09:50
30476855002	CD-2b	Water	03/17/22 10:50	03/31/22 09:50
30476855003	CD-3a	Water	03/17/22 13:40	03/31/22 09:50
30476855004	CD-3b	Water	03/18/22 08:10	03/31/22 09:50
30476855005	CD-1b	Water	03/18/22 09:00	03/31/22 09:50
30476855006	CD-1a	Water	03/18/22 09:55	03/31/22 09:50
30476855007	CD-1c	Water	03/21/22 11:00	03/31/22 09:50
30476855008	CD-4a	Water	03/21/22 13:45	03/31/22 09:50
30476855009	CD-4b	Water	03/21/22 15:00	03/31/22 09:50
30476855010	CD-5a	Water	03/21/22 16:25	03/31/22 09:50
30476855011	CD-5b	Water	03/23/22 10:20	03/31/22 09:50

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**SAMPLE ANALYTE COUNT**

Project: Castey Development / 9403-016-  
 Pace Project No.: 30476855

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30476855001	CD-2a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855002	CD-2b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855003	CD-3a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855004	CD-3b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855005	CD-1b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855006	CD-1a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855007	CD-1c	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855008	CD-4a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855009	CD-4b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855010	CD-5a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30476855011	CD-5b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

**REPORT OF LABORATORY ANALYSIS**

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## PROJECT NARRATIVE

Project: Castey Development / 9403-016-  
Pace Project No.: 30476855

---

**Method:** EPA 903.1  
**Description:** 903.1 Radium 226  
**Client:** ICON Environmental Services  
**Date:** April 22, 2022

### General Information:

11 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castey Development / 9403-016-  
Pace Project No.: 30476855

---

**Method:** EPA 904.0  
**Description:** 904.0 Radium 228  
**Client:** ICON Environmental Services  
**Date:** April 22, 2022

### General Information:

11 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castey Development / 9403-016-  
 Pace Project No.: 30476855

Sample: CD-2a		Lab ID: 30476855001	Collected: 03/17/22 08:25	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>6.79 ± 1.46 (0.416)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:86%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>1.96 ± 0.617 (0.786)</b>		pCi/L	04/15/22 16:10	15262-20-1	
C:72% T:86%							

Sample: CD-2b		Lab ID: 30476855002	Collected: 03/17/22 10:50	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>3.05 ± 2.82 (3.72)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:94%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>6.84 ± 3.64 (6.32)</b>		pCi/L	04/15/22 16:10	15262-20-1	
C:60% T:94%							

Sample: CD-3a		Lab ID: 30476855003	Collected: 03/17/22 13:40	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>8.59 ± 1.61 (0.353)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:98%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>18.4 ± 3.49 (0.770)</b>		pCi/L	04/15/22 16:10	15262-20-1	
C:66% T:98%							

Sample: CD-3b		Lab ID: 30476855004	Collected: 03/18/22 08:10	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>-1.37 ± 2.45 (4.29)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:83%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>4.48 ± 3.41 (6.71)</b>		pCi/L	04/15/22 16:10	15262-20-1	
C:70% T:83%							

**REPORT OF LABORATORY ANALYSIS**

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castey Development / 9403-016-

Pace Project No.: 30476855

Sample: CD-1b		Lab ID: 30476855005	Collected: 03/18/22 09:00	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>1.22 ± 1.28 (1.73)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:87%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>1.81 ± 1.44 (2.84)</b>		pCi/L	04/15/22 16:11	15262-20-1	
C:70% T:87%							

Sample: CD-1a		Lab ID: 30476855006	Collected: 03/18/22 09:55	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.261 ± 0.315 (0.480)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:81%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>-0.0896 ± 0.331 (0.808)</b>		pCi/L	04/15/22 16:11	15262-20-1	
C:68% T:81%							

Sample: CD-1c		Lab ID: 30476855007	Collected: 03/21/22 11:00	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>1.12 ± 4.90 (7.50)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:100%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>1.43 ± 5.26 (11.9)</b>		pCi/L	04/15/22 16:11	15262-20-1	
C:71% T:100%							

Sample: CD-4a		Lab ID: 30476855008	Collected: 03/21/22 13:45	Received: 03/31/22 09:50	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.338 ± 0.578 (1.01)</b>		pCi/L	04/22/22 13:30	13982-63-3	
C:NA T:85%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.640 ± 0.527 (1.05)</b>		pCi/L	04/15/22 18:14	15262-20-1	
C:70% T:85%							

**REPORT OF LABORATORY ANALYSIS**

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castey Development / 9403-016-

Pace Project No.: 30476855

**Sample: CD-4b** Lab ID: 30476855009 Collected: 03/21/22 15:00 Received: 03/31/22 09:50 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>2.12 ± 3.23 (5.19)</b> C:NA T:93%	pCi/L	04/22/22 13:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>2.70 ± 4.88 (10.7)</b> C:71% T:93%	pCi/L	04/15/22 18:14	15262-20-1	

**Sample: CD-5a** Lab ID: 30476855010 Collected: 03/21/22 16:25 Received: 03/31/22 09:50 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.394 ± 0.507 (0.845)</b> C:NA T:97%	pCi/L	04/22/22 13:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.04 ± 0.531 (0.909)</b> C:65% T:97%	pCi/L	04/15/22 18:14	15262-20-1	

**Sample: CD-5b** Lab ID: 30476855011 Collected: 03/23/22 10:20 Received: 03/31/22 09:50 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>21.6 ± 6.57 (3.72)</b> C:NA T:97%	pCi/L	04/22/22 13:59	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>27.2 ± 9.12 (12.1)</b> C:71% T:97%	pCi/L	04/15/22 18:14	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castey Development / 9403-016-  
 Pace Project No.: 30476855

---

QC Batch:	494910	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30476855001, 30476855002, 30476855003, 30476855004, 30476855005, 30476855006, 30476855007, 30476855008, 30476855009, 30476855010, 30476855011		

---

METHOD BLANK:	2394145	Matrix:	Water
Associated Lab Samples:	30476855001, 30476855002, 30476855003, 30476855004, 30476855005, 30476855006, 30476855007, 30476855008, 30476855009, 30476855010, 30476855011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.103 ± 0.351 (0.677) C:NA T:92%	pCi/L	04/22/22 13:15	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castey Development / 9403-016-  
 Pace Project No.: 30476855

---

QC Batch:	494912	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30476855001, 30476855002, 30476855003, 30476855004, 30476855005, 30476855006, 30476855007, 30476855008, 30476855009, 30476855010, 30476855011		

---

METHOD BLANK:	2394148	Matrix:	Water
Associated Lab Samples:	30476855001, 30476855002, 30476855003, 30476855004, 30476855005, 30476855006, 30476855007, 30476855008, 30476855009, 30476855010, 30476855011		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.256 ± 0.264 (0.539) C:78% T:92%	pCi/L	04/15/22 16:11	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castey Development / 9403-016-

Pace Project No.: 30476855

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.

WO#: 30476855



30476855

CHAIN-OF-CUSTODY FORM



Environmental Services, Inc.

2049 Commercial Drive

Port Allen, LA 70767

(225) 344-8490 fax (225) 344-6654

Project Name/Number: Castex Development / 4403-016-0100

Sampler: Cheryl Soubert Transporter: Fed Ex

Bottles: 7.7

ANALYTICAL REQUESTS

Sample Description	Matrix (See Code)	Date	Time (24:00)	Type (Comp., Grab)	Containers (Number)	Turnaround (See code)	Comments/Field Results
CD-2a	WT	3-17-22	825	Grab	2	STD	001
CD-2a		↓	1050				002
CD-3a		3-18-22	810				003
CD-3b		↓	900				004
CD-1b		↓	955				005
CD-1a		3-21-22	1100				006
CD-1c		↓	1345				007
CD-4a		↓	1500				008
CD-4b		↓	1625				009
CD-5a	↓	3-23-22	1020	↓	↓		010
CD-5b							011

Relinquished by: <u>[Signature]</u>	Company: <u>Icon</u>	Received by: <u>[Signature]</u>	Company: <u>[Blank]</u>	Date: <u>7/31/22</u>	Time: <u>9:50</u>
Relinquished by:	Company:	Received by:	Company:	Date:	Time:
Relinquished by:	Company:	Received by:	Company:	Date:	Time:

Matrix: W = water, S = solid, SL = sludge, L = liquid, CT = charcoal tube, CN = canister, A = airbag  
 Turnaround: 24 = 24 hr, 48 = 48 hr, 3D = 3 days, 1 wk = 1 week, 2 wk = 2 weeks, STD = standard

Pittsburgh Lab Sample Condition Upon Receipt



Client Name: ICON Environmental Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7764 0114 9460

Label	<u>je</u>
LIMS Login	<u>VPJre</u>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used \_\_\_\_\_    Type of Ice: Wet Blue None

Cooler Temperature \_\_\_\_\_    Observed Temp \_\_\_\_\_ °C    Correction Factor: \_\_\_\_\_ °C    Final Temp: \_\_\_\_\_ °C  
Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot#	Date and Initials of person examining contents:
				<u>10D2811</u>	<u>4-2-22 ja</u>
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	2.	<u>no containers preservative type on coc</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
-Includes date/time/ID      Matrix: <u>WT</u>					
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix					<u>pH 2</u>
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed	<u>ja</u> Date/time of preservation
				Lot # of added preservative	
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
Trip Blank Present:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed	<u>ja</u> Date: <u>4-2-22</u> Survey Meter SN: <u>1363</u>

**MO# : 30476855**  
 PM: KLS    Due Date: 04/21/22  
 CLIENT: ICON

Client Notification/ Resolution:  
 Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office ( i.e. out of hold, incorrect preservative, out of temp, incorrect containers)  
 \*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Pace Greensburg Lab -Sample Container Count

Client Profile Number 4124

Site Castex Development / 9403-016-0100

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGCU	WGKU	ZPLC	
1	WT											2																	
2												2																	
3												2																	
4												2																	
5												2																	
6												2																	
7												2																	
8												2																	
9												2																	
10												2																	
11	WT											2																	
12																													

**WO#: 30476855**

PM: KLS Due Date: 04/21/22  
CLIENT: ICON

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unpreserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unpreserved
AG3S	250mL amber glass H2SO4
AG3U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosul
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGCU	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250mL plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZ1	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe



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May 10, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development/ 9403-016-0100

Order No.: 22040886

Dear Greg Miller:

Element Materials Technology Lafayette received 12 sample(s) on 4/19/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



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Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22040886

Date: 5/10/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development/ 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

Note: Due to limited sample, the client sample CD-7 8-10 (lab ID: 22040886-009A) was prepared for Leachate Chloride, using 64.7 grams; less than the 100g of the soil (dry wt basis) required for preparation. The amount of the extraction fluid was proportionally reduced to yield a 1:4 sample to fluid ratio.



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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:10:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-001 **Matrix:** SOIL  
**Client Sample ID** CD-6 0-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	37.1	0.100		meq/100g	1	5/3/2022
LDNR 29-B LDNR 29-B Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.30	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
LDNR 29-B Analyst: <b>JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	5.20	0.10		%	1	5/3/2022
LDNR 29-B LDNR 29-B Analyst: <b>BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.29	0.10			1	4/26/2022
Soluble Calcium	0.37	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.28	0.05		meq/L	1	4/26/2022
Soluble Sodium	2.45	0.25		meq/L	1	4/26/2022
LDNR 29-B LDNR 29-B Analyst: <b>MRB</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	5/3/2022 9:14:29 AM
29B/SW7471A SW7471A Analyst: <b>BXB</b>						
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
SW9056A Analyst: <b>SGP</b>						
Chloride	7.75	1.05		mg/Kg-dry	5	4/26/2022 10:06:29 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.86	2.00		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Barium	263	0.999		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Chromium	12.8	0.999		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Lead	11.7	0.999		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Strontium	24.3	0.999		mg/Kg-dry	1	5/3/2022 10:52:53 AM
Zinc	19.6	0.999		mg/Kg-dry	1	5/3/2022 10:52:53 AM
SW6010B SW3050B Analyst: <b>MRB</b>						

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:10:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-001 **Matrix:** SOIL  
**Client Sample ID** CD-6 0-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	418	236		mg/Kg-dry	1	4/25/2022 3:06:57 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	19.0	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:20:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-002 **Matrix:** SOIL  
**Client Sample ID** CD-6 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	40.7	0.100		meq/100g	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.37	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	5.95	0.10		%	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	4.94	0.10			1	4/26/2022
Soluble Calcium	0.47	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.33	0.05		meq/L	1	4/26/2022
Soluble Sodium	3.12	0.25		meq/L	1	4/26/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.109	0.109		mg/Kg-dry	1	5/3/2022 9:24:25 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	18.9	2.27		mg/Kg-dry	10	4/26/2022 10:20:04 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.41	1.93		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Barium	262	0.966		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Cadmium	< 0.483	0.483		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Chromium	16.6	0.966		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Lead	12.0	0.966		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Strontium	50.4	0.966		mg/Kg-dry	1	5/3/2022 10:55:11 AM
Zinc	46.6	0.966		mg/Kg-dry	1	5/3/2022 10:55:11 AM

**Qualifiers:**

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
SDL	Sample detection limit
W	Sample container temperature is out of limit as specified at testcode

E	Value above quantitation range
M	Matrix Interference
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:20:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-002 **Matrix:** SOIL  
**Client Sample ID** CD-6 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	417	235		mg/Kg-dry	1	4/25/2022 3:09:15 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	17.4	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:30:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-003 **Matrix:** SOIL  
**Client Sample ID** CD-6 10-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	55.7	0.100		meq/100g	1	5/3/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.32	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	5.63	0.10		%	1	5/3/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.93	0.10			1	4/26/2022
Soluble Calcium	0.47	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.51	0.05		meq/L	1	4/26/2022
Soluble Sodium	2.74	0.25		meq/L	1	4/26/2022
<b>LDNR 29-B LDNR 29-B Analyst: MRB</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0928	0.0928		mg/Kg-dry	1	5/3/2022 9:26:43 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
<b>SW9056A Analyst: SGP</b>						
Chloride	31.1	1.63		mg/Kg-dry	5	4/26/2022 10:33:52 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
<b>SW6010B SW3050B Analyst: MRB</b>						
Arsenic	9.02	1.99		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Barium	229	0.995		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Cadmium	< 0.497	0.497		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Chromium	19.2	0.995		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Lead	14.3	0.995		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Strontium	55.8	0.995		mg/Kg-dry	1	5/3/2022 11:02:04 AM
Zinc	58.6	0.995		mg/Kg-dry	1	5/3/2022 11:02:04 AM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 2:30:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-003 **Matrix:** SOIL  
**Client Sample ID** CD-6 10-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	389	231		mg/Kg-dry	1	4/25/2022 3:11:32 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	21.7	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/12/2022 3:20:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-004 **Matrix:** SOIL  
**Client Sample ID** CD-6 28-30

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.73	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	26.2	1.25		mg/L	5	5/9/2022 6:53:12 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	23.1	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/13/2022 9:55:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-005 **Matrix:** SOIL  
**Client Sample ID** CD-6 52-54

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.62	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	10.1	1.25		mg/L	5	5/9/2022 7:06:59 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	20.6	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/13/2022 11:55:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-006 **Matrix:** SOIL  
**Client Sample ID** CD-6 76-78

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.51	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	17.4	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 9:45:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-007 **Matrix:** SOIL  
**Client Sample ID** CD-7 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	34.4	0.100		meq/100g	1	5/3/2022
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.98	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	12.0	0.10		%	1	5/3/2022
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	9.55	0.10			1	4/26/2022
Soluble Calcium	0.68	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.50	0.05		meq/L	1	4/26/2022
Soluble Sodium	7.32	0.25		meq/L	1	4/26/2022
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.106	0.106		mg/Kg-dry	1	5/3/2022 9:36:24 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	193	4.68		mg/Kg-dry	20	4/26/2022 11:29:04 AM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.02	1.99		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Barium	403	0.997		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Cadmium	< 0.499	0.499		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Chromium	10.8	0.997		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Lead	11.8	0.997		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Strontium	25.5	0.997		mg/Kg-dry	1	5/3/2022 11:11:14 AM
Zinc	19.5	0.997		mg/Kg-dry	1	5/3/2022 11:11:14 AM

Qualifiers:		
B	Analyte detected in the associated Method Blank	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL	Reporting Limit	S Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U Analyte not detected
W	Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 9:45:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-007 **Matrix:** SOIL  
**Client Sample ID** CD-7 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	417	228		mg/Kg-dry	1	4/25/2022 3:20:41 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	14.7	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 9:50:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-008 **Matrix:** SOIL  
**Client Sample ID** CD-7 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	35.7	0.100		meq/100g	1	5/2/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.06	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	11.5	0.10		%	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	11.0	0.10			1	4/26/2022
Soluble Calcium	0.71	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.57	0.05		meq/L	1	4/26/2022
Soluble Sodium	8.79	0.25		meq/L	1	4/26/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0979	0.0979		mg/Kg-dry	1	5/3/2022 9:38:41 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	252	5.16		mg/Kg-dry	20	4/26/2022 11:42:51 AM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.21	2.00		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Barium	296	0.999		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Chromium	11.2	0.999		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Lead	12.6	0.999		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Strontium	24.7	0.999		mg/Kg-dry	1	5/3/2022 11:13:31 AM
Zinc	23.4	0.999		mg/Kg-dry	1	5/3/2022 11:13:31 AM

Qualifiers:		
B	Analyte detected in the associated Method Blank	E Value above quantitation range
H	Holding times for preparation or analysis exceeded	M Matrix Interference
ND	Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL	Reporting Limit	S Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U Analyte not detected
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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 9:50:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-008 **Matrix:** SOIL  
**Client Sample ID** CD-7 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	388	249		mg/Kg-dry	1	4/25/2022 3:22:59 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	14.6	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 10:00:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-009 **Matrix:** SOIL  
**Client Sample ID** CD-7 8-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	42.8	0.100		meq/100g	1	5/2/2022
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.72	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	10.6	0.10		%	1	5/3/2022
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	7.72	0.10			1	4/26/2022
Soluble Calcium	0.53	0.02		meq/L	1	4/26/2022
Soluble Magnesium	0.57	0.05		meq/L	1	4/26/2022
Soluble Sodium	5.72	0.25		meq/L	1	4/26/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.0961	0.0961		mg/Kg-dry	1	5/3/2022 9:41:03 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	<b>LDNR 29-B</b> Analyst: <b>SGP</b>
Chloride	89.9	2.50		mg/L	10	4/29/2022 1:22:31 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	156	5.37		mg/Kg-dry	20	4/26/2022 11:56:39 AM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	5.51	2.00		mg/Kg-dry	1	5/3/2022 11:15:48 AM
Barium	226	0.999		mg/Kg-dry	1	5/3/2022 11:15:48 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 10:00:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-009 **Matrix:** SOIL  
**Client Sample ID** CD-7 8-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>MRB</b>
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/3/2022 11:15:48 AM
Chromium	14.2	0.999		mg/Kg-dry	1	5/3/2022 11:15:48 AM
Lead	15.5	0.999		mg/Kg-dry	1	5/3/2022 11:15:48 AM
Strontium	30.5	0.999		mg/Kg-dry	1	5/3/2022 11:15:48 AM
Zinc	40.2	0.999		mg/Kg-dry	1	5/3/2022 11:15:48 AM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	296	243		mg/Kg-dry	1	4/25/2022 3:25:16 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	19.9	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 10:45:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-010 **Matrix:** SOIL  
**Client Sample ID** CD-7 26-28

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.25	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		<b>LDNR 29-B</b> Analyst: <b>SGP</b>
Chloride	7.20	0.500		mg/L	2	4/29/2022 2:03:43 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	21.8	1.36		mg/Kg-dry	5	4/26/2022 12:10:27 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	23.4	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 11:30:00 AM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-011 **Matrix:** SOIL  
**Client Sample ID** CD-7 36-38

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.35	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		<b>LDNR 29-B</b> Analyst: <b>SGP</b>
Chloride	9.28	0.500		mg/L	2	4/29/2022 2:17:31 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	21.4	1.09		mg/Kg-dry	10	4/26/2022 12:51:49 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	22.7	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22040886

Date Reported: 5/10/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/19/2022 12:25:00 PM  
**Project:** Castex Development/ 9403-016-0100  
**Lab ID:** 22040886-012 **Matrix:** SOIL  
**Client Sample ID** CD-7 58-60

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.63	0.10		mmhos/cm	1	4/26/2022 9:50:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	28.5	1.70		mg/Kg-dry	10	4/26/2022 1:05:36 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	26.5	1.00		wt%	1	4/20/2022 11:30:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43472

Sample ID	<b>MB-43472</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/20/2022</b>	RunNo:	<b>109041</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43472</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2689292</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		< 250		250							

Sample ID	<b>LCS-43472</b>	SampType:	<b>LCS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/20/2022</b>	RunNo:	<b>109041</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43472</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2689293</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		4,940		250	5,000	0	98.8	75	125		

Sample ID	<b>LCSD-43472</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/20/2022</b>	RunNo:	<b>109041</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43472</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2689294</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		4,990		250	5,000	0	99.8	75	125	4,939	1.03 20

Sample ID	<b>22040654-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/20/2022</b>	RunNo:	<b>109041</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43472</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2689296</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		9,830		237	9,461	377.3	99.9	75	125		

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43472

Sample ID	<b>22040654-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/20/2022</b>	RunNo:	<b>109041</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43472</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2689297</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		8,830		242	9,690	377.3	87.2	75	125	9,829	10.7	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43493

Sample ID	<b>MB-43493</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694274</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		< 0.100		0.100							

Sample ID	<b>LCS-43493</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694275</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.981		0.100	0.8330	0	118	80	120		

Sample ID	<b>LCSD-43493</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694276</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.982		0.100	0.8330	0	118	80	120	0.9812	0.0378 20

Sample ID	<b>22040886-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>CD-6 0-4</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694279</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		1.04		0.109	0.9069	0.02718	111	75	125		

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43493

Sample ID	<b>22040886-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>		
Client ID:	<b>CD-6 0-4</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694280</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		1.05		0.109	0.9074	0.02718	112	75	125	1.037	0.775	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43527

Sample ID	<b>22040850-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109194</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43527</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2692837</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	0.66	0.10						0.70	5.88	20	
Soluble Calcium	3.23	0.02						3.29	1.70	20	
Soluble Magnesium	1.13	0.05						1.15	1.85	20	
Soluble Sodium	0.97	0.25						1.04	6.74	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43528

Sample ID	<b>22040886-007ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109194</b>
Client ID:	<b>CD-7 2-4</b>	Batch ID:	<b>43528</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2692850</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	9.67	0.10						9.55	1.24	20	
Soluble Calcium	0.68	0.02						0.68	0.86	20	
Soluble Magnesium	0.51	0.05						0.50	1.55	20	
Soluble Sodium	7.46	0.25						7.32	1.82	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43532

Sample ID <b>MB-43532</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/26/2022</b>	RunNo: <b>109276</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43532</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694645</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-43532</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>4/26/2022</b>	RunNo: <b>109276</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43532</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694646</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.6	2.00	50.00	0	93.1	80	120				
Barium	49.0	1.00	50.00	0	98.0	80	120				
Cadmium	47.3	0.500	50.00	0	94.6	80	120				
Chromium	49.1	1.00	50.00	0	98.2	80	120				
Lead	48.0	1.00	50.00	0	96.0	80	120				
Strontium	48.6	1.00	50.00	0	97.2	80	120				
Zinc	46.2	1.00	50.00	0	92.4	80	120				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43532

Sample ID	<b>LCSD-43532</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694647</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	2.00	50.00	0	95.4	80	120	46.56	2.43	20	
Barium	48.9	1.00	50.00	0	97.9	80	120	48.98	0.0674	20	
Cadmium	47.6	0.500	50.00	0	95.2	80	120	47.31	0.651	20	
Chromium	49.0	1.00	50.00	0	98.1	80	120	49.09	0.120	20	
Lead	48.2	1.00	50.00	0	96.4	80	120	47.98	0.408	20	
Strontium	48.5	1.00	50.00	0	97.1	80	120	48.62	0.173	20	
Zinc	46.3	1.00	50.00	0	92.6	80	120	46.21	0.171	20	

Sample ID	<b>22040886-003AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>CD-6 10-12</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694653</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	1.99	49.64	9.021	80.8	75	125				
Barium	273	0.993	49.64	229.0	88.4	75	125				
Cadmium	41.1	0.496	49.64	0.3482	82.1	75	125				
Chromium	64.0	0.993	49.64	19.17	90.2	75	125				
Lead	53.3	0.993	49.64	14.31	78.5	75	125				
Strontium	98.5	0.993	49.64	55.78	86.0	75	125				
Zinc	103	0.993	49.64	58.57	89.7	75	125				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43532

Sample ID	<b>22040886-003AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>CD-6 10-12</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694654</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	2.00	49.88	9.021	77.6	75	125	49.11	2.87	20	
Barium	267	0.998	49.88	229.0	76.6	75	125	272.9	2.10	20	
Cadmium	40.1	0.499	49.88	0.3482	79.8	75	125	41.08	2.33	20	
Chromium	68.1	0.998	49.88	19.17	98.1	75	125	63.97	6.27	20	
Lead	51.9	0.998	49.88	14.31	75.4	75	125	53.27	2.56	20	
Strontium	98.1	0.998	49.88	55.78	84.9	75	125	98.47	0.347	20	
Zinc	103	0.998	49.88	58.57	88.5	75	125	103.1	0.420	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43586

Sample ID	<b>22040850-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	%	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43586</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694020</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		0.84		0.10						0.93	10.2	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** 43587

Sample ID	<b>22040850-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43587</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2693981</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		25.1		0.100						25.50	1.46 20

Sample ID	<b>lcs-43587</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43587</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2693990</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		20.3		0.100	25.00	0	81.4	76	124		

Sample ID	<b>lcsd-43587</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43587</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2693991</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		20.1		0.100	25.00	0	80.6	76	124	20.34	0.988 20

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22040886**  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109056

Sample ID	<b>22040850-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109056</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109056</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/20/2022</b>	SeqNo:	<b>2689734</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		10.9		1.00						11.60	6.22	20	

Sample ID	<b>22040886-007ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109056</b>		
Client ID:	<b>CD-7 2-4</b>	Batch ID:	<b>R109056</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/20/2022</b>	SeqNo:	<b>2689750</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		15.2		1.00						14.70	3.34	20	

Sample ID	<b>22040996-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109056</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109056</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/22/2022</b>	SeqNo:	<b>2689767</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		26.1		1.00						26.10	0	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22040886**  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109062

Sample ID <b>MB-R109061</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109062</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R109062</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/26/2022</b>	SeqNo: <b>2689857</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID <b>LCS1-R109061</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109062</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109062</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/26/2022</b>	SeqNo: <b>2689858</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.55	0.10	0.50	0	109	90	110				

Sample ID <b>LCS2-R109061</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109062</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109062</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/26/2022</b>	SeqNo: <b>2689859</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	57.8	0.10	53.00	0	109	90	110				

Sample ID <b>22040886-007ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109062</b>						
Client ID: <b>CD-7 2-4</b>	Batch ID: <b>R109062</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/26/2022</b>	SeqNo: <b>2689867</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.97	0.10						0.98	0.41	20	

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109099

Sample ID	<b>mblk</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109099</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R109099</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2690732</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		< 0.250		0.250							

Sample ID	<b>ics</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109099</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>R109099</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2690733</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.86		0.250	10.00	0	98.6	80	120		

Sample ID	<b>icsd</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109099</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109099</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2690734</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.93		0.250	10.00	0	99.3	80	120	9.859	0.755 15

Sample ID	<b>22040898-001ams</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109099</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R109099</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2690751</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		1,910		45.6	911.0	962.4	104	80	120		

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109099

Sample ID	<b>22040898-001amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109099</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109099</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/26/2022</b>	SeqNo:	<b>2690752</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		1,910		45.6	911.0	962.4	104	80	120	1,905	0.267	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109496

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109496</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R109496</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2699833</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109496</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R109496</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2699835</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.31	0.250	10.00	0	93.1	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109496</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R109496</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2699838</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.24	0.250	10.00	0	92.4	80	120	9.310	0.730	15	

Sample ID <b>22050050-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109496</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R109496</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2699843</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,600	50.0	1,000	643.9	95.2	80	120				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22040886  
 10-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development/ 9403-016-0100

**BatchID:** R109496

Sample ID	<b>22050050-001amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109496</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109496</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/9/2022</b>	SeqNo:	<b>2699845</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		1,600		50.0	1,000	643.9	95.4	80	120	1,596	0.0763	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		

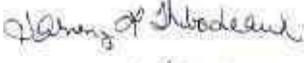
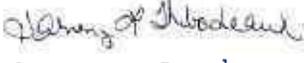


# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22040886**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>4/19/2022 6:07:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>4/20/2022 8:29:35 AM</b>	
Reviewed By:	<b>Cristina Thibeaux</b>	<b>5/2/2022 7:31:45 AM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Element

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------



# Chain of Custody

Laboratory Number: 2040886

Page 1 of 2

**Client Information:**  
 Company Name: ICON Environmental  
 Contact Name: Jason Sills  
 Address: 2019 Commercial Dr.  
 City, State Zip: Port Allen, LA 70767  
 Phone Number: 225.344.8490  
 Fax Number: 225.344.6654  
 E-mail Address: sills@iconenv.com

**Billing Information:**  
 Billing Information: SAME  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  
 Yes  
 No

**Project Name/Number:**  
Castex Development  
9403-016-0100

**Sampler's Signature:**  
Kate Ball

**Shipping Method:**  
UPS / FedEx / NOW  
DHL / Element / Hard / Mail

**Matrix Code:**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 O = Oil  
 SOL = Solid  
 SO = Soil  
 SW = Swab  
 F = Food  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> REC-AP/RISC	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Rush Turn Times (Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Type Quantity	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests			Comments	
			Date	Time				Matrix	90 Moisture	CEC/ESP/SFR		29 B Metals
CD-6	<input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	4.12.22	14:00	G	50						Metals As, Ba, Tl, Pb, Cd, Cr, Sr, Zn, Fls, Hg
CD-6			4.12.22	17:20	G	50						
CD-6			4.12.22	14:30	G	50						
CD-6			4.12.22	15:20	G	50						
CD-6			4.13.22	09:55	G	50						
CD-6			4.13.22	11:55	G	50						
CD-7			4.19.22	09:45	G	50						
CD-7			4.19.22	09:50	G	50						
CD-7			4.19.22	10:00	G	50						

**Relinquished by:** Kate Ball      **Date/Time:** 4.19.22/1807

**Received by:** J. Huberdeau      **Date/Time:** 4/19/22 1807

**Field Notes:**  
 Received at lab on ice?  
 Yes  No      Temp:

8800 North US 31  
 Columbus, IN  
 47201 USA  
 P 812-375-0531  
 F 812-375-0731

320 Ley Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580 USA  
 P 574-257-3305  
 F 574-269-6599

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46526 USA  
 P 574-277-0707  
 F 574-273-5899

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0483  
 F 337-233-6540

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.



# Chain of Custody

Laboratory Number: 22040886

Company Name: ICON      Billing Information: SAME      PO Number:      Project Name/Number: Castex Development      Page 2 of 2

Contact Name:      Address:      Quote Number:      Matrix Code: DW = Drinking Water  
9403-016-0100      WW = Waste Water  
GW = Ground Water      AD = Aqueous  
OT = Other      SL = Sludge      SOL = Solid  
O = Oil      SO = Soil  
F = Food      SW = Swab  
NG = Natural Gas  
NGL = Natural Gas Liquid  
PW = Produced Water  
CF = Completion Fluid

City, State Z.p:      Ext:      Bill Monthly:  Yes  No      Shipping Method: UPS / FedEx / NOW  
Phone Number:      E-mail Address:      DHL / Element / Hand / Mail

Sampler's Signature: Kate Bell

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Rush turn times (Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container Quantity Type P-Plastic G-Glass, V-Vial	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests	Comments	
			Date							Matrix
			Date	Time						
CD-7	26-28	4/19/22	10:45	G	SO	—	XX Leadate CI- XX Seibc. CI-	<u>Metals</u> <u>See pg 1</u>		
CD-7	36-38	4/19/22	11:30	G	SO	—	XX Leadate CI- XX Seibc. CI-			
CD-7	58-60	4/19/22	12:25	G	SO	—	XX Leadate CI- XX Seibc. CI-			

1	Relinquished by: <u>Kate Bell</u>	Date/Time: <u>4.19.22/1807</u>	Received by: <u>Dubocan</u>	Date/Time: <u>4/19/22 1807</u>	Field Notes:
2					Received at lab on ice? <input type="checkbox"/> Yes <input type="checkbox"/> No      Temp: _____
3					

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
Columbus, IN  
47201 USA  
P 812-375-0531  
F 812-375-0731

328 Ley Road, Suite 100  
Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

908 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-268-6569

3371 Cleveland Road, Suite 100A  
South Bend, IN  
46628 USA  
P 574-277-0707  
F 574-273-5699

2417 W. Pinhook Rd  
Lafayette, LA  
70506 USA  
P 337-235-0483  
F 337-323-6540



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

May 05, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development 9403-016-0100

Order No.: 22041046

Dear Greg Miller:

Element Materials Technology Lafayette received 6 sample(s) on 4/22/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22041046

Date: 5/5/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:10:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-001 **Matrix:** SOIL  
**Client Sample ID** CD-8 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	46.5	0.100		meq/100g	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.28	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.49	0.10		%	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	0.74	0.10			1	4/28/2022
Soluble Calcium	1.55	0.02		meq/L	1	4/28/2022
Soluble Magnesium	0.55	0.05		meq/L	1	4/28/2022
Soluble Sodium	0.76	0.25		meq/L	1	4/28/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0992	0.0992		mg/Kg-dry	1	5/3/2022 9:43:22 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	24.4	1.30		mg/Kg-dry	5	4/28/2022 12:31:21 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.30	1.99		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Barium	266	0.996		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Cadmium	< 0.498	0.498		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Chromium	14.0	0.996		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Lead	14.9	0.996		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Strontium	23.4	0.996		mg/Kg-dry	1	5/3/2022 11:18:05 AM
Zinc	19.2	0.996		mg/Kg-dry	1	5/3/2022 11:18:05 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:10:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-001 **Matrix:** SOIL  
**Client Sample ID** CD-8 2-4'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	351	248		mg/Kg-dry	1	4/27/2022 4:21:31 PM
<b>PERCENT MOISTURE</b>		<b>LDNR 29-B</b>			Analyst: <b>BXB</b>	
Percent Moisture	22.6	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:15:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-002 **Matrix:** SOIL  
**Client Sample ID** CD-8 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	44.0	0.100		meq/100g	1	5/3/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.43	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>LDNR 29-B Analyst: JMI</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.71	0.10		%	1	5/3/2022
<b>LDNR 29-B LDNR 29-B Analyst: BXB</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.03	0.10			1	4/28/2022
Soluble Calcium	2.10	0.02		meq/L	1	4/28/2022
Soluble Magnesium	0.65	0.05		meq/L	1	4/28/2022
Soluble Sodium	1.21	0.25		meq/L	1	4/28/2022
<b>LDNR 29-B LDNR 29-B Analyst: MRB</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.105	0.105		mg/Kg-dry	1	5/3/2022 9:45:40 AM
<b>29B/SW7471A SW7471A Analyst: BXB</b>						
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
<b>SW9056A Analyst: SGP</b>						
Chloride	63.6	2.29		mg/Kg-dry	10	4/28/2022 12:45:03 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	4.98	2.00		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Barium	527	0.998		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Cadmium	< 0.499	0.499		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Chromium	9.94	0.998		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Lead	12.5	0.998		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Strontium	25.5	0.998		mg/Kg-dry	1	5/3/2022 11:20:23 AM
Zinc	23.9	0.998		mg/Kg-dry	1	5/3/2022 11:20:23 AM
<b>SW6010B SW3050B Analyst: MRB</b>						

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:15:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-002 **Matrix:** SOIL  
**Client Sample ID** CD-8 4-6'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRB</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	544	234		mg/Kg-dry	1	4/27/2022 4:28:23 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	15.5	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:25:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-003 **Matrix:** SOIL  
**Client Sample ID** CD-8 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	30.9	0.100		meq/100g	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.27	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	0.90	0.10		%	1	5/3/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.08	0.10			1	4/28/2022
Soluble Calcium	1.25	0.02		meq/L	1	4/28/2022
Soluble Magnesium	0.52	0.05		meq/L	1	4/28/2022
Soluble Sodium	1.01	0.25		meq/L	1	4/28/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.104	0.104		mg/Kg-dry	1	5/3/2022 9:47:58 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	18.2	0.998		mg/Kg-dry	5	4/28/2022 12:58:50 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.79	1.99		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Barium	349	0.997		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Cadmium	< 0.499	0.499		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Chromium	10.3	0.997		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Lead	7.64	0.997		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Strontium	24.4	0.997		mg/Kg-dry	1	5/3/2022 11:22:41 AM
Zinc	37.3	0.997		mg/Kg-dry	1	5/3/2022 11:22:41 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:25:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-003 **Matrix:** SOIL  
**Client Sample ID** CD-8 8-10'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>MRB</b>
True Total Barium	435	238		mg/Kg-dry	1	4/27/2022 4:35:15 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	16.2	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 8:50:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-004 **Matrix:** SOIL  
**Client Sample ID** CD-8 18-20'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.23	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3.81	0.500		mg/L	2	5/3/2022 11:41:20 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	9.03	1.44		mg/Kg-dry	5	4/28/2022 1:40:13 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	25.2	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 10:45:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-005 **Matrix:** SOIL  
**Client Sample ID** CD-8 48-50'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.53	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	12.6	1.25		mg/L	5	5/3/2022 11:54:55 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	16.5	1.49		mg/Kg-dry	10	4/28/2022 1:54:00 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>BXB</b>
Percent Moisture	25.3	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22041046

Date Reported: 5/5/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/21/2022 1:30:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22041046-006 **Matrix:** SOIL  
**Client Sample ID** CD-8 62-64'

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	0.57	0.10		mmhos/cm	1	4/28/2022 9:30:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	40.0	1.79		mg/Kg-dry	10	4/28/2022 2:07:47 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>BXB</b>
Percent Moisture	25.0	1.00		wt%	1	4/25/2022 6:45:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43493

Sample ID	<b>MB-43493</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694274</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		< 0.100		0.100							

Sample ID	<b>LCS-43493</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694275</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.981		0.100	0.8330	0	118	80	120		

Sample ID	<b>LCSD-43493</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694276</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.982		0.100	0.8330	0	118	80	120	0.9812	0.0378 20

Sample ID	<b>22040886-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694279</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		1.04		0.109	0.9069	0.02718	111	75	125		

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43493

Sample ID	<b>22040886-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109255</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43493</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694280</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		1.05		0.109	0.9074	0.02718	112	75	125	1.037	0.775 20

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43526

Sample ID	<b>MB-43526</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109140</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43526</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/27/2022</b>	SeqNo:	<b>2691582</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		< 250		250							

Sample ID	<b>LCS-43526</b>	SampType:	<b>LCS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109140</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43526</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/27/2022</b>	SeqNo:	<b>2691584</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		5,590		250	5,000	0	112	75	125		

Sample ID	<b>LCSD-43526</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109140</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43526</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/27/2022</b>	SeqNo:	<b>2691586</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		5,610		250	5,000	0	112	75	125	5,588	0.380 20

Sample ID	<b>22041046-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109140</b>
Client ID:	<b>CD-8 2-4'</b>	Batch ID:	<b>43526</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/27/2022</b>	SeqNo:	<b>2691590</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		3,990		232	4,634	350.9	78.5	75	125		

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43526

Sample ID	<b>22041046-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109140</b>		
Client ID:	<b>CD-8 2-4'</b>	Batch ID:	<b>43526</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/27/2022</b>	SeqNo:	<b>2691592</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		5,450		239	4,771	350.9	107	75	125	3,989	31.0	20	R

**NOTES:**  
 R - MS/MSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both MS/MSD. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43532

Sample ID	<b>MB-43532</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694645</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic		< 2.00		2.00							
Barium		< 1.00		1.00							
Cadmium		< 0.500		0.500							
Chromium		< 1.00		1.00							
Lead		< 1.00		1.00							
Strontium		< 1.00		1.00							
Zinc		< 1.00		1.00							

Sample ID	<b>LCS-43532</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>	<b>SW3050B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694646</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Arsenic		46.6		2.00	50.00	0	93.1	80	120		
Barium		49.0		1.00	50.00	0	98.0	80	120		
Cadmium		47.3		0.500	50.00	0	94.6	80	120		
Chromium		49.1		1.00	50.00	0	98.2	80	120		
Lead		48.0		1.00	50.00	0	96.0	80	120		
Strontium		48.6		1.00	50.00	0	97.2	80	120		
Zinc		46.2		1.00	50.00	0	92.4	80	120		

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43532

Sample ID	<b>LCSD-43532</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694647</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	2.00	50.00	0	95.4	80	120	46.56	2.43	20	
Barium	48.9	1.00	50.00	0	97.9	80	120	48.98	0.0674	20	
Cadmium	47.6	0.500	50.00	0	95.2	80	120	47.31	0.651	20	
Chromium	49.0	1.00	50.00	0	98.1	80	120	49.09	0.120	20	
Lead	48.2	1.00	50.00	0	96.4	80	120	47.98	0.408	20	
Strontium	48.5	1.00	50.00	0	97.1	80	120	48.62	0.173	20	
Zinc	46.3	1.00	50.00	0	92.6	80	120	46.21	0.171	20	

Sample ID	<b>22040886-003AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694653</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	1.99	49.64	9.021	80.8	75	125				
Barium	273	0.993	49.64	229.0	88.4	75	125				
Cadmium	41.1	0.496	49.64	0.3482	82.1	75	125				
Chromium	64.0	0.993	49.64	19.17	90.2	75	125				
Lead	53.3	0.993	49.64	14.31	78.5	75	125				
Strontium	98.5	0.993	49.64	55.78	86.0	75	125				
Zinc	103	0.993	49.64	58.57	89.7	75	125				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43532

Sample ID	<b>22040886-003AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>4/26/2022</b>	RunNo:	<b>109276</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43532</b>	TestNo:	<b>SW6010B</b>		<b>SW3050B</b>	Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694654</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.7	2.00	49.88	9.021	77.6	75	125	49.11	2.87	20	
Barium	267	0.998	49.88	229.0	76.6	75	125	272.9	2.10	20	
Cadmium	40.1	0.499	49.88	0.3482	79.8	75	125	41.08	2.33	20	
Chromium	68.1	0.998	49.88	19.17	98.1	75	125	63.97	6.27	20	
Lead	51.9	0.998	49.88	14.31	75.4	75	125	53.27	2.56	20	
Strontium	98.1	0.998	49.88	55.78	84.9	75	125	98.47	0.347	20	
Zinc	103	0.998	49.88	58.57	88.5	75	125	103.1	0.420	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43558

Sample ID	<b>22040996-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>4/27/2022</b>	RunNo:	<b>109189</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43558</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2692695</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	1.00	0.10						1.00	0.08	20	
Soluble Calcium	19.3	0.02						19.00	1.76	20	
Soluble Magnesium	7.93	0.05						7.82	1.40	20	
Soluble Sodium	3.70	0.25						3.67	0.91	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43588

Sample ID	<b>22040996-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	%	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43588</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694043</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Exchangeable Sodium %		0.81		0.10						0.82	1.23 20

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 43589

Sample ID	<b>22040996-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43589</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694006</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		59.7		0.100						59.65	0.0168 20

Sample ID	<b>lcs-43589</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43589</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694014</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		20.8		0.100	25.00	0	83.2	76	124		

Sample ID	<b>lcsd-43589</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/2/2022</b>	RunNo:	<b>109248</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43589</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694015</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		20.7		0.100	25.00	0	82.9	76	124	20.81	0.433 20

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109093

Sample ID	<b>22041046-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST_29B</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109093</b>		
Client ID:	<b>CD-8 2-4'</b>	Batch ID:	<b>R109093</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>4/25/2022</b>	SeqNo:	<b>2690668</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		21.4		1.00						22.60	5.45	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109145

Sample ID <b>MB-R109098</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109145</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R109145</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/28/2022</b>	SeqNo: <b>2691684</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID <b>LCS1-R109098</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109145</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109145</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/28/2022</b>	SeqNo: <b>2691685</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.48	0.10	0.50	0	95.0	90	110				

Sample ID <b>LCS2-R109098</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109145</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109145</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/28/2022</b>	SeqNo: <b>2691686</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	52.5	0.10	53.00	0	99.1	90	110				

Sample ID <b>22040996-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109145</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109145</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>4/28/2022</b>	SeqNo: <b>2691691</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	2.50	0.10						2.50	0.04	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109258

Sample ID	<b>mblk</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109258</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R109258</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2694348</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		< 0.250		0.250							

Sample ID	<b>ics</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109258</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>R109258</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2694349</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.91		0.250	10.00	0	99.1	80	120		

Sample ID	<b>icsd</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109258</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109258</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2694350</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		9.91		0.250	10.00	0	99.1	80	120	9.908	0.00346 15

Sample ID	<b>22041214-001dms</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109258</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R109258</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2694367</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		1,160		25.0	500.0	652.6	101	80	120		

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109258

Sample ID	<b>22041214-001dmsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109258</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109258</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>4/28/2022</b>	SeqNo:	<b>2694368</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		1,190		25.0	500.0	652.6	107	80	120	1,156	2.53	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109289

Sample ID	<b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109289</b>					
Client ID:	<b>PBW</b>	Batch ID: <b>R109289</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694908</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID	<b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109289</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>R109289</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694909</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.95	0.250	10.00	0	99.5	80	120				

Sample ID	<b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109289</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>R109289</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694910</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.95	0.250	10.00	0	99.5	80	120	9.953	0.0493	15	

Sample ID	<b>22041310-004ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109289</b>					
Client ID:	<b>ZZZZZ</b>	Batch ID: <b>R109289</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/3/2022</b>	SeqNo: <b>2694919</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	112,000	1,250	25,000	86,180	102	80	120				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22041046  
 05-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R109289

Sample ID	<b>22041310-004amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109289</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109289</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/3/2022</b>	SeqNo:	<b>2694920</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		112,000		1,250	25,000	86,180	103	80	120	111,800	0.0886	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22041046**

RcptNo: 1

Logged by: **Rhonda David** 4/22/2022 4:21:00 PM

Completed By: **Rhonda David** 4/22/2022 4:49:15 PM

Reviewed By: **Cristina Thibeaux** 5/2/2022 7:58:33 AM

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
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May 19, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22050185

Dear Greg Miller:

Element Materials Technology Lafayette received 9 sample(s) on 5/4/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
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Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22050185

Date: 5/19/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/26/2022 8:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-001 **Matrix:** SOIL  
**Client Sample ID** CD-5 72-74

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Electrical Conductivity	3.16	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	782	12.4		mg/Kg-dry	50	5/9/2022 3:12:09 PM
<b>PERCENT MOISTURE</b>					<b>SM2540G</b>	Analyst: <b>BXB</b>
Percent Moisture	25.2	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/26/2022 9:40:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-002 **Matrix:** SOIL  
**Client Sample ID** CD-5 88-90

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.68	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	5.10	1.25		mg/L	5	5/16/2022 1:22:25 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	20.7	2.04		mg/Kg-dry	10	5/9/2022 3:25:57 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	25.8	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/26/2022 10:35:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-003 **Matrix:** SOIL  
**Client Sample ID** CD-5 94-96

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.61	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	15.5	1.97		mg/Kg-dry	10	5/9/2022 3:39:44 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	25.5	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 2:55:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-004 **Matrix:** SOIL  
**Client Sample ID** CD-9 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						Analyst: <b>BXB</b>
Cation Exchange Capacity	30.3	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b>						Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.33	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>29B SALTS</b>						Analyst: <b>BXB</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.41	0.10		%	1	5/17/2022
<b>29B SALTS</b>						Analyst: <b>MRB</b>
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.00	0.10			1	5/10/2022
Soluble Calcium	0.73	0.02		meq/L	1	5/10/2022
Soluble Magnesium	0.43	0.05		meq/L	1	5/10/2022
Soluble Sodium	2.29	0.25		meq/L	1	5/10/2022
<b>29B METALS</b>						Analyst: <b>BXB</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0992	0.0992		mg/Kg-dry	1	5/19/2022 10:41:26 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						Analyst: <b>SGP</b>
Chloride	7.99	1.14		mg/Kg-dry	5	5/9/2022 3:54:00 PM
<b>29B METALS</b>						Analyst: <b>MRB</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.63	1.91		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Barium	257	0.955		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Cadmium	< 0.477	0.477		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Chromium	10.5	0.955		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Lead	10.2	0.955		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Strontium	21.4	0.955		mg/Kg-dry	1	5/12/2022 10:50:08 AM
Zinc	16.5	0.955		mg/Kg-dry	1	5/12/2022 10:50:08 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 2:55:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-004 **Matrix:** SOIL  
**Client Sample ID** CD-9 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	590	235		mg/Kg-dry	1	5/11/2022 3:19:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	17.2	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 3:05:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-005 **Matrix:** SOIL  
**Client Sample ID** CD-9 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>CATION EXCHANGE CAPACITY</b>						Analyst: <b>BXB</b>
Cation Exchange Capacity	24.0	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.16	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						Analyst: <b>BXB</b>
Exchangeable Sodium %	2.99	0.10		%	1	5/17/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>SODIUM ADSORPTION RATIO</b>						Analyst: <b>MRB</b>
Sodium Adsorption Ratio	2.32	0.10			1	5/10/2022
Soluble Calcium	0.26	0.02		meq/L	1	5/10/2022
Soluble Magnesium	0.20	0.05		meq/L	1	5/10/2022
Soluble Sodium	1.11	0.25		meq/L	1	5/10/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						Analyst: <b>BXB</b>
Mercury	< 0.100	0.100		mg/Kg-dry	1	5/19/2022 10:56:23 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	14.8	0.904		mg/Kg-dry	5	5/9/2022 4:07:40 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>MRB</b>
Arsenic	3.19	2.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Barium	187	1.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Chromium	10.0	1.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Lead	8.09	1.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Strontium	20.8	1.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM
Zinc	16.8	1.00		mg/Kg-dry	1	5/12/2022 10:57:02 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 3:05:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-005 **Matrix:** SOIL  
**Client Sample ID** CD-9 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	481	234		mg/Kg-dry	1	5/11/2022 3:26:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	91.7	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 3:15:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-006 **Matrix:** SOIL  
**Client Sample ID** CD-9 10-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	29.5	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.29	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	1.94	0.10		%	1	5/17/2022
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	2.32	0.10			1	5/10/2022
Soluble Calcium	0.55	0.02		meq/L	1	5/10/2022
Soluble Magnesium	0.40	0.05		meq/L	1	5/10/2022
Soluble Sodium	1.60	0.25		meq/L	1	5/10/2022
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0988	0.0988		mg/Kg-dry	1	5/19/2022 10:58:41 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	34.6	0.919		mg/Kg-dry	5	5/9/2022 4:21:28 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	6.86	1.99		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Barium	260	0.996		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Cadmium	< 0.498	0.498		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Chromium	11.9	0.996		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Lead	8.55	0.996		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Strontium	28.3	0.996		mg/Kg-dry	1	5/12/2022 10:59:19 AM
Zinc	33.5	0.996		mg/Kg-dry	1	5/12/2022 10:59:19 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 3:15:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-006 **Matrix:** SOIL  
**Client Sample ID** CD-9 10-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>MRB</b>
True Total Barium	389	230		mg/Kg-dry	1	5/11/2022 3:33:00 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>BXB</b>
Percent Moisture	14.9	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/27/2022 3:45:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-007 **Matrix:** SOIL  
**Client Sample ID** CD-9 22-24

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.26	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3.23	0.500		mg/L	2	5/16/2022 2:03:39 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	14.3	1.01		mg/Kg-dry	5	5/9/2022 5:02:51 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	26.4	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/28/2022 8:55:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-008 **Matrix:** SOIL  
**Client Sample ID** CD-9 56-58

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.61	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	9.41	1.25		mg/L	5	5/16/2022 2:17:26 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	38.7	2.30		mg/Kg-dry	10	5/9/2022 5:16:39 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	30.8	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050185

Date Reported: 5/19/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 4/28/2022 9:00:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050185-009 **Matrix:** SOIL  
**Client Sample ID** CD-9 58-60

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Electrical Conductivity	0.49	0.10		mmhos/cm	1	5/9/2022 11:15:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	22.2	1.31		mg/Kg-dry	10	5/9/2022 5:30:26 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	23.3	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43677

Sample ID <b>MB-43677</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702271</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-43677</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702274</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.5	2.00	50.00	0	93.0	80	120				
Barium	48.0	1.00	50.00	0	96.0	80	120				
Cadmium	46.7	0.500	50.00	0	93.4	80	120				
Chromium	48.0	1.00	50.00	0	96.0	80	120				
Lead	47.4	1.00	50.00	0	94.9	80	120				
Strontium	47.7	1.00	50.00	0	95.5	80	120				
Zinc	45.5	1.00	50.00	0	91.1	80	120				

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43677

Sample ID	<b>22050185-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>					
Client ID:	<b>CD-9 2-4</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702277</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.6	1.95	48.75	3.630	84.0	75	125				
Barium	350	0.975	48.75	256.7	192	75	125				S
Cadmium	41.2	0.487	48.75	0.01241	84.5	75	125				
Chromium	61.5	0.975	48.75	10.51	105	75	125				
Lead	52.5	0.975	48.75	10.16	86.8	75	125				
Strontium	68.2	0.975	48.75	21.38	96.1	75	125				
Zinc	69.0	0.975	48.75	16.54	108	75	125				

Sample ID	<b>22050185-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>					
Client ID:	<b>CD-9 2-4</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702278</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	42.7	1.99	49.75	3.630	78.6	75	125	44.56	4.18	20	
Barium	340	0.995	49.75	256.7	167	75	125	350.4	3.10	20	S
Cadmium	40.2	0.497	49.75	0.01241	80.8	75	125	41.22	2.42	20	
Chromium	59.0	0.995	49.75	10.51	97.5	75	125	61.48	4.06	20	
Lead	50.7	0.995	49.75	10.16	81.5	75	125	52.48	3.50	20	
Strontium	66.3	0.995	49.75	21.38	90.2	75	125	68.24	2.96	20	
Zinc	66.2	0.995	49.75	16.54	99.8	75	125	68.98	4.14	20	

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

**Qualifiers:**

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- S Spike Recovery outside accepted recovery limits
- W Sample container temperature is out of limit as specified at testcode

- H Holding times for preparation or analysis exceeded
- R RPD outside accepted recovery limits
- SDL Sample detection limit

- M Matrix Interference
- RL Reporting Limit
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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43682

Sample ID	<b>MB-43682</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701722</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		< 250		250							

Sample ID	<b>LCS-43682</b>	SampType:	<b>LCS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701723</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		5,370		250	5,000	0	107	75	125		

Sample ID	<b>LCSD-43682</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701724</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		4,550		250	5,000	0	90.9	75	125	5,371	16.7 20

Sample ID	<b>22050185-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>
Client ID:	<b>CD-9 2-4</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701728</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
True Total Barium		4,610		234	4,673	590.1	86.0	75	125		

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
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H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43682

Sample ID	<b>22050185-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>		
Client ID:	<b>CD-9 2-4</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701729</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		5,440		231	4,617	590.1	105	75	125	4,607	16.6	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43697

Sample ID	<b>MB-43697</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708201</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		< 0.100		0.100							

Sample ID	<b>LCS-43697</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708202</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.900		0.100	0.8330	0	108	80	120		

Sample ID	<b>LCSD-43697</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708203</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.913		0.100	0.8330	0	110	80	120	0.9003	1.43 20

Sample ID	<b>22050185-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>CD-9 2-4</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708208</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.900		0.0979	0.8156	0.02105	108	75	125		

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
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H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43697

Sample ID	<b>22050185-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>CD-9 2-4</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708209</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.932		0.0993	0.8269	0.02105	110	75	125	0.8997	3.57 20

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43698

Sample ID	<b>22050051-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109546</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43698</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/10/2022</b>	SeqNo:	<b>2701260</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	2.59	0.10						2.56	1.11	20	
Soluble Calcium	1.85	0.02						1.84	0.51	20	
Soluble Magnesium	2.68	0.05						2.66	0.77	20	
Soluble Sodium	3.90	0.25						3.84	1.44	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43760

Sample ID	<b>22050127-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	%	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43760</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704611</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		7.49		0.10						5.71	27.0	20	R

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43761

Sample ID	<b>ics-43761</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109750</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706379</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.6		0.100	25.00	0	86.4	76	124		

Sample ID	<b>icsd-43761</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109750</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706380</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.100	25.00	0	87.9	76	124	21.60	1.74 20

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: **22050185**  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43761

Sample ID	<b>lcs-43761</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704569</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.6		0.100	25.00	0	86.4	76	124		

Sample ID	<b>lcsd-43761</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704570</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.100	25.00	0	87.9	76	124	21.60	1.74 20

Sample ID	<b>22050127-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704588</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		29.3		0.100						28.98	1.17 20

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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 Lafayette, LA 70508-3344  
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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109436

Sample ID <b>MB-R109431</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109436</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R109436</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2698345</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID <b>LCS1-R109431</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109436</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109436</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2698346</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.54	0.10	0.50	0	106	90	110				

Sample ID <b>LCS2-R109431</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109436</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109436</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2698347</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	56.7	0.10	53.00	0	107	90	110				

Sample ID <b>22050051-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>109436</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R109436</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2698357</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.90	0.10						0.90	0.11	20	

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109547

Sample ID	<b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>109547</b>
Client ID:	<b>PBS</b>	Batch ID: <b>R109547</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2701281</b>
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride		< 0.250	0.250			

Sample ID	<b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>109547</b>
Client ID:	<b>LCSS</b>	Batch ID: <b>R109547</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2701282</b>
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride		9.31	0.250	10.00	0	93.1 80 120

Sample ID	<b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>109547</b>
Client ID:	<b>LCSS02</b>	Batch ID: <b>R109547</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2701283</b>
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride		9.24	0.250	10.00	0	92.4 80 120 9.310 0.730 15

Sample ID	<b>22050050-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>109547</b>
Client ID:	<b>ZZZZZ</b>	Batch ID: <b>R109547</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/9/2022</b>	SeqNo: <b>2701285</b>
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride		2,230	70.0	1,400	901.4	95.2 80 120

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109547

Sample ID	22050050-001amsd	SampType:	MSD	TestCode:	9056_S	Units:	mg/Kg-dry	Prep Date:		RunNo:	109547		
Client ID:	ZZZZZZ	Batch ID:	R109547	TestNo:	SW9056A			Analysis Date:	5/9/2022	SeqNo:	2701286		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		2,240		70.0	1,400	901.4	95.4	80	120	2,235	0.0763	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **22050185**  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109710

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704947</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704948</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704949</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120	10.17	0.0369	15	

Sample ID <b>22050565-001ems</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704958</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	147	5.00	100.0	53.51	93.1	80	120				

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109710

Sample ID	22050565-001emsd	SampType:	MSD	TestCode:	9056_LEACH	Units:	mg/L	Prep Date:		RunNo:	109710		
Client ID:	ZZZZZZ	Batch ID:	R109710	TestNo:	SW9056A			Analysis Date:	5/16/2022	SeqNo:	2704959		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		151		5.00	100.0	53.51	97.8	80	120	146.6	3.13	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050185  
 19-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109749

Sample ID	<b>22050185-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109749</b>
Client ID:	<b>CD-5 72-74</b>	Batch ID:	<b>R109749</b>	TestNo:	<b>SM2540G</b>			Analysis Date:	<b>5/18/2022</b>	SeqNo:	<b>2706353</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Percent Moisture		25.0		1.00						25.20	0.80 20

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				

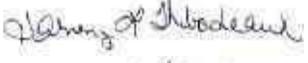
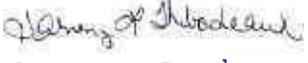


# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22050185**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>5/4/2022 5:50:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>5/5/2022 6:28:37 AM</b>	
Reviewed By:	<b>Cristina Thibeaux</b>	<b>5/10/2022 2:12:33 PM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------



# Chain of Custody

## Chain of Custody

Laboratory Number: **22050185**

Client Information: **ICON Environmental**  
 Billing Information: **ICON Environmental**  
 PO Number: **9403-014-0100**  
 Project Name/Number: **Castex Development**  
 Quote Number: **9403-014-0100**  
 Required QC Level: **Standard**  
 Bill Monthly:  Yes  No  
 Shipping Method: **UPS / FedEx / NOW**  
 DHL / Element / Hand / Mail: **Hand / Mail**

Company Name: **ICON Environmental**  
 Contact Name: **Jasmin Sills**  
 Address: **2019 Commercial Drive**  
 City, State Zip: **Port Allen, LA 70767**  
 Phone Number: **225.341.9496** Ext: **Ext:**  
 Fax Number: **225.341.6454**  
 E-mail Address: **jsills@iconenv.com**

Which Regulations Apply:  
 RCRA  Drinking Water  
 POTW  Distribution  
 NPDES  Special  
 USDA/FDA  State  
 RECAP/RISC  Other

Turn Time:  Standard  RUSH  
 1 Day  2 Day  Other

Rush turn times will incur a surcharge and must be pre-approved by lab.

Matrix: **50**  
 Matrix: **50**

Sample ID/Description	Collection Information		Rush turn times will incur a surcharge and must be pre-approved by lab.	Container Type	Pres.	Requested Tests	Comments
	Date	Time					
CD-5 72-74'	4.26.22	0805	G	P	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Leachate CI- 29 B Metals CEC/ESP/SAR	Metals As, Ba, Tl, Br, Cd, Cr, Sr, Zn, Pb, Hg
CD-5 88-90'	4.26.22	0940	G	P			
CD-5 94-96'	4.26.22	1035	G	P			
CD-9 2-4'	4.27.22	1455	G	P			
CD-9 6-8'	4.27.22	1505	G	P			
CD-9 10-12'	4.27.22	1515	G	P			
CD-9 22-24'	4.27.22	1545	G	P			
CD-9 56-58'	4.28.22	0855	G	P			
CD-9 58-60'	4.28.22	0900	G	P			

Relinquished by: **Kathleen** Date/Time: **4.28.22 1750**  
 Received by: **Dubodan** Date/Time: **4.28.22 1750**  
 Field Notes: **Received at lab on ice?**  
 Yes  No Temp:

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8600 North US 31  
 Columbus, IN 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Ley Road, Suite 100  
 Fort Wayne, IN 46825 USA  
 P 260-471-7000  
 F 260-471-7777

900 Executive Dr  
 Warsaw, IN 46580 USA  
 P 574-287-3305  
 F 574-286-6551

3371 Cleveland Road, Suite 100A  
 South Bend, IN 46628 USA  
 P 574-277-0707  
 F 574-273-5699

2417 W. Finhook Rd  
 Lafayette, LA 70508 USA  
 P 337-235-0483  
 F 337-233-6540



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Lafayette, LA 70508-3344  
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May 26, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22050186

Dear Greg Miller:

Element Materials Technology Lafayette received 12 sample(s) on 5/4/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



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## Case Narrative

WO#: 22050186

Date: 5/26/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/2/2022 3:05:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-001 **Matrix:** SOIL  
**Client Sample ID** CD-11 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>CATION EXCHANGE CAPACITY</b>						Analyst: <b>BXB</b>
Cation Exchange Capacity	34.7	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.85	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						Analyst: <b>BXB</b>
Exchangeable Sodium %	2.78	0.10		%	1	5/17/2022
<b>29B SALTS</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>
<b>SODIUM ADSORPTION RATIO</b>						Analyst: <b>MRB</b>
Sodium Adsorption Ratio	6.07	0.10			1	5/12/2022
Soluble Calcium	0.90	0.02		meq/L	1	5/12/2022
Soluble Magnesium	0.63	0.05		meq/L	1	5/12/2022
Soluble Sodium	5.30	0.25		meq/L	1	5/12/2022
<b>29B METALS</b>					<b>29B/SW7471A</b>	<b>SW7471A</b>
<b>MERCURY IN SOIL OR SLUDGE</b>						Analyst: <b>BXB</b>
Mercury	< 0.101	0.101		mg/Kg-dry	1	5/19/2022 11:00:59 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	125	4.42		mg/Kg-dry	20	5/16/2022 8:02:03 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>MRB</b>
Arsenic	2.54	2.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Barium	185	1.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Chromium	14.6	1.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Lead	13.0	1.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Strontium	17.7	1.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM
Zinc	16.9	1.00		mg/Kg-dry	1	5/12/2022 11:01:36 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/2/2022 3:05:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-001 **Matrix:** SOIL  
**Client Sample ID** CD-11 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	265	242		mg/Kg-dry	1	5/11/2022 3:35:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	15.8	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/2/2022 3:10:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-002 **Matrix:** SOIL  
**Client Sample ID** CD-11 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b> <b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	35.9	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b> <b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	0.96	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS</b> <b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	7.00	0.10		%	1	5/17/2022
<b>29B SALTS</b> <b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	7.92	0.10			1	5/12/2022
Soluble Calcium	0.74	0.02		meq/L	1	5/12/2022
Soluble Magnesium	0.54	0.05		meq/L	1	5/12/2022
Soluble Sodium	6.35	0.25		meq/L	1	5/12/2022
<b>29B METALS</b> <b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.101	0.101		mg/Kg-dry	1	5/19/2022 11:03:18 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	208	5.16		mg/Kg-dry	20	5/16/2022 8:15:50 PM
<b>29B METALS</b> <b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	3.19	1.99		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Barium	260	0.993		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Cadmium	< 0.497	0.497		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Chromium	13.5	0.993		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Lead	12.4	0.993		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Strontium	23.7	0.993		mg/Kg-dry	1	5/12/2022 11:03:54 AM
Zinc	19.9	0.993		mg/Kg-dry	1	5/12/2022 11:03:54 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/2/2022 3:10:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-002 **Matrix:** SOIL  
**Client Sample ID** CD-11 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	467	230		mg/Kg-dry	1	5/11/2022 3:38:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	13.4	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-003  
**Client Sample ID** CD-11 10-12

**Collection Date:** 5/2/2022 3:25:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	46.1	0.100		meq/100g	1	5/17/2022
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	0.84	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	5.91	0.10		%	1	5/17/2022
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	6.05	0.10			1	5/12/2022
Soluble Calcium	0.92	0.02		meq/L	1	5/12/2022
Soluble Magnesium	0.63	0.05		meq/L	1	5/12/2022
Soluble Sodium	5.32	0.25		meq/L	1	5/12/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.0997	0.0997		mg/Kg-dry	1	5/19/2022 11:05:36 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	181	6.50		mg/Kg-dry	20	5/16/2022 8:29:38 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	6.51	2.01		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Barium	304	1.00		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Cadmium	< 0.502	0.502		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Chromium	24.5	1.00		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Lead	15.5	1.00		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Strontium	61.9	1.00		mg/Kg-dry	1	5/12/2022 11:06:11 AM
Zinc	61.1	1.00		mg/Kg-dry	1	5/12/2022 11:06:11 AM

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 M Matrix Interference  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits  
 U Analyte not detected

H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Limit  
 SDL Sample detection limit  
 W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/2/2022 3:25:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-003 **Matrix:** SOIL  
**Client Sample ID** CD-11 10-12

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	694	238		mg/Kg-dry	1	5/11/2022 3:40:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	21.8	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-004  
**Client Sample ID** CD-11 28-30

**Collection Date:** 5/2/2022 4:35:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	1.08	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	21.0	1.25		mg/L	5	5/16/2022 1:36:03 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	110	3.05		mg/Kg-dry	20	5/16/2022 8:43:26 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	21.7	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/3/2022 10:10:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-005 **Matrix:** SOIL  
**Client Sample ID** CD-11 58-60

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	0.74	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	9.72	1.25		mg/L	5	5/16/2022 1:49:51 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	47.5	4.49		mg/Kg-dry	20	5/16/2022 8:57:13 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	34.9	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/3/2022 10:55:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-006 **Matrix:** SOIL  
**Client Sample ID** CD-11 64-66

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	0.78	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	53.9	3.41		mg/Kg-dry	20	5/16/2022 9:11:00 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	25.1	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 10:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-007 **Matrix:** SOIL  
**Client Sample ID** CD-10 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	26.2	0.100		meq/100g	1	5/17/2022
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	0.33	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	1.88	0.10		%	1	5/17/2022
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	2.97	0.10			1	5/12/2022
Soluble Calcium	0.67	0.02		meq/L	1	5/12/2022
Soluble Magnesium	0.39	0.05		meq/L	1	5/12/2022
Soluble Sodium	2.17	0.25		meq/L	1	5/12/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.101	0.101		mg/Kg-dry	1	5/19/2022 11:07:54 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	10.8	0.909		mg/Kg-dry	5	5/16/2022 9:24:48 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	3.77	2.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Barium	240	1.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Chromium	12.2	1.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Lead	16.3	1.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Strontium	13.5	1.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM
Zinc	15.8	1.00		mg/Kg-dry	1	5/12/2022 11:13:04 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 10:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-007 **Matrix:** SOIL  
**Client Sample ID** CD-10 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	305	229		mg/Kg-dry	1	5/11/2022 3:42:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	12.6	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 10:20:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-008 **Matrix:** SOIL  
**Client Sample ID** CD-10 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	28.1	0.100		meq/100g	1	5/17/2022
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.39	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	2.96	0.10		%	1	5/17/2022
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.16	0.10			1	5/12/2022
Soluble Calcium	0.70	0.02		meq/L	1	5/12/2022
Soluble Magnesium	0.42	0.05		meq/L	1	5/12/2022
Soluble Sodium	2.37	0.25		meq/L	1	5/12/2022
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0986	0.0986		mg/Kg-dry	1	5/19/2022 11:10:12 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	28.8	1.81		mg/Kg-dry	10	5/16/2022 9:38:36 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	2.15	1.98		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Barium	184	0.989		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Cadmium	< 0.495	0.495		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Chromium	10.5	0.989		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Lead	8.05	0.989		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Strontium	18.4	0.989		mg/Kg-dry	1	5/12/2022 11:15:22 AM
Zinc	20.5	0.989		mg/Kg-dry	1	5/12/2022 11:15:22 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 10:20:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-008 **Matrix:** SOIL  
**Client Sample ID** CD-10 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	351	232		mg/Kg-dry	1	5/11/2022 3:44:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	16.6	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-009  
**Client Sample ID** CD-10 8-10

**Collection Date:** 5/4/2022 10:25:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Cation Exchange Capacity	44.8	0.100		meq/100g	1	5/17/2022
<b>29B SALTS ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	0.21	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>29B SALTS EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>BXB</b>
Exchangeable Sodium %	2.90	0.10		%	1	5/17/2022
<b>29B SALTS SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRB</b>
Sodium Adsorption Ratio	2.47	0.10			1	5/13/2022
Soluble Calcium	0.30	0.02		meq/L	1	5/13/2022
Soluble Magnesium	0.20	0.05		meq/L	1	5/13/2022
Soluble Sodium	1.23	0.25		meq/L	1	5/13/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.0956	0.0956		mg/Kg-dry	1	5/19/2022 11:12:31 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	34.3	2.40		mg/Kg-dry	10	5/16/2022 9:52:23 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRB</b>
Arsenic	4.84	2.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Barium	265	1.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Cadmium	< 0.501	0.501		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Chromium	17.0	1.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Lead	10.1	1.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Strontium	31.1	1.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM
Zinc	41.4	1.00		mg/Kg-dry	1	5/12/2022 11:22:37 AM

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 M Matrix Interference  
 R RPD outside accepted recovery limits  
 S Spike Recovery outside accepted recovery limits  
 U Analyte not detected

H Holding times for preparation or analysis exceeded  
 ND Not Detected at the Reporting Limit  
 RL Reporting Limit  
 SDL Sample detection limit  
 W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 10:25:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-009 **Matrix:** SOIL  
**Client Sample ID** CD-10 8-10

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>		<b>LDNR 29-B</b>			Analyst: <b>MRB</b>	
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	425	231		mg/Kg-dry	1	5/11/2022 3:47:00 PM
<b>PERCENT MOISTURE</b>		<b>SM2540G</b>			Analyst: <b>BXB</b>	
Percent Moisture	21.3	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 1:15:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-010 **Matrix:** SOIL  
**Client Sample ID** CD-10 28-30

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	0.32	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	3.51	0.500		mg/L	2	5/16/2022 2:31:14 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	13.1	0.770		mg/Kg-dry	5	5/16/2022 10:06:11 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	22.2	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-011  
**Client Sample ID** CD-10 52-54

**Collection Date:** 5/4/2022 3:15:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	0.63	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	4.23	1.25		mg/L	5	5/16/2022 2:45:02 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	17.2	1.62		mg/Kg-dry	10	5/16/2022 10:47:33 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	24.4	1.00		wt%	1	5/18/2022 6:58:12 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22050186

Date Reported: 5/26/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/4/2022 4:10:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050186-012 **Matrix:** SOIL  
**Client Sample ID** CD-10 60-62

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Electrical Conductivity	0.41	0.10		mmhos/cm	1	5/12/2022 12:51:00 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>SGP</b>
Chloride	17.4	1.52		mg/Kg-dry	10	5/16/2022 11:01:20 PM
<b>PERCENT MOISTURE</b>				<b>SM2540G</b>		Analyst: <b>BXB</b>
Percent Moisture	21.0	1.00		wt%	1	5/5/2022 2:00:00 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43677

Sample ID <b>MB-43677</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702271</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID <b>LCS-43677</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702274</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.5	2.00	50.00	0	93.0	80	120				
Barium	48.0	1.00	50.00	0	96.0	80	120				
Cadmium	46.7	0.500	50.00	0	93.4	80	120				
Chromium	48.0	1.00	50.00	0	96.0	80	120				
Lead	47.4	1.00	50.00	0	94.9	80	120				
Strontium	47.7	1.00	50.00	0	95.5	80	120				
Zinc	45.5	1.00	50.00	0	91.1	80	120				

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43677

Sample ID	<b>22050185-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702277</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.6	1.95	48.75	3.630	84.0	75	125				
Barium	350	0.975	48.75	256.7	192	75	125				S
Cadmium	41.2	0.487	48.75	0.01241	84.5	75	125				
Chromium	61.5	0.975	48.75	10.51	105	75	125				
Lead	52.5	0.975	48.75	10.16	86.8	75	125				
Strontium	68.2	0.975	48.75	21.38	96.1	75	125				
Zinc	69.0	0.975	48.75	16.54	108	75	125				

Sample ID	<b>22050185-004AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109597</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>43677</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>5/12/2022</b>	SeqNo: <b>2702278</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	42.7	1.99	49.75	3.630	78.6	75	125	44.56	4.18	20	
Barium	340	0.995	49.75	256.7	167	75	125	350.4	3.10	20	S
Cadmium	40.2	0.497	49.75	0.01241	80.8	75	125	41.22	2.42	20	
Chromium	59.0	0.995	49.75	10.51	97.5	75	125	61.48	4.06	20	
Lead	50.7	0.995	49.75	10.16	81.5	75	125	52.48	3.50	20	
Strontium	66.3	0.995	49.75	21.38	90.2	75	125	68.24	2.96	20	
Zinc	66.2	0.995	49.75	16.54	99.8	75	125	68.98	4.14	20	

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43682

Sample ID <b>MB-43682</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109561</b>						
Client ID: <b>PBS</b>	Batch ID: <b>43682</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/11/2022</b>	SeqNo: <b>2701722</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	< 250	250									

Sample ID <b>LCS-43682</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109561</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>43682</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/11/2022</b>	SeqNo: <b>2701723</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	5,370	250	5,000	0	107	75	125				

Sample ID <b>LCSD-43682</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109561</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>43682</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/11/2022</b>	SeqNo: <b>2701724</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	4,550	250	5,000	0	90.9	75	125	5,371	16.7	20	

Sample ID <b>22050185-004AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>5/9/2022</b>	RunNo: <b>109561</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>43682</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>5/11/2022</b>	SeqNo: <b>2701728</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	4,610	234	4,673	590.1	86.0	75	125				

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43682

Sample ID	<b>22050185-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>TTBA</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/9/2022</b>	RunNo:	<b>109561</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43682</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/11/2022</b>	SeqNo:	<b>2701729</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium		5,440		231	4,617	590.1	105	75	125	4,607	16.6	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43697

Sample ID	<b>MB-43697</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708201</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		< 0.100		0.100							

Sample ID	<b>LCS-43697</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708202</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.900		0.100	0.8330	0	108	80	120		

Sample ID	<b>LCSD-43697</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708203</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.913		0.100	0.8330	0	110	80	120	0.9003	1.43 20

Sample ID	<b>22050185-004AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708208</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Mercury		0.900		0.0979	0.8156	0.02105	108	75	125		

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43697

Sample ID	<b>22050185-004AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_S_29B</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:	<b>5/18/2022</b>	RunNo:	<b>109814</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43697</b>	TestNo:	<b>29B/SW7471 SW7471A</b>	Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708209</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.932		0.0993	0.8269	0.02105	110	75	125	0.8997	3.57	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43734

Sample ID	<b>22050374-001CDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>SAR_S</b>	Units:		Prep Date:	<b>5/11/2022</b>	RunNo:	<b>109613</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43734</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/12/2022</b>	SeqNo:	<b>2702569</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	0.42	0.10						0.30	31.9	20	R
Soluble Calcium	2.75	0.02						2.79	1.70	20	
Soluble Magnesium	1.64	0.05						1.56	4.96	20	
Soluble Sodium	0.62	0.25						0.45	32.2	20	R

**NOTES:**

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected.

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43760

Sample ID	<b>22050127-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>ESP_S</b>	Units:	%	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>43760</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704611</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %		7.49		0.10						5.71	27.0	20	R

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43761

Sample ID	<b>ics-43761</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109930</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2711319</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.6		0.100	25.00	0	86.4	76	124		

Sample ID	<b>icsd-43761</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109930</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2711320</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.100	25.00	0	87.9	76	124	21.60	1.74 20

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43761

Sample ID	<b>lcs-43761</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109750</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706379</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.6		0.100	25.00	0	86.4	76	124		

Sample ID	<b>lcsd-43761</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109750</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706380</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.100	25.00	0	87.9	76	124	21.60	1.74 20

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43761

Sample ID	<b>lcs-43761</b>	SampType:	<b>LCS</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704569</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		21.6		0.100	25.00	0	86.4	76	124		

Sample ID	<b>lcsd-43761</b>	SampType:	<b>LCSD</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704570</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		22.0		0.100	25.00	0	87.9	76	124	21.60	1.74 20

Sample ID	<b>22050127-001Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>CEC</b>	Units:	<b>meq/100g</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109703</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>43761</b>	TestNo:	<b>LDNR 29-B</b>	<b>LDNR 29-B</b>		Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2704588</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Cation Exchange Capacity		29.3		0.100						28.98	1.17 20

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109603

Sample ID	<b>MB-R109603</b>	SampType:	<b>MBLK</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>109603</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R109603</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/12/2022</b>	SeqNo:	<b>2702328</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		< 0.10		0.10							

Sample ID	<b>LCS1-R109603</b>	SampType:	<b>LCS1</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>109603</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109603</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/12/2022</b>	SeqNo:	<b>2702329</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.54		0.10	0.50	0	107	90	110		

Sample ID	<b>LCS2-R109603</b>	SampType:	<b>LCS2</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>109603</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109603</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/12/2022</b>	SeqNo:	<b>2702330</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		56.0		0.10	53.00	0	106	90	110		

Sample ID	<b>22050186-012ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>EC_S</b>	Units:	<b>mmhos/cm</b>	Prep Date:		RunNo:	<b>109603</b>
Client ID:	<b>CD-10 60-62</b>	Batch ID:	<b>R109603</b>	TestNo:	<b>LDNR 29-B</b>			Analysis Date:	<b>5/12/2022</b>	SeqNo:	<b>2702343</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Electrical Conductivity		0.33		0.10						0.41	21.6 20 R

**NOTES:**  
 R - High RPD due to suspected sample non-homogeneity. The method is in control as indicated by the LCS/LCSD.

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109710

Sample ID	<b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>					
Client ID:	<b>PBW</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704947</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID	<b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704948</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				

Sample ID	<b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704949</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120	10.17	0.0369	15	

Sample ID	<b>22050565-001ems</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109710</b>					
Client ID:	<b>ZZZZZ</b>	Batch ID: <b>R109710</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>5/16/2022</b>	SeqNo: <b>2704958</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	147	5.00	100.0	53.51	93.1	80	120				

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109710

Sample ID	<b>22050565-001emsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_LEACH</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109710</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109710</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2704959</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		151		5.00	100.0	53.51	97.8	80	120	146.6	3.13	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109714

Sample ID	<b>mblk</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109714</b>
Client ID:	<b>PBS</b>	Batch ID:	<b>R109714</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705177</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		< 0.250		0.250							

Sample ID	<b>ics</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109714</b>
Client ID:	<b>LCSS</b>	Batch ID:	<b>R109714</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705178</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		10.2		0.250	10.00	0	102	80	120		

Sample ID	<b>icsd</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109714</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109714</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705179</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		10.2		0.250	10.00	0	102	80	120	0	0 15

Sample ID	<b>22050666-001bms</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109714</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R109714</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705196</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		919		12.5	250.0	661.2	103	80	120		

**Qualifiers:**  
 B Analyte detected in the associated Method Blank  
 ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as specified at testcode

H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109714

Sample ID	<b>22050666-001bmsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_S</b>	Units:	<b>mg/Kg-dry</b>	Prep Date:		RunNo:	<b>109714</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109714</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705197</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		905		12.5	250.0	661.2	97.5	80	120	918.6	1.50	15	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109749

Sample ID	<b>22050185-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109749</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109749</b>	TestNo:	<b>SM2540G</b>			Analysis Date:	<b>5/18/2022</b>	SeqNo:	<b>2706353</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		25.0		1.00						25.20	0.80	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22050186  
 26-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109933

Sample ID	<b>22050186-012Adup</b>	SampType:	<b>DUP</b>	TestCode:	<b>PMOIST</b>	Units:	<b>wt%</b>	Prep Date:		RunNo:	<b>109933</b>		
Client ID:	<b>CD-10 60-62</b>	Batch ID:	<b>R109933</b>	TestNo:	<b>SM2540G</b>			Analysis Date:	<b>5/5/2022</b>	SeqNo:	<b>2711374</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture		22.6		1.00						21.00	7.34	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				

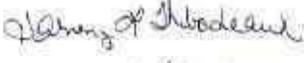
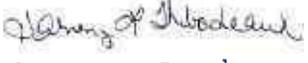


# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22050186**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>5/4/2022 5:50:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>5/5/2022 7:04:25 AM</b>	
Reviewed By:	<b>Cristina Thibeaux</b>	<b>5/10/2022 9:18:09 AM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------



# Chain of Custody

Laboratory Number: **22050186**

Company Name: **ICON Environmental**  
 Contact Name: **Jason Sills**  
 Address: **2049 Commercial Drive**  
 City, State Zip: **Pool Allen, LA 70167**  
 Phone Number: **225.244.8490**  
 Fax Number: **225.344.6654**  
 E-mail Address: **jills@iconenv.com**

Client Information: **ICON Environmental**  
 Billing Information: **GAMLE**  
 PO Number: **9403-016-0100**  
 Quote Number: **9403-016-0100**  
 Required QC Level: **None**  
 Bill Monthly:  Yes  No  
 Shipping Method: **UPS / FedEx / NOW**  
 DHL / Element (Hand / Mail)

Project Name/Number: **Castex Development**  
 Matrix Code: **DW = Drinking Water, WW = Waste Water, GW = Ground Water, AO = Aqueous, OT = Other, SL = Sludge, SOL = Solid, O = Oil, SO = Soil, F = Food, SW = Swab, NG = Natural Gas, NGL = Natural Gas Liquid, PW = Produced Water, CF = Completion Fluid**

Sampler's Signature: **Kate Bell**

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RIIS	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information			Rush turn times will incur a surcharge and must be pre-approved by (lab.)	Container Type Type Plastic, V-Vial	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> O <sub>2</sub>	Requested Tests			Comments			
			Date		Time				Quantity	% Moisture	29 to Totals		Cec/ESP/SNR	Soluble Cl-	Leachate Cl-
			Date	Time	Matrix										
CD-11	<input type="checkbox"/> Drinking Water	<input checked="" type="checkbox"/> Standard	5.2.22	1505	G	50						Metals As, Br, Tl, Pb, Cd, Cr, Sr, Zn, Pb, Hg			
CD-11	<input type="checkbox"/> Distribution	<input type="checkbox"/> RUSH	5.2.22	1510	G	50									
CD-11	<input type="checkbox"/> Special	<input type="checkbox"/> 1 Day	5.2.22	1525	G	50									
CD-11	<input type="checkbox"/> State	<input type="checkbox"/> 2 Day	5.2.22	1635	G	50									
CD-11	<input type="checkbox"/> Other	<input type="checkbox"/> Other	5.3.22	1010	G	50									
CD-11			5.3.22	1055	G	50									
CD-10			5.4.22	1005	G	50									
CD-10			5.4.22	1020	G	50									
CD-10			5.4.22	1025	G	50									

Relinquished by: **Kate Bell** Date/Time: **5.4.22/1750**  
 Received by: **D. Woodruff** Date/Time: **5/4/22 1750**  
 Field Notes: **Received at lab on ice?  Yes  No Temp: **54/55****

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

6800 North US 31  
 Columbus, IN 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Lay Road, Suite 100  
 Fort Wayne, IN 46825 USA  
 P 260-471-7000  
 F 260-471-7777

908 Executive Dr  
 Warsaw, IN 46590 USA  
 P 574-267-3305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN 46620 USA  
 P 574-277-0707  
 F 574-273-9699

2417 W. Pinhook Rd  
 Lafayette, LA 70508 USA  
 P 337-235-0483  
 F 337-233-8540



# Chain of Custody

Laboratory Number: *27050186*

**Client Information:** *ICON* **Billing Information:** *SAME*

**Company Name:** *ICON* **PO Number:**

**Contact Name:** *Kath Bell* **Quote Number:**

**Address:** *Castex Development*

**City, State Zip:** *7403-016-0100* **Required QC Level:**

**Phone Number:** *Ext:* **Bill Monthly:**  Yes  No

**Fax Number:** *Ext:* **Shipping Method:** *UPS / FedEx / NOW*

**E-mail Address:** *Kath Bell* **DHL / Element / Haps / Mail**

**Project Name/Number:** *Castex Development* **Page 2 of 2**

**Sampler's Signature:** *Kath Bell* **Matrix Code:**

DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 O = Oil  
 F = Food  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> FOTW <input type="checkbox"/> NPDES <input type="checkbox"/> LISOA/FDA <input type="checkbox"/> RECAP/RISC	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Collection Information		Container Type G = Glass, V = Vial	Pres.	Requested Tests	Comments
				Date	Time				
CD-10	<input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other		5.4.22	1815	1	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Leachate Cl- Soluble Cl- % Moisture Ec	
CD-10				5.4.22	1515	1			
CD-10				5.4.22	1610	1			

**Relinquished by:** *Kath Bell* **Date/Time:** *5.4.22/1750*

**Received by:** *D. Woodruff* **Date/Time:** *5/4/22 1750*

**Field Notes:**

Received at lab on ice?  Yes  No Temp:

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

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 46628 USA  
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 F 574-273-5699

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 Lafayette, LA  
 70508 USA  
 P 337-233-0483  
 F 337-233-6540



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Lafayette, LA 70508-3344  
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Website: [www.element.com](http://www.element.com)

May 31, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22050688

Dear Greg Miller:

Element Materials Technology Lafayette received 12 sample(s) on 5/13/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22050688

Date: 5/31/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

---

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

Exceptions – Accuracy, SM2320 B

Due to a laboratory error, client samples CD-9B, CD-9A and CD-5C were analyzed one day past the 14-day holding time. The results are reported with a holding time qualifier, “H”.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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 Lafayette, LA 70508-3344  
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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 12:15:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-001 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-9B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.138	0.138		mg/L	1	5/20/2022 3:45:00 AM
TPH (Oil Range)	< 0.127	0.127		mg/L	1	5/20/2022 3:45:00 AM
Surr: 4-Terphenyl-d14	107	51.4 - 146		%Rec	1	5/20/2022 3:45:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 5:16:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	108	70 - 130		%Rec	1	5/19/2022 5:16:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:12:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:12:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 5:12:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:12:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 5:12:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 5:12:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.0	70 - 130		%Rec	1	5/23/2022 5:12:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 7:35:50 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	105	5.00		mg/L	20	5/17/2022 1:37:17 PM
Sulfate	< 0.250	0.250		mg/L	1	5/17/2022 5:17:46 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.258	0.0100		mg/L	1	5/20/2022 2:49:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 2:49:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 12:15:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-001 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-9B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**RCRA METALS - SW6010/7470A  
 METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **MRB**

Calcium	55.8	0.500		mg/L	1	5/20/2022 2:49:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 2:49:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 2:49:00 PM
Magnesium	15.2	0.500		mg/L	1	5/20/2022 2:49:00 PM
Manganese	0.204	0.0100		mg/L	1	5/20/2022 2:49:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 2:49:00 PM
Sodium	65.6	5.00		mg/L	1	5/20/2022 2:49:00 PM
Strontium	0.349	0.0100		mg/L	1	5/20/2022 2:49:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 2:49:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	9.25	2.50		µg/L	10	5/23/2022 10:22:32 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **BXB**

Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	210	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	210	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM

**NOTES:**

H: Sample was analyzed 1 day outside of defined 14 days hold time due to laboratory oversight.

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	387	10.0		mg/L	1	5/16/2022 10:43:00 AM
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Qualifiers:						
H	Holding times for preparation or analysis exceeded	M	Matrix Interference			
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits			
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits			
SDL	Sample detection limit	U	Analyte not detected			
W	Sample container temperature is out of limit as specified at testcode					



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 2:25:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-002 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-9A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.132	0.132		mg/L	1	5/20/2022 4:17:00 AM
TPH (Oil Range)	< 0.122	0.122		mg/L	1	5/20/2022 4:17:00 AM
Surr: 4-Terphenyl-d14	116	51.4 - 146		%Rec	1	5/20/2022 4:17:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 5:43:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	107	70 - 130		%Rec	1	5/19/2022 5:43:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:40:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:40:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 5:40:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 5:40:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 5:40:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 5:40:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.0	70 - 130		%Rec	1	5/23/2022 5:40:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 7:46:08 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	47.1	5.00		mg/L	20	5/17/2022 1:50:51 PM
Sulfate	12.4	5.00		mg/L	20	5/17/2022 1:50:51 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.569	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 2:56:00 PM

Qualifiers:						
H	Holding times for preparation or analysis exceeded	M	Matrix Interference			
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits			
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits			
SDL	Sample detection limit	U	Analyte not detected			
W	Sample container temperature is out of limit as specified at testcode					



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 2:25:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-002 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-9A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	93.2	0.500		mg/L	1	5/20/2022 2:56:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Iron	1.95	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Magnesium	27.8	0.500		mg/L	1	5/20/2022 2:56:00 PM
Manganese	0.406	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 2:56:00 PM
Sodium	85.9	5.00		mg/L	1	5/20/2022 2:56:00 PM
Strontium	0.561	0.0100		mg/L	1	5/20/2022 2:56:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 2:56:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	16.2	2.50		µg/L	10	5/23/2022 10:44:58 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	402	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	402	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
<b>NOTES:</b>						
H: Sample was analyzed 1 day outside of defined 14 days hold time due to laboratory oversight.						
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	534	10.0		mg/L	1	5/16/2022 10:43:00 AM

Qualifiers:						
H	Holding times for preparation or analysis exceeded	M	Matrix Interference			
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits			
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits			
SDL	Sample detection limit	U	Analyte not detected			
W	Sample container temperature is out of limit as specified at testcode					



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 5:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-003 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-5C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134		mg/L	1	5/20/2022 4:48:00 AM
TPH (Oil Range)	< 0.124	0.124		mg/L	1	5/20/2022 4:48:00 AM
Surr: 4-Terphenyl-d14	54.4	51.4 - 146		%Rec	1	5/20/2022 4:48:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 6:10:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	109	70 - 130		%Rec	1	5/19/2022 6:10:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:07:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:07:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 6:07:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:07:00 PM
Toluene	0.0149	0.0100		mg/L	1	5/23/2022 6:07:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 6:07:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.6	70 - 130		%Rec	1	5/23/2022 6:07:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:34:37 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	311	12.5		mg/L	50	5/17/2022 2:04:40 PM
Sulfate	0.367	0.250		mg/L	1	5/17/2022 5:31:33 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.576	0.0100		mg/L	1	5/17/2022 11:06:04 AM
Cadmium	< 0.00500	0.00500		mg/L	1	5/17/2022 11:06:04 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/9/2022 5:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-003 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-5C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	5/17/2022 11:06:04 AM
Lead	< 0.0100	0.0100		mg/L	1	5/17/2022 11:06:04 AM
Manganese	0.315	0.0100		mg/L	1	5/17/2022 11:06:04 AM
Strontium	0.682	0.0100		mg/L	1	5/17/2022 11:06:04 AM
Zinc	< 0.0100	0.0100		mg/L	1	5/17/2022 11:06:04 AM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	6.29	2.50		µg/L	10	5/17/2022 11:40:50 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	205	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	205	20.0	H	mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
<b>NOTES:</b>						
H: Sample was analyzed 1 day outside of defined 14 days hold time due to laboratory oversight.						
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	855	50.0		mg/L	5	5/16/2022 10:43:00 AM

Qualifiers:						
H	Holding times for preparation or analysis exceeded	M	Matrix Interference			
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits			
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits			
SDL	Sample detection limit	U	Analyte not detected			
W	Sample container temperature is out of limit as specified at testcode					



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 9:45:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-004 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-10A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.136	0.136		mg/L	1	5/20/2022 5:19:00 AM
TPH (Oil Range)	< 0.126	0.126		mg/L	1	5/20/2022 5:19:00 AM
Surr: 4-Terphenyl-d14	110	51.4 - 146		%Rec	1	5/20/2022 5:19:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 6:37:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	110	70 - 130		%Rec	1	5/19/2022 6:37:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:34:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:34:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 6:34:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 6:34:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 6:34:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 6:34:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.6	70 - 130		%Rec	1	5/23/2022 6:34:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 7:48:26 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	41.0	2.50		mg/L	10	5/17/2022 2:18:28 PM
Sulfate	11.5	2.50		mg/L	10	5/17/2022 2:18:28 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.211	0.0100		mg/L	1	5/20/2022 3:03:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:03:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 9:45:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-004 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-10A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	42.0	0.500		mg/L	1	5/20/2022 3:03:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:03:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:03:00 PM
Magnesium	9.23	0.500		mg/L	1	5/20/2022 3:03:00 PM
Manganese	0.163	0.0100		mg/L	1	5/20/2022 3:03:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:03:00 PM
Sodium	60.6	5.00		mg/L	1	5/20/2022 3:03:00 PM
Strontium	0.172	0.0100		mg/L	1	5/20/2022 3:03:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:03:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	8.68	2.50		µg/L	10	5/23/2022 10:47:47 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	215	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	215	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	309	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 11:35:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-005 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-8B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.281	0.138		mg/L	1	5/20/2022 5:51:00 AM
TPH (Oil Range)	< 0.127	0.127		mg/L	1	5/20/2022 5:51:00 AM
Surr: 4-Terphenyl-d14	115	51.4 - 146		%Rec	1	5/20/2022 5:51:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/20/2022 3:35:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	5/20/2022 3:35:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/20/2022 3:35:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/20/2022 3:35:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/20/2022 3:35:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/20/2022 3:35:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	5/20/2022 3:35:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/20/2022 3:35:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	5/20/2022 3:35:00 AM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:44:58 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	180	12.5		mg/L	50	5/17/2022 2:32:15 PM
Sulfate	2.56	0.250		mg/L	1	5/17/2022 5:45:20 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	1.34	0.0100		mg/L	1	5/17/2022 11:08:22 AM
Cadmium	< 0.00500	0.00500		mg/L	1	5/17/2022 11:08:22 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 11:35:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-005 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-8B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	5/17/2022 11:08:22 AM
Lead	< 0.0100	0.0100		mg/L	1	5/17/2022 11:08:22 AM
Manganese	0.449	0.0100		mg/L	1	5/17/2022 11:08:22 AM
Strontium	0.593	0.0100		mg/L	1	5/17/2022 11:08:22 AM
Zinc	< 0.0100	0.0100		mg/L	1	5/17/2022 11:08:22 AM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	< 2.50	2.50		µg/L	10	5/17/2022 11:52:02 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	338	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	338	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	1,070	50.0		mg/L	5	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 2:30:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-006 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-8A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.141	0.141		mg/L	1	5/20/2022 7:57:00 AM
TPH (Oil Range)	< 0.125	0.125		mg/L	1	5/20/2022 7:57:00 AM
Surr: 4-Terphenyl-d14	117	51.4 - 146		%Rec	1	5/20/2022 7:57:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 7:04:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	108	70 - 130		%Rec	1	5/19/2022 7:04:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:01:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:01:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:01:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:01:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:01:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 7:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.6	70 - 130		%Rec	1	5/23/2022 7:01:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 7:50:44 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	12.6	5.00		mg/L	20	5/17/2022 2:46:03 PM
Sulfate	10.9	5.00		mg/L	20	5/17/2022 2:46:03 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.619	0.0100		mg/L	1	5/20/2022 3:05:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:05:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 2:30:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-006 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-8A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	75.8	0.500		mg/L	1	5/20/2022 3:05:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:05:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:05:00 PM
Magnesium	19.5	0.500		mg/L	1	5/20/2022 3:05:00 PM
Manganese	0.425	0.0100		mg/L	1	5/20/2022 3:05:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:05:00 PM
Sodium	58.1	5.00		mg/L	1	5/20/2022 3:05:00 PM
Strontium	0.417	0.0100		mg/L	1	5/20/2022 3:05:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:05:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	71.9	2.50		µg/L	10	5/23/2022 10:50:35 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	325	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	325	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	432	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 3:50:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-007 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-11A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.346	0.137		mg/L	1	5/20/2022 8:28:00 AM
TPH (Oil Range)	0.149	0.126		mg/L	1	5/20/2022 8:28:00 AM
Surr: 4-Terphenyl-d14	120	51.4 - 146		%Rec	1	5/20/2022 8:28:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 7:32:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	107	70 - 130		%Rec	1	5/19/2022 7:32:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:28:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:28:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:28:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:28:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:28:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 7:28:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	90.0	70 - 130		%Rec	1	5/23/2022 7:28:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 7:58:17 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	303	12.5		mg/L	50	5/17/2022 2:59:51 PM
Sulfate	< 0.250	0.250		mg/L	1	5/17/2022 5:59:08 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.704	0.0100		mg/L	1	5/20/2022 3:07:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:07:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/10/2022 3:50:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-007 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-11A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	95.3	0.500		mg/L	1	5/20/2022 3:07:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:07:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:07:00 PM
Magnesium	45.2	0.500		mg/L	1	5/20/2022 3:07:00 PM
Manganese	0.641	0.0100		mg/L	1	5/20/2022 3:07:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:07:00 PM
Sodium	150	5.00		mg/L	1	5/20/2022 3:07:00 PM
Strontium	0.783	0.0100		mg/L	1	5/20/2022 3:07:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:07:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	99.8	2.50		µg/L	10	5/23/2022 10:53:23 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	352	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	352	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	825	50.0		mg/L	5	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/11/2022 10:00:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-008 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-11B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.440	0.136		mg/L	1	5/20/2022 9:00:00 AM
TPH (Oil Range)	< 0.125	0.125		mg/L	1	5/20/2022 9:00:00 AM
Surr: 4-Terphenyl-d14	117	51.4 - 146		%Rec	1	5/20/2022 9:00:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 7:59:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	108	70 - 130		%Rec	1	5/19/2022 7:59:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:56:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:56:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:56:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 7:56:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 7:56:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 7:56:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.4	70 - 130		%Rec	1	5/23/2022 7:56:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:47:16 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	80.6	5.00		mg/L	20	5/17/2022 3:13:38 PM
Sulfate	1.01	0.250		mg/L	1	5/17/2022 6:12:56 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.333	0.0100		mg/L	1	5/17/2022 11:10:39 AM
Cadmium	< 0.00500	0.00500		mg/L	1	5/17/2022 11:10:39 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-008  
**Client Sample ID** CD-11B

**Collection Date:** 5/11/2022 10:00:00 AM

**Matrix:** GROUNDWATER

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Chromium	< 0.0100	0.0100		mg/L	1	5/17/2022 11:10:39 AM
Lead	< 0.0100	0.0100		mg/L	1	5/17/2022 11:10:39 AM
Manganese	0.496	0.0100		mg/L	1	5/17/2022 11:10:39 AM
Strontium	0.361	0.0100		mg/L	1	5/17/2022 11:10:39 AM
Zinc	0.0529	0.0100		mg/L	1	5/17/2022 11:10:39 AM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	5.27	2.50		µg/L	10	5/17/2022 11:54:50 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	260	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	260	20.0		mgCaCO <sub>3</sub> /L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	395	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/11/2022 2:35:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-009 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-7B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.215	0.133		mg/L	1	5/20/2022 9:32:00 AM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	5/20/2022 9:32:00 AM
Surr: 4-Terphenyl-d14	106	51.4 - 146		%Rec	1	5/20/2022 9:32:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 8:26:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	107	70 - 130		%Rec	1	5/19/2022 8:26:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:23:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:23:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 8:23:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:23:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 8:23:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 8:23:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.4	70 - 130		%Rec	1	5/23/2022 8:23:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:00:35 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	147	5.00		mg/L	20	5/17/2022 3:27:26 PM
Sulfate	9.29	5.00		mg/L	20	5/17/2022 3:27:26 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.495	0.0100		mg/L	1	5/20/2022 3:10:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:10:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/11/2022 2:35:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-009 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-7B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	75.9	0.500		mg/L	1	5/20/2022 3:10:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:10:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:10:00 PM
Magnesium	26.9	0.500		mg/L	1	5/20/2022 3:10:00 PM
Manganese	0.522	0.0100		mg/L	1	5/20/2022 3:10:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:10:00 PM
Sodium	113	5.00		mg/L	1	5/20/2022 3:10:00 PM
Strontium	0.417	0.0100		mg/L	1	5/20/2022 3:10:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:10:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	101	2.50		µg/L	10	5/23/2022 10:56:11 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	298	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	298	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	579	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 8:55:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-010 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-7C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.133	0.133		mg/L	1	5/20/2022 10:04:00 AM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	5/20/2022 10:04:00 AM
Surr: 4-Terphenyl-d14	94.9	51.4 - 146		%Rec	1	5/20/2022 10:04:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 8:53:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	106	70 - 130		%Rec	1	5/19/2022 8:53:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:50:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:50:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 8:50:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 8:50:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 8:50:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 8:50:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	92.8	70 - 130		%Rec	1	5/23/2022 8:50:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:02:54 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	81.4	5.00		mg/L	20	5/17/2022 3:41:14 PM
Sulfate	22.2	5.00		mg/L	20	5/17/2022 3:41:14 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.382	0.0100		mg/L	1	5/20/2022 3:12:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:12:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 8:55:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-010 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-7C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	57.3	0.500		mg/L	1	5/20/2022 3:12:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:12:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:12:00 PM
Magnesium	17.9	0.500		mg/L	1	5/20/2022 3:12:00 PM
Manganese	0.212	0.0100		mg/L	1	5/20/2022 3:12:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:12:00 PM
Sodium	92.9	5.00		mg/L	1	5/20/2022 3:12:00 PM
Strontium	0.359	0.0100		mg/L	1	5/20/2022 3:12:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:12:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	15.4	2.50		µg/L	10	5/23/2022 10:58:58 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	255	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	255	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	450	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 10:25:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-011 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-6A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.220	0.132		mg/L	1	5/20/2022 12:43:00 PM
TPH (Oil Range)	< 0.122	0.122		mg/L	1	5/20/2022 12:43:00 PM
Surr: 4-Terphenyl-d14	114	51.4 - 146		%Rec	1	5/20/2022 12:43:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/19/2022 9:20:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	105	70 - 130		%Rec	1	5/19/2022 9:20:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/23/2022 9:17:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/23/2022 9:17:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/23/2022 9:17:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/23/2022 9:17:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	5/23/2022 9:17:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/23/2022 9:17:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.0	70 - 130		%Rec	1	5/23/2022 9:17:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:05:12 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	303	12.5		mg/L	50	5/17/2022 4:22:36 PM
Sulfate	3.29	0.250		mg/L	1	5/17/2022 6:26:43 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.596	0.0100		mg/L	1	5/20/2022 3:14:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:14:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 10:25:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-011 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-6A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	119	0.500		mg/L	1	5/20/2022 3:14:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:14:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:14:00 PM
Magnesium	40.2	0.500		mg/L	1	5/20/2022 3:14:00 PM
Manganese	0.626	0.0100		mg/L	1	5/20/2022 3:14:00 PM
Potassium	5.15	5.00		mg/L	1	5/20/2022 3:14:00 PM
Sodium	141	5.00		mg/L	1	5/20/2022 3:14:00 PM
Strontium	0.738	0.0100		mg/L	1	5/20/2022 3:14:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:14:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	21.4	2.50		µg/L	10	5/23/2022 11:01:46 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	342	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	342	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	845	50.0		mg/L	5	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 1:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-012 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-6B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.136	0.136		mg/L	1	5/20/2022 1:15:00 PM
TPH (Oil Range)	< 0.125	0.125		mg/L	1	5/20/2022 1:15:00 PM
Surr: 4-Terphenyl-d14	79.5	51.4 - 146		%Rec	1	5/20/2022 1:15:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	5/20/2022 4:02:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	5/20/2022 4:02:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	5/20/2022 4:02:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	5/20/2022 4:02:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	5/20/2022 4:02:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	5/20/2022 4:02:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	5/20/2022 4:02:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	5/20/2022 4:02:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	5/20/2022 4:02:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	5/23/2022 8:07:31 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	72.7	5.00		mg/L	20	5/17/2022 5:03:58 PM
Sulfate	44.8	5.00		mg/L	20	5/17/2022 5:03:58 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRB
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.256	0.0100		mg/L	1	5/20/2022 3:17:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	5/20/2022 3:17:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
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	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 22050688

Date Reported: 5/31/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 5/12/2022 1:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22050688-012 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-6B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	51.3	0.500		mg/L	1	5/20/2022 3:17:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	5/20/2022 3:17:00 PM
Lead	< 0.0100	0.0100		mg/L	1	5/20/2022 3:17:00 PM
Magnesium	14.9	0.500		mg/L	1	5/20/2022 3:17:00 PM
Manganese	0.180	0.0100		mg/L	1	5/20/2022 3:17:00 PM
Potassium	< 5.00	5.00		mg/L	1	5/20/2022 3:17:00 PM
Sodium	80.7	5.00		mg/L	1	5/20/2022 3:17:00 PM
Strontium	0.319	0.0100		mg/L	1	5/20/2022 3:17:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	5/20/2022 3:17:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	16.7	2.50		µg/L	10	5/23/2022 11:04:34 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	232	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
Alkalinity, Total (As CaCO3)	232	20.0		mgCaCO3/L	1	5/24/2022 5:48:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	436	10.0		mg/L	1	5/16/2022 10:43:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43774

Sample ID	<b>LCSD-D43774</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>5/16/2022</b>	RunNo: <b>109878</b>					
Client ID:	<b>LCSSW</b>	Batch ID: <b>43774</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2709850</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.02	0.138	1.817	0	111	70	130				
Surr: 4-Terphenyl-d14	0.0705		0.06057		116	51.4	146				

Sample ID	<b>LCSD-M43774</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>5/16/2022</b>	RunNo: <b>109878</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>43774</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2709851</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.92	0.127	1.818	0	106	70	130	1.825	5.03	23.2	
Surr: 4-Terphenyl-d14	0.0720		0.06058		119	51.4	146		0	40	

Sample ID	<b>MB-43774</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>5/16/2022</b>	RunNo: <b>109878</b>					
Client ID:	<b>PBW</b>	Batch ID: <b>43774</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2709852</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.138	0.138									
TPH (Oil Range)	< 0.127	0.127									
Surr: 4-Terphenyl-d14	0.0659		0.06051		109	51.4	146				

Sample ID	<b>LCSD-D43774</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>5/16/2022</b>	RunNo: <b>109878</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>43774</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2709853</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43774

Sample ID	<b>LCSD-D43774</b>	SampType:	<b>icsd</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109878</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43774</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2709853</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		1.95		0.136	1.799	0		109	70	130	2.019	3.33	14.1	
Surr: 4-Terphenyl-d14		0.0705			0.05995			118	51.4	146		0	40	

Sample ID	<b>LCS-M43774</b>	SampType:	<b>ics</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/16/2022</b>	RunNo:	<b>109878</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>43774</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2709854</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.82		0.127	1.812	0		101	70	130				
Surr: 4-Terphenyl-d14		0.0686			0.06040			114	51.4	146				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43803

Sample ID <b>MB-43803</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109870</b>
Client ID: <b>PBW</b>	Batch ID: <b>43803</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2710083</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID <b>LCS-43803</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109870</b>
Client ID: <b>LCSW</b>	Batch ID: <b>43803</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/20/2022</b>	SeqNo: <b>2710084</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.512	0.0100	0.5000	0	102	80	120				
Cadmium	0.512	0.00500	0.5000	0	102	80	120				
Calcium	52.6	0.500	50.00	0	105	80	120				
Chromium	0.511	0.0100	0.5000	0	102	80	120				
Iron	0.534	0.0100	0.5000	0	107	80	120				
Lead	0.498	0.0100	0.5000	0	99.6	80	120				
Magnesium	52.5	0.500	50.00	0	105	80	120				
Manganese	0.506	0.0100	0.5000	0	101	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43803

Sample ID	<b>LC3-43803</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/19/2022</b>	RunNo:	<b>109870</b>
Client ID:	<b>LC3W</b>	Batch ID:	<b>43803</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2710084</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	52.2	5.00	50.00	0	104	80	120				
Sodium	52.1	10.0	50.00	0	104	80	120				
Strontium	0.505	0.0100	0.5000	0	101	80	120				
Zinc	0.495	0.0100	0.5000	0	98.9	80	120				

Sample ID	<b>LCSD-43803</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/19/2022</b>	RunNo:	<b>109870</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>43803</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2710085</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.522	0.0100	0.5000	0	104	80	120	0.5116	2.09	20	
Cadmium	0.523	0.00500	0.5000	0	105	80	120	0.5118	2.20	20	
Calcium	53.0	0.500	50.00	0	106	80	120	52.55	0.856	20	
Chromium	0.523	0.0100	0.5000	0	105	80	120	0.5110	2.36	20	
Iron	0.544	0.0100	0.5000	0	109	80	120	0.5342	1.72	20	
Lead	0.514	0.0100	0.5000	0	103	80	120	0.4979	3.22	20	
Magnesium	53.0	0.500	50.00	0	106	80	120	52.54	0.918	20	
Manganese	0.517	0.0100	0.5000	0	103	80	120	0.5057	2.27	20	
Potassium	52.4	5.00	50.00	0	105	80	120	52.18	0.407	20	
Sodium	52.8	10.0	50.00	0	106	80	120	52.13	1.25	20	
Strontium	0.517	0.0100	0.5000	0	103	80	120	0.5050	2.27	20	
Zinc	0.507	0.0100	0.5000	0	101	80	120	0.4946	2.47	20	

**Qualifiers:**  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected

ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43803

Sample ID	22050688-001DMS	SampType: MS	TestCode: 6010_W	Units: mg/L	Prep Date: 5/19/2022	RunNo: 109870					
Client ID:	CD-9B	Batch ID: 43803	TestNo: SW6010B	Analysis Date: 5/20/2022	SeqNo: 2710087						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.773	0.0100	0.5000	0.2580	103	75	125				
Cadmium	0.524	0.00500	0.5000	0	105	75	125				
Calcium	108	0.500	50.00	55.79	104	75	125				
Chromium	0.517	0.0100	0.5000	0	103	75	125				
Iron	1.99	0.0100	0.5000	1.212	155	75	125				S
Lead	0.496	0.0100	0.5000	0	99.3	75	125				
Magnesium	67.7	0.500	50.00	15.16	105	75	125				
Manganese	0.715	0.0100	0.5000	0.2036	102	75	125				
Potassium	54.9	5.00	50.00	3.030	104	75	125				
Sodium	118	10.0	50.00	65.64	105	75	125				
Strontium	0.859	0.0100	0.5000	0.3489	102	75	125				
Zinc	0.508	0.0100	0.5000	0	102	75	125				

Sample ID	22050688-001DMSD	SampType: MSD	TestCode: 6010_W	Units: mg/L	Prep Date: 5/19/2022	RunNo: 109870					
Client ID:	CD-9B	Batch ID: 43803	TestNo: SW6010B	Analysis Date: 5/20/2022	SeqNo: 2710088						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.881	0.0100	0.5000	0.2580	125	75	125	0.7734	13.0	20	
Cadmium	0.595	0.00500	0.5000	0	119	75	125	0.5240	12.7	20	
Calcium	122	0.500	50.00	55.79	132	75	125	108.0	11.9	20	S
Chromium	0.592	0.0100	0.5000	0	118	75	125	0.5174	13.5	20	
Iron	1.89	0.0100	0.5000	1.212	136	75	125	1.987	4.92	20	S
Lead	0.578	0.0100	0.5000	0	116	75	125	0.4964	15.2	20	
Magnesium	77.0	0.500	50.00	15.16	124	75	125	67.69	12.9	20	
Manganese	0.809	0.0100	0.5000	0.2036	121	75	125	0.7149	12.4	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43803

Sample ID	<b>22050688-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/19/2022</b>	RunNo:	<b>109870</b>
Client ID:	<b>CD-9B</b>	Batch ID:	<b>43803</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2710088</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	63.0	5.00	50.00	3.030	120	75	125	54.87	13.7	20	
Sodium	132	10.0	50.00	65.64	132	75	125	118.2	10.7	20	S
Strontium	0.969	0.0100	0.5000	0.3489	124	75	125	0.8594	12.0	20	
Zinc	0.578	0.0100	0.5000	0	116	75	125	0.5079	13.0	20	

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43806

Sample ID <b>MB-43806</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109909</b>
Client ID: <b>PBW</b>	Batch ID: <b>43806</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2711026</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250			

Sample ID <b>LCS-43806</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109909</b>
Client ID: <b>LCSW</b>	Batch ID: <b>43806</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2711027</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	482	5.00	500.0	0	96.4 80 120

Sample ID <b>LCSD-43806</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109909</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43806</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2711028</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	504	5.00	500.0	0	101 80 120 482.2 4.49 20

Sample ID <b>22050688-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>5/19/2022</b>	RunNo: <b>109909</b>
Client ID: <b>CD-9B</b>	Batch ID: <b>43806</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2711031</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	507	5.00	500.0	9.254	99.6 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43806

Sample ID	22050688-001DMSD	SampType:	MSD	TestCode:	6020A_W	Units:	µg/L	Prep Date:	5/19/2022	RunNo:	109909		
Client ID:	CD-9B	Batch ID:	43806	TestNo:	SW6020A	Analysis Date:	5/23/2022	SeqNo:	2711032				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		573		5.00	500.0	9.254	113	75	125	507.3	12.2	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43840

Sample ID <b>MB-43840</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109899</b>
Client ID: <b>PBW</b>	Batch ID: <b>43840</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710338</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.000200	0.000200			

Sample ID <b>LCS-43840</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109899</b>
Client ID: <b>LCSW</b>	Batch ID: <b>43840</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710339</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0108	0.000200	0.01000	0	108 80 120

Sample ID <b>LCSD-43840</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109899</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43840</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710340</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0108	0.000200	0.01000	0	108 80 120 0.01079 0.0656 20

Sample ID <b>22050688-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109899</b>
Client ID: <b>CD-9B</b>	Batch ID: <b>43840</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710343</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0101	0.000200	0.01000	0	101 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43840

Sample ID	<b>22050688-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/23/2022</b>	RunNo:	<b>109899</b>		
Client ID:	<b>CD-9B</b>	Batch ID:	<b>43840</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>5/23/2022</b>	SeqNo:	<b>2710344</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0100		0.000200	0.01000	0	100	75	125	0.01006	0.377	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43841

Sample ID <b>MB-43841</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109900</b>
Client ID: <b>PBW</b>	Batch ID: <b>43841</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710424</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.000200	0.000200			

Sample ID <b>LCS-43841</b>	SampType: <b>LCS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109900</b>
Client ID: <b>LCSW</b>	Batch ID: <b>43841</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710425</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0106	0.000200	0.01000	0	106 80 120

Sample ID <b>LCSD-43841</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109900</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>43841</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710426</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0106	0.000200	0.01000	0	106 80 120 0.01057 0.0121 20

Sample ID <b>22050688-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>5/23/2022</b>	RunNo: <b>109900</b>
Client ID: <b>CD-5C</b>	Batch ID: <b>43841</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>5/23/2022</b>	SeqNo: <b>2710429</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0100	0.000200	0.01000	0	100 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 43841

Sample ID	<b>22050688-003DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>5/23/2022</b>	RunNo:	<b>109900</b>		
Client ID:	<b>CD-5C</b>	Batch ID:	<b>43841</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>5/23/2022</b>	SeqNo:	<b>2710430</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0100		0.000200	0.01000	0	100	75	125	0.01003	0.108	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109676

Sample ID	<b>MB-R109676</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705456</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		< 10.0		10.0							

Sample ID	<b>LCS-R109676</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705457</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		986		10.0	1,000	0	98.6	85	115		

Sample ID	<b>LCSD-R109676</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705458</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		1,000		10.0	1,000	0	100	85	115	986.0	1.61 10

Sample ID	<b>22050688-003ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>CD-5C</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705472</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		860		50.0						855.0	0.583 10

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109676

Sample ID	<b>22050688-003ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>CD-5C</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705472</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22050688-005ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109676</b>
Client ID:	<b>CD-8B</b>	Batch ID:	<b>R109676</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>5/16/2022</b>	SeqNo:	<b>2705473</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable)	725	50.0							1,070	38.4	10	R
--	-----	------	--	--	--	--	--	--	-------	------	----	---

**NOTES:**  
 R - High RPD due to suspected sample non-homogeneity. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109724

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109724</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R109724</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2705390</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Chromium	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Manganese	< 0.0100	0.0100									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109724</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R109724</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2705391</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.503	0.0100	0.5000	0	101	80	120				
Cadmium	0.510	0.00500	0.5000	0	102	80	120				
Chromium	0.496	0.0100	0.5000	0	99.3	80	120				
Lead	0.494	0.0100	0.5000	0	98.8	80	120				
Manganese	0.504	0.0100	0.5000	0	101	80	120				
Strontium	0.499	0.0100	0.5000	0	99.9	80	120				
Zinc	0.508	0.0100	0.5000	0	102	80	120				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109724

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109724</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R109724</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2705392</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.500	0.0100	0.5000	0	100	80	120	0.5032	0.636	20	
Cadmium	0.508	0.00500	0.5000	0	102	80	120	0.5104	0.521	20	
Chromium	0.494	0.0100	0.5000	0	98.9	80	120	0.4964	0.396	20	
Lead	0.500	0.0100	0.5000	0	99.9	80	120	0.4941	1.11	20	
Manganese	0.497	0.0100	0.5000	0	99.4	80	120	0.5045	1.47	20	
Strontium	0.496	0.0100	0.5000	0	99.2	80	120	0.4993	0.609	20	
Zinc	0.505	0.0100	0.5000	0	101	80	120	0.5075	0.583	20	

Sample ID <b>22050688-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109724</b>						
Client ID: <b>CD-5C</b>	Batch ID: <b>R109724</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2705398</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.03	0.0100	0.5000	0.5764	90.2	75	125				
Cadmium	0.501	0.00500	0.5000	0	100	75	125				
Chromium	0.476	0.0100	0.5000	0.002180	94.8	75	125				
Lead	0.478	0.0100	0.5000	0	95.7	75	125				
Manganese	0.777	0.0100	0.5000	0.3152	92.3	75	125				
Strontium	1.14	0.0100	0.5000	0.6822	90.6	75	125				
Zinc	0.501	0.0100	0.5000	0	100	75	125				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109724

Sample ID	<b>22050688-003DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109724</b>
Client ID:	<b>CD-5C</b>	Batch ID:	<b>R109724</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2705399</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.06	0.0100	0.5000	0.5764	96.2	75	125	1.027	2.88	20	
Cadmium	0.528	0.00500	0.5000	0	106	75	125	0.5009	5.25	20	
Chromium	0.504	0.0100	0.5000	0.002180	100	75	125	0.4762	5.69	20	
Lead	0.502	0.0100	0.5000	0	100	75	125	0.4783	4.82	20	
Manganese	0.806	0.0100	0.5000	0.3152	98.2	75	125	0.7767	3.74	20	
Strontium	1.17	0.0100	0.5000	0.6822	96.9	75	125	1.135	2.74	20	
Zinc	0.529	0.0100	0.5000	0	106	75	125	0.5007	5.59	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109742

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>109742</b>
Client ID: <b>PBW</b>	Batch ID: <b>R109742</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706217</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250			

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>109742</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R109742</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706221</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	19.8	0.250	20.00	0	98.8 80 120

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>109742</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>R109742</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706222</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	19.6	0.250	20.00	0	97.8 80 120 19.76 0.971 20

Sample ID <b>22050688-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>109742</b>
Client ID: <b>CD-5C</b>	Batch ID: <b>R109742</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706224</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	196	2.50	200.0	6.294	94.9 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109742

Sample ID	<b>22050688-003DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_D</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>109742</b>		
Client ID:	<b>CD-5C</b>	Batch ID:	<b>R109742</b>	TestNo:	<b>SW6020A</b>	Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706225</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		200		2.50	200.0	6.294	96.7	75	125	196.2	1.73	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109753

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109753</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R109753</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706429</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109753</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R109753</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706430</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				
Sulfate	10.3	0.250	10.00	0	103	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109753</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R109753</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706431</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120	10.17	0.230	15	
Sulfate	10.3	0.250	10.00	0	103	80	120	10.27	0.185	15	

Sample ID <b>22050688-011ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>109753</b>						
Client ID: <b>CD-6A</b>	Batch ID: <b>R109753</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>5/17/2022</b>	SeqNo: <b>2706445</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	532	12.5	250.0	302.8	91.5	80	120				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109753

Sample ID	<b>22050688-011ams</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109753</b>
Client ID:	<b>CD-6A</b>	Batch ID:	<b>R109753</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706445</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Sulfate		243		12.5	250.0	5.523	95.2	80	120		

Sample ID	<b>22050688-011amsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109753</b>
Client ID:	<b>CD-6A</b>	Batch ID:	<b>R109753</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>5/17/2022</b>	SeqNo:	<b>2706446</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		540		12.5	250.0	302.8	94.9	80	120	531.6	1.57 15
Sulfate		247		12.5	250.0	5.523	96.6	80	120	243.4	1.51 15

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109822

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109822</b>			
Client ID:	<b>LCSSW</b>	Batch ID:	<b>R109822</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708359</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.4		0.150	12.50	0		91.2	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109822</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109822</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708360</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.2		0.150	12.50	0		89.3	80	130	11.40	2.16	20	

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109822</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R109822</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708361</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0528			0.05000			106	70	130				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109841

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109841</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R109841</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708836</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0488		0.00500	0.05000	0		97.6	72	120				
Ethylbenzene		0.0486		0.00500	0.05000	0		97.2	76	129				
m,p-Xylene		0.0969		0.0100	0.1000	0		96.9	75	125				
o-Xylene		0.0473		0.00500	0.05000	0		94.6	75	125				
Toluene		0.0480		0.0100	0.05000	0		96.0	78	120				
Xylenes, Total		0.144		0.0500	0.1500	0		96.1	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0500			0.05000			100	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109841</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109841</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708837</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0454		0.00500	0.05000	0		90.8	72	120	0.04880	7.22	20	
Ethylbenzene		0.0442		0.00500	0.05000	0		88.4	76	129	0.04860	9.48	20	
m,p-Xylene		0.0891		0.0100	0.1000	0		89.1	75	125	0.09690	8.39	20	
o-Xylene		0.0441		0.00500	0.05000	0		88.2	75	125	0.04730	7.00	20	
Toluene		0.0447		0.0100	0.05000	0		89.4	78	120	0.04800	7.12	20	
Xylenes, Total		0.133		0.0500	0.1500	0		88.8	75	125	0.1442	7.93	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0515			0.05000			103	70	130		0	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 R RPD outside accepted recovery limits RL Reporting Limit S Spike Recovery outside accepted recovery limits  
 SDL Sample detection limit U Analyte not detected W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109841

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109841</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R109841</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708838</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0503		0.05000		101	70	130				

**Qualifiers:**  
 H Holding times for preparation or analysis exceeded  
 R RPD outside accepted recovery limits  
 SDL Sample detection limit

M Matrix Interference  
 RL Reporting Limit  
 U Analyte not detected

ND Not Detected at the Reporting Limit  
 S Spike Recovery outside accepted recovery limits  
 W Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109842

Sample ID	<b>22050577-001AMS</b>	SampType:	<b>MS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708842</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.5		0.150	12.50	0.2276		89.8	70	130				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0707			0.05000			141	70	130				SM

Sample ID	<b>22050577-001AMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708843</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		10.6		0.150	12.50	0.2276		82.9	70	130	11.45	7.87	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0578			0.05000			116	70	130		0	20	

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/19/2022</b>	SeqNo:	<b>2708851</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.5		0.150	12.50	0		92.1	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708852</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		11.3		0.150	12.50	0		90.0	80	130	11.51	2.27	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: **22050688**  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109842

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708852</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109842</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R109842</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>5/20/2022</b>	SeqNo:	<b>2708853</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
TPH (Gasoline Range)		< 0.150		0.150							
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0505			0.05000		101	70	130		

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109925

Sample ID <b>MB-R109925</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>109925</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R109925</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>5/24/2022</b>	SeqNo: <b>2711410</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Phenolphthalein	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID <b>LCS-R109925</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>109925</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R109925</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>5/24/2022</b>	SeqNo: <b>2711411</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	46.5	20.0	50.00	0	93.0	90	110				
------------------------------	------	------	-------	---	------	----	-----	--	--	--	--

Sample ID <b>22050688-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>109925</b>						
Client ID: <b>CD-9B</b>	Batch ID: <b>R109925</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>5/24/2022</b>	SeqNo: <b>2711413</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	210	20.0						210.0	0	20	H
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	H
Alkalinity, Phenolphthalein	< 20.0	20.0						0	0	20	H
Alkalinity, Total (As CaCO3)	210	20.0						210.0	0	20	H

**NOTES:**

H: Sample was analyzed 1 day outside of defined 14 days hold time due to laboratory oversight.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109966

Sample ID	BTEX LCS	SampType:	LCS	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	109966	
Client ID:	LCSW	Batch ID:	R109966	TestNo:	SW8021B	Analysis Date:	5/23/2022	SeqNo:	2712242		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0425	0.00500	0.05000	0	85.0	72	120				
Ethylbenzene	0.0421	0.00500	0.05000	0	84.2	76	129				
m,p-Xylene	0.0850	0.0100	0.1000	0	85.0	75	125				
o-Xylene	0.0414	0.00500	0.05000	0	82.8	75	125				
Toluene	0.0423	0.0100	0.05000	0	84.6	78	120				
Xylenes, Total	0.126	0.0500	0.1500	0	84.3	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0484		0.05000		96.8	70	130				

Sample ID	BTEX LCSD	SampType:	LCSD	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	109966	
Client ID:	LCSS02	Batch ID:	R109966	TestNo:	SW8021B	Analysis Date:	5/23/2022	SeqNo:	2712243		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0451	0.00500	0.05000	0	90.2	72	120	0.04250	5.94	20	
Ethylbenzene	0.0446	0.00500	0.05000	0	89.2	76	129	0.04210	5.77	20	
m,p-Xylene	0.0898	0.0100	0.1000	0	89.8	75	125	0.08500	5.49	20	
o-Xylene	0.0435	0.00500	0.05000	0	87.0	75	125	0.04140	4.95	20	
Toluene	0.0447	0.0100	0.05000	0	89.4	78	120	0.04230	5.52	20	
Xylenes, Total	0.133	0.0500	0.1500	0	88.9	75	125	0.1265	5.23	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0487		0.05000		97.4	70	130		0	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp



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# QC SUMMARY REPORT

WO#: 22050688  
 31-May-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R109966

Sample ID	<b>MBLK - ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>109966</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R109966</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>5/23/2022</b>	SeqNo:	<b>2712244</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0487		0.05000		97.4	70	130				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected	W	Sample container temperature is out of limit as sp

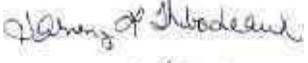
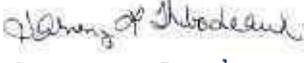


## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22050688**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>5/13/2022 5:15:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>5/16/2022 9:53:55 AM</b>	
Reviewed By:	<b>Cristina Thibeaux</b>	<b>5/17/2022 1:49:29 PM</b>	

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes  No  NA
6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
7. Sample(s) in proper container(s)? Yes  No
8. Sufficient sample volume for indicated test(s)? Yes  No
9. Are samples (except VOA and ONG) properly preserved? Yes  No
10. Was preservative added to bottles? Yes  No  NA
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials
12. Were any sample containers received broken? Yes  No
13. Does paperwork match bottle labels? Yes  No   
(Note discrepancies on chain of custody)
14. Are matrices correctly identified on Chain of Custody? Yes  No
15. Is it clear what analyses were requested? Yes  No
16. Were all holding times able to be met? Yes  No   
(If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Jason Sills"/>	Date:	<input type="text" value="5/24/2022"/>
By Whom:	<input type="text" value="Buffy Bryant"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="First 3 ALK samples were tested outside of holding time."/>		
Client Instructions:	<input type="text" value="Proceed with reporting outside of hold time with hold time qualifiers."/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.2	Good	Not Present			
2	4.3	Good	Not Present			



# Chain of Custody

Laboratory Number: **2250088**

**Client Information:**  
 Company Name: **ICON Environmental**  
 Contact Name: **Karen Bell**  
 Address: **2019 Commercial Drive**  
 City, State, Zip: **Perth Allen, LA 70767**  
 Phone Number: **225.344.8490** EXT:  
 Fax Number: **225.344.6654**  
 E-mail Address: **jbell@iconenv.com**

**Billing Information:**  
 Billing Information: **SAME**  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No

**Project Name/Number:**  
**Castex Development**  
**9403-016-0100**

**Sampler's Signature:**  
**Karen Bell**

**Shipping Method:**  
 UPS / FedEx / NOW  
 DHL / Element (Hand / Mail)

Page **2** of **2**  
**Matrix Code**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge SOL = Solid  
 O = Oil SO = Sol  
 F = Food SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Turn Time		Rush turn times will incur a surcharge and must be pre-approved by (lab.)	Container		Pres.	Requested Tests					Comments		
	Date	Time		Quantity	Type P=Plastic G=Glass, V=Vial		HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	TDS/celluloses	Cations/Anions	TPH DqC	BTEX/TPH G		Total Metals	Dissected Metals
	Date	Time	Matrix											
CD-9B	5.9.22	1215	G	8	P.V	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	X	X	X	X	X	X	<b>Metals</b> As, Ba, Cd, Cr, Sr, Zn, Mn, Pb, Hg *As-Method 6020  <b>Cations</b> Na, Ca, Mg, K  <b>Anions</b> Sulfate Alk. Carbonate Alk. Bicarbonate	
CD-9A	5.9.22	1425	G	8	P.V		X	X	X	X	X	X		
CD-5c	5.9.22	1700	G	8	P.V		X	X	X	X	X	X		
CD-10a	5.10.22	0945	G	8	P.V		X	X	X	X	X	X		
CD-8b	5.10.22	1135	G	8	P.V		X	X	X	X	X	X		
CD-8a	5.10.22	1430	G	8	P.V		X	X	X	X	X	X		
CD-11a	5.10.22	1550	G	8	P.V		X	X	X	X	X	X		
CD-11b	5.11.22	1000	G	8	P.V		X	X	X	X	X	X		
CD-7b	5.11.22	1435	G	8	P.V		X	X	X	X	X	X		

**Relinquished by:** **Karen Bell** **Date/Time:** **5.13.22 / 1715**

**Received by:** **Subhadra** **Date/Time:** **5/13/22 1715**

Received at lab on ice?  Yes  No Temp: **43**

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.

Element Materials Technology reserves the right to return unused sample portions.

8900 North US 31  
 Columbus, IN  
 47201 USA  
 P 812-375-0531  
 F 812-375-0731

328 Ley Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

996 Executive Dr  
 Warsaw, IN  
 46580 USA  
 P 574-257-5305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628 USA  
 P 574-277-0707  
 F 574-273-5699

2417 W. Pinhook Rd  
 Lafayette, LA  
 70505 USA  
 P 337-235-0483  
 F 337-233-6648



# Chain of Custody

Laboratory Number: 2205088

**Client Information:** **Billing Information:** **PO Number:**  
 Company Name: ICON **Project Name/Number:** Castex Development  
 Contact Name: SAME **Quote Number:**  
 Address: **Required QC Level**  
 City, State Zip: **Ext:** **Bill Monthly**  
 Phone Number: **Ext:**  Yes  
 Fax Number: **Shipping Method:**  No  
 E-mail Address: **UPS / FedEx / NOW**  
**DHL / E-mailment (Hand) / Mail**

**Matrix Code**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge SOL = Solid  
 O = Oil SO = Soil  
 F = Food SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

**Sampler's Signature:** *Kate Bell*  
**Shipping Method:**

Page 2 of 2

Sample ID/Description	Turn Time <input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Collection Information		Container Quantity Type P = Plastic G = Glass V = Vol	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests					Comments	
			Date				TDS/Chlorides	Cations/Anions	TPH	TPH DQO	BTEX/TPH		Total Metals
			Date	Time			Matrix						
CD-7c		5.12.22 0855		EW	8	P.V	HCl, HNO <sub>3</sub>	X	X	X	X	X	Metals/ Cations/ Anions  ↓ See pg 1
CD-6a		5.12.22 1025		EW	8	P.V	X	X	X	X	X		
CD-6b		5.12.22 1300		EW	8	P.V	X	X	X	X	X		

Reinquisitioned by	Date/Time	Received by	Date/Time	Field Notes:
<i>Kate Bell</i>	5.13.22 / 1715	<i>Subodhant</i>	5/13/22 1715	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>22</u>

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

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 Columbus, IN  
 47201 USA  
 P 812-375-0531  
 F 812-375-0731

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 46825 USA  
 P 260-471-7000  
 F 260-471-7777

900 Executive Dr  
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 46580 USA  
 P 574-267-3305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
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 46628 USA  
 P 574-277-0707  
 F 574-273-6690

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-6483  
 F 337-233-6540



Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

July 05, 2022

Mr. Jason Sills  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex Development  
Pace Project No.: 30490373

Dear Mr. Sills:

Enclosed are the analytical results for sample(s) received by the laboratory on May 19, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sean L. Meredith  
sean.meredith@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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Page 1 of 14

Castex-ICON Report-000753

**BP/Castex-Ltd Adm-Apx I-000754**



## CERTIFICATIONS

Project: Castex Development

Pace Project No.: 30490373

### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castex Development  
Pace Project No.: 30490373

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30490373001	CD-9b	Water	05/09/22 12:15	05/19/22 10:20
30490373002	CD-9a	Water	05/09/22 14:25	05/19/22 10:20
30490373003	CD-5C	Water	05/09/22 17:00	05/19/22 10:20
30490373004	CD-10a	Water	05/10/22 09:45	05/19/22 10:20
30490373005	CD-8a	Water	05/10/22 14:30	05/19/22 10:20
30490373006	CD-11a	Water	05/10/22 15:50	05/19/22 10:20
30490373007	CD-7b	Water	05/11/22 14:35	05/19/22 10:20
30490373008	CD-7c	Water	05/12/22 08:55	05/19/22 10:20
30490373009	CD-6a	Water	05/12/22 10:25	05/19/22 10:20
30490373010	CD-6b	Water	05/12/22 13:00	05/19/22 10:20

### REPORT OF LABORATORY ANALYSIS

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**SAMPLE ANALYTE COUNT**

Project: Castex Development  
 Pace Project No.: 30490373

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30490373001	CD-9b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373002	CD-9a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373003	CD-5C	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373004	CD-10a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373005	CD-8a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373006	CD-11a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373007	CD-7b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373008	CD-7c	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373009	CD-6a	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30490373010	CD-6b	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

**REPORT OF LABORATORY ANALYSIS**

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## PROJECT NARRATIVE

Project: Castex Development

Pace Project No.: 30490373

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** ICON Environmental Services

**Date:** July 05, 2022

**General Information:**

10 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex Development

Pace Project No.: 30490373

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** ICON Environmental Services

**Date:** July 05, 2022

**General Information:**

10 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex Development  
 Pace Project No.: 30490373

**Sample: CD-9b**      **Lab ID: 30490373001**      Collected: 05/09/22 12:15      Received: 05/19/22 10:20      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.193 ± 0.401 (0.723)</b> C:NA T:97%	pCi/L	07/01/22 11:38	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.471 ± 0.319 (0.608)</b> C:81% T:97%	pCi/L	06/24/22 14:35	15262-20-1	

**Sample: CD-9a**      **Lab ID: 30490373002**      Collected: 05/09/22 14:25      Received: 05/19/22 10:20      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.270 ± 0.462 (0.811)</b> C:NA T:94%	pCi/L	07/01/22 12:24	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.522 ± 0.353 (0.676)</b> C:80% T:94%	pCi/L	06/24/22 14:36	15262-20-1	

**Sample: CD-5C**      **Lab ID: 30490373003**      Collected: 05/09/22 17:00      Received: 05/19/22 10:20      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>2.40 ± 0.801 (0.519)</b> C:NA T:90%	pCi/L	07/01/22 12:24	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>3.17 ± 0.795 (0.716)</b> C:79% T:90%	pCi/L	06/24/22 14:36	15262-20-1	

**Sample: CD-10a**      **Lab ID: 30490373004**      Collected: 05/10/22 09:45      Received: 05/19/22 10:20      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.331 ± 0.344 (0.512)</b> C:NA T:88%	pCi/L	07/01/22 12:24	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.436 ± 0.325 (0.633)</b> C:84% T:88%	pCi/L	06/24/22 14:36	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex Development  
 Pace Project No.: 30490373

Sample: CD-8a		Lab ID: 30490373005	Collected: 05/10/22 14:30	Received: 05/19/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.628 ± 0.417 (0.486)</b>		pCi/L	07/01/22 12:24	13982-63-3	
		<b>C:NA T:99%</b>					
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.231 ± 0.294 (0.626)</b>		pCi/L	06/24/22 14:36	15262-20-1	
		<b>C:80% T:99%</b>					

Sample: CD-11a		Lab ID: 30490373006	Collected: 05/10/22 15:50	Received: 05/19/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.433 ± 0.477 (0.763)</b>		pCi/L	07/01/22 12:24	13982-63-3	
		<b>C:NA T:94%</b>					
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.439 ± 0.304 (0.575)</b>		pCi/L	06/24/22 14:36	15262-20-1	
		<b>C:79% T:94%</b>					

Sample: CD-7b		Lab ID: 30490373007	Collected: 05/11/22 14:35	Received: 05/19/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.614 ± 0.423 (0.452)</b>		pCi/L	07/01/22 12:24	13982-63-3	
		<b>C:NA T:83%</b>					
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.653 ± 0.378 (0.681)</b>		pCi/L	06/24/22 14:36	15262-20-1	
		<b>C:77% T:83%</b>					

Sample: CD-7c		Lab ID: 30490373008	Collected: 05/12/22 08:55	Received: 05/19/22 10:20	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.108 ± 0.258 (0.499)</b>		pCi/L	07/01/22 12:24	13982-63-3	
		<b>C:NA T:89%</b>					
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.186 ± 0.336 (0.735)</b>		pCi/L	06/24/22 14:36	15262-20-1	
		<b>C:75% T:89%</b>					

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex Development  
 Pace Project No.: 30490373

**Sample: CD-6a** Lab ID: 30490373009 Collected: 05/12/22 10:25 Received: 05/19/22 10:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.662 ± 0.394 (0.375)</b> C:NA T:96%	pCi/L	07/05/22 11:35	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.507 ± 0.331 (0.626)</b> C:80% T:96%	pCi/L	06/24/22 14:36	15262-20-1	

**Sample: CD-6b** Lab ID: 30490373010 Collected: 05/12/22 13:00 Received: 05/19/22 10:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.170 ± 0.369 (0.681)</b> C:NA T:88%	pCi/L	07/01/22 12:37	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.197 ± 0.295 (0.636)</b> C:77% T:88%	pCi/L	06/24/22 14:36	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex Development  
 Pace Project No.: 30490373

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QC Batch:	510601	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30490373001, 30490373002, 30490373003, 30490373004, 30490373005, 30490373006, 30490373007, 30490373008, 30490373009, 30490373010		

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METHOD BLANK:	2474791	Matrix:	Water
Associated Lab Samples:	30490373001, 30490373002, 30490373003, 30490373004, 30490373005, 30490373006, 30490373007, 30490373008, 30490373009, 30490373010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.210 ± 0.283 (0.604) C:78% T:93%	pCi/L	06/24/22 14:35	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex Development  
 Pace Project No.: 30490373

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QC Batch:	510599	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30490373001, 30490373002, 30490373003, 30490373004, 30490373005, 30490373006, 30490373007, 30490373008, 30490373009, 30490373010		

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METHOD BLANK:	2474790	Matrix:	Water
Associated Lab Samples:	30490373001, 30490373002, 30490373003, 30490373004, 30490373005, 30490373006, 30490373007, 30490373008, 30490373009, 30490373010		

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.358 ± 0.363 (0.550) C:NA T:93%	pCi/L	07/01/22 11:38	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALIFIERS

Project: Castex Development  
Pace Project No.: 30490373

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.  
Act - Activity  
Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.  
Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.  
(MDC) - Minimum Detectable Concentration  
Trac - Tracer Recovery (%)  
Carr - Carrier Recovery (%)  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY Analytical Request Document

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/hubfs/pas-standard-terms.pdf>  
Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: ICON Environmental

Address: 2049 Commercial Drive  
Port Allen, LA 70167

Report To: Jason Sills

Copy To: Robin Gremillion

Customer Project Name/Number: Castex Development/1403-016-0100

State: LA County/City: Metairie Time Zone Collected: ET

Phone: 225.344.8790 Site/Facility ID #: JPT [ ] MT [X] CT [ ] JET

Compliance Monitoring? [ ] Yes [ ] No

DW PWS ID #:                     

DW Location Code:                     

Immediately Packed on Ice: [ ] Yes [X] No

Field Filtered (if applicable): [ ] Yes [X] No

Analysis:                     

Turnaround Date Required: Standard

Rush: (Expedite Charges Apply)

[ ] Same Day [ ] Next Day

[ ] 2 Day [ ] 3 Day

[ ] 4 Day [ ] 5 Day

Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End Date	Res CI	# of Ctns	Container Type: Plastic (P) or Glass (G)
			Date	Time				
CD-9b	GW	G	5.9.22	1215			2	P
CD-9a	GW	G	5.9.22	1425			2	P
CD-5c	GW	G	5.9.22	1700			2	P
CD-10a	GW	G	5.10.22	0945			2	P
CD-8a	GW	G	5.10.22	1430			2	P
CD-11a	GW	G	5.10.22	1550			2	P
CD-7b	GW	G	5.11.22	1435			2	P
CD-7c	GW	G	5.12.22	0855			2	P
CD-6a	GW	G	5.12.22	1025			2	P
CD-6b	GW	G	5.12.22	1300			2	P

Customer Remarks / Special Conditions / Possible Hazards:

Type of Ice Used: Wet Blue Dry None

Packing Material Used:                     

Radchem sample(s) screened (<500 cpm): Y N NA

Received by/Company: (Signature)                     

Date/Time: 5.16.22 /

Received by/Company: (Signature)                     

Date/Time:                     

Received by/Company: (Signature)                     

Date/Time:                     

Received by/Company: (Signature)                     

Date/Time:                     

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

# WO#: 30490373



30490373

ALL BOLD O

Container Preservativ

\*\* Preservative Types: (1) nitric acid, (2) s  
(6) methanol, (7) sodium bisulfate, (8) sod.  
(C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/Line:	Lab Sample Receipt Checklist:
	Custody Seals Present/Intact: <u>X</u> N NA
	Custody Signatures Present: <u>X</u> N NA
	Collector Signature Present: <u>X</u> N NA
	Bottles Intact: <u>X</u> N NA
	Correct Bottles: <u>X</u> N NA
	Sufficient Volume: <u>X</u> N NA
	Samples Received on Ice: <u>X</u> N NA
	VOA - Headspace Acceptable: <u>X</u> N NA
	USDA Regulated Soils: <u>X</u> N NA
	Samples in Holding Time: <u>X</u> N NA
	Residual Chlorine Present: <u>X</u> N NA
	Cl Strips: <u>X</u> N NA
	Sample pH Acceptable: <u>X</u> N NA
	pH Strips: <u>10.4/11</u> Y N NA
	Sulfide Present: <u>                    </u> Y N NA
	Lead Acetate Strips: <u>                    </u>
	LAB USE ONLY: <u>                    </u>
	Lab Sample # / Comments: <u>                    </u>

Lab Sample Temperature Info:
Temp Blank Received: <u>Y</u> N NA
Therm ID#: <u>                    </u>
Cooler 1 Temp Upon Receipt: <u>                    </u> °C
Cooler 1 Therm Corr. Factor: <u>                    </u> °C
Cooler 1 Corrected Temp: <u>                    </u> °C
Comments: <u>                    </u>

LAB Sample Temperature Info:
Temp Blank Received: <u>Y</u> N NA
Therm ID#: <u>                    </u>
Cooler 1 Temp Upon Receipt: <u>                    </u> °C
Cooler 1 Therm Corr. Factor: <u>                    </u> °C
Cooler 1 Corrected Temp: <u>                    </u> °C
Comments: <u>                    </u>

Trip/Blank Received:
HCL MeOH TSP Other
Non Conformance(s): <u>                    </u>
YES / NO <u>                    </u>
Page: <u>                    </u> of: <u>                    </u>

SHORT HOLDS PRESENT (<72 hours):
Y N N/A
Lab Tracking #: <u>                    </u>
Samples received via: <u>                    </u>
FEDEX UPS Client Courier Pace Counter
Date/Time: <u>5/19/22 10:20</u>
Table #: <u>                    </u>
MTJL LAB USE ONLY
Actnum: <u>                    </u>
Template: <u>                    </u>
Prelogin: <u>                    </u>
PVI: <u>                    </u>
PB: <u>                    </u>

Date/Time:
<u>5.16.22 /</u>
Date/Time:
<u>                    </u>
Date/Time:
<u>                    </u>



Pace Analytical Sample Container Count

WO#: 30490373

PM: SM1

Due Date: 06/10/22

CLIENT: ICON

Profile Number

2335

Client

Site Castex Development

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGKU	WG9U	ZPLC
1	WZ											Z																
2												Z																
3												Z																
4												Z																
5												Z																
6												Z																
7												Z																
8												Z																
9												Z																
10												Z																
11												Z																
12												Z																

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	40mL amber VOA vial H2SO4
AG5T	40mL clear VOA vial
GJN	100mL amber glass unreserved
AG1S	40mL clear VOA vial Na Thiosulfate
AG1H	40mL clear VOA vial HCl
AG1T	1 Gallon Jug
BG1U	4oz amber wide jar
AG3S	4oz wide jar unreserved
AG3U	500mL clear glass unreserved
	500mL amber glass unreserved
	8oz wide jar unreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unreserved
BP3C	250ml plastic NAOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unreserved
EZI	5g Encore
VOAK	Kit for Volatile Solid
J	Wiper/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe



Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

June 29, 2022

Mr. Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex / 9403-016-0100  
Pace Project No.: 30498257

Dear Mr. Miller:

Enclosed are the analytical results for sample(s) received by the laboratory on June 16, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sean L. Meredith  
sean.meredith@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Mr. Derek Pourciau, ICON Environmental Services



### REPORT OF LABORATORY ANALYSIS

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Castex-ICON Report-000767

**BP/Castex-Ltd Adm-Apx I-000768**



## CERTIFICATIONS

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30498257001	R-1 (0-6)	Solid	06/09/22 08:45	06/16/22 10:00
30498257002	R-1 (6-12)	Solid	06/09/22 08:50	06/16/22 10:00
30498257003	R-1 (12-18)	Solid	06/09/22 08:55	06/16/22 10:00
30498257004	R-2 (0-6)	Solid	06/09/22 09:30	06/16/22 10:00
30498257005	R-2 (6-12)	Solid	06/09/22 09:35	06/16/22 10:00
30498257006	R-3 (0-6)	Solid	06/09/22 10:00	06/16/22 10:00
30498257007	R-3 (6-12)	Solid	06/09/22 10:05	06/16/22 10:00
30498257008	R-3 (12-18)	Solid	06/09/22 10:10	06/16/22 10:00
30498257009	R-4 (0-4)	Solid	06/09/22 11:30	06/16/22 10:00
30498257010	R-5 (0-6)	Solid	06/09/22 11:00	06/16/22 10:00

### REPORT OF LABORATORY ANALYSIS

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**SAMPLE ANALYTE COUNT**

Project: Castex / 9403-016-0100  
 Pace Project No.: 30498257

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30498257001	R-1 (0-6)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257002	R-1 (6-12)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257003	R-1 (12-18)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257004	R-2 (0-6)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257005	R-2 (6-12)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257006	R-3 (0-6)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257007	R-3 (6-12)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257008	R-3 (12-18)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257009	R-4 (0-4)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA
30498257010	R-5 (0-6)	SM 2540G-2015	SRW	1	PASI-PA
		EPA 901.1	MAH	2	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

**REPORT OF LABORATORY ANALYSIS**

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## PROJECT NARRATIVE

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

---

**Method:** EPA 901.1

**Description:** 901.1 Gamma Spec

**Client:** ICON Environmental Services

**Date:** June 29, 2022

### General Information:

10 samples were analyzed for EPA 901.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

**Sample: R-1 (0.6)** Lab ID: 30498257001 Collected: 06/09/22 08:45 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>3.640 ± 1.639 (1.710)</b> C:NA T:NA	pCi/g	06/29/22 09:06	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.429 ± 0.348 (0.262)</b> C:NA T:NA	pCi/g	06/29/22 09:06	15262-20-1	

**Sample: R-1 (6-12)** Lab ID: 30498257002 Collected: 06/09/22 08:50 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>2.001 ± 1.206 (1.810)</b> C:NA T:NA	pCi/g	06/29/22 09:37	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.600 ± 0.368 (0.188)</b> C:NA T:NA	pCi/g	06/29/22 09:37	15262-20-1	

**Sample: R-1 (12-18)** Lab ID: 30498257003 Collected: 06/09/22 08:55 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>4.435 ± 2.113 (2.040)</b> C:NA T:NA	pCi/g	06/29/22 12:20	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.531 ± 0.366 (0.287)</b> C:NA T:NA	pCi/g	06/29/22 12:20	15262-20-1	

**Sample: R-2 (0-6)** Lab ID: 30498257004 Collected: 06/09/22 09:30 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>18.893 ± 4.565 (3.570)</b> C:NA T:NA	pCi/g	06/29/22 12:35	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.935 ± 0.500 (0.402)</b> C:NA T:NA	pCi/g	06/29/22 12:35	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100  
 Pace Project No.: 30498257

**Sample: R-2 (6-12)** Lab ID: 30498257005 Collected: 06/09/22 09:35 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>4.838 ± 2.155 (2.174)</b> C:NA T:NA	pCi/g	06/29/22 13:06	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.177 ± 0.429 (0.335)</b> C:NA T:NA	pCi/g	06/29/22 13:06	15262-20-1	

**Sample: R-3 (0-6)** Lab ID: 30498257006 Collected: 06/09/22 10:00 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>36.234 ± 8.682 (5.879)</b> C:NA T:NA	pCi/g	06/29/22 10:10	13982-63-3	RA
Radium-228	EPA 901.1	<b>3.033 ± 0.855 (0.628)</b> C:NA T:NA	pCi/g	06/29/22 10:10	15262-20-1	

**Sample: R-3 (6-12)** Lab ID: 30498257007 Collected: 06/09/22 10:05 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>2.047 ± 1.921 (2.217)</b> C:NA T:NA	pCi/g	06/29/22 13:43	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.750 ± 0.369 (0.145)</b> C:NA T:NA	pCi/g	06/29/22 13:43	15262-20-1	

**Sample: R-3 (12-18)** Lab ID: 30498257008 Collected: 06/09/22 10:10 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>6.060 ± 2.064 (2.052)</b> C:NA T:NA	pCi/g	06/29/22 13:07	13982-63-3	RA
Radium-228	EPA 901.1	<b>1.764 ± 0.422 (0.308)</b> C:NA T:NA	pCi/g	06/29/22 13:07	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

**Sample: R-4 (0-4)** Lab ID: 30498257009 Collected: 06/09/22 11:30 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>56.219 ± 10.400 (7.840)</b> C:NA T:NA	pCi/g	06/29/22 10:44	13982-63-3	RA
Radium-228	EPA 901.1	<b>61.281 ± 8.346 (1.255)</b> C:NA T:NA	pCi/g	06/29/22 10:44	15262-20-1	

**Sample: R-5 (0-6)** Lab ID: 30498257010 Collected: 06/09/22 11:00 Received: 06/16/22 10:00 Matrix: Solid  
 PWS: Site ID: Sample Type:

**Results reported on a "dry-weight" basis**

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 901.1	<b>18.678 ± 5.664 (5.363)</b> C:NA T:NA	pCi/g	06/29/22 13:44	13982-63-3	RA
Radium-228	EPA 901.1	<b>27.479 ± 3.800 (0.673)</b> C:NA T:NA	pCi/g	06/29/22 13:44	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

---

QC Batch:	515135	Analysis Method:	EPA 901.1
QC Batch Method:	EPA 901.1	Analysis Description:	901.1 Gamma Spec
		Laboratory:	Pace Analytical Services - Greensburg
Associated Lab Samples:	30498257001, 30498257002, 30498257003, 30498257004, 30498257005, 30498257006, 30498257007, 30498257008, 30498257009, 30498257010		

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METHOD BLANK: 2496661 Matrix: Solid

Associated Lab Samples: 30498257001, 30498257002, 30498257003, 30498257004, 30498257005, 30498257006, 30498257007, 30498257008, 30498257009, 30498257010

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.000 ± 0.400 (0.924) C:NA T:NA	pCi/g	06/29/22 08:49	RA
Radium-228	0.000 ± 0.026 (0.272) C:NA T:NA	pCi/g	06/29/22 08:49	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castex / 9403-016-0100

Pace Project No.: 30498257

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

### ANALYTE QUALIFIERS

H1 Analysis conducted outside the EPA method holding time.

RA The reported Ra-226 results were determined using a direct gamma emission (186 keV) shared by both Ra-226 and naturally-occurring U-235. The reported Ra-226 results were determined assuming the shared energy peak is attributable exclusively to Ra-226. Reported results for Ra-226 may be biased high if U-235 is present in the sample.

## REPORT OF LABORATORY ANALYSIS

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Company: **ICON Environmental Services**  
 Address: **2849 Comanche Ln. Port Allen LA**  
 Report To: **Greg Miller**  
 Copy To: **Greg Miller**  
 Billing Information: **SAME**  
 Email To: **rgremillion@iconenv.com**  
 Site Collection Info/Address: **LA / [ ] PT [ ] MT [ ] ET**

Customer Project Name/Number: **Castex / 9403-016-0100**  
 Phone: **225 344 8490**  
 Email: **gregm@iconenv.com**  
 Collected By (print): **DR**  
 State: **LA** County/City: **LA / [ ] PT [ ] MT [ ] ET**  
 Site/Facility ID #: **9403-016-0100**  
 Purchase Order #: **DR**  
 Quote #: **DR**  
 Turnaround Date Required: **STD**  
 Rush: **[ ] Same Day [ ] Next Day [ ] 2 Day [ ] 3 Day [ ] 4 Day [ ] 5 Day**  
 Sample Disposal: **[ ] Dispose as appropriate [ ] Return [ ] Archive [ ] Hold**  
 \* Matrix Codes (insert in Matrix box below): Drinking Water (DW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res # of Ctns
			Date	Time	
R-1 (0-6")	SL	Grab	6-9-22	845	1
R-1 (6-12")				850	1
R-1 (12-18")				855	1
R-2 (0-6")				930	1
R-2 (6-12")				935	1
R-3 (0-6")				1000	1
R-3 (6-12")				1010	1
R-3 (12-18")				1130	1
R-4 (0-4")				1100	1
R-5 (0-6")					1

Customer Remarks / Special Conditions / Possible Hazards: **None**

Type of Ice Used: Wet Blue Dry **None**

Packing Material Used: **None**

Radchem sample(s) screened (<500 cpm): **[ ] Y [ ] N [ ] NA**

Received by/Company: (Signature) **Fed Ex**  
 Date/Time: **6/13/22 8:30**

Received by/Company: (Signature) **Greg Miller**  
 Date/Time: **6/16/22 10:00**

Received by/Company: (Signature) **Greg Miller**  
 Date/Time: **6/16/22 10:00**

Relinquished by/Company: (Signature) **Greg Miller**  
 Date/Time: **6/16/22 10:00**

Relinquished by/Company: (Signature) **Greg Miller**  
 Date/Time: **6/16/22 10:00**

Relinquished by/Company: (Signature) **Greg Miller**  
 Date/Time: **6/16/22 10:00**

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTIL Log-in Number Here

Container Preservative Type: **U U**

Lab Project Manager: **U U**

\*\* Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

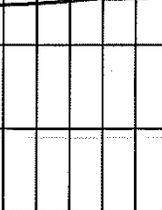
Lab Profile/Line: **Analyses**

Lab Sample Receipt Checklist:

- Custody Seals Present/Intact **Y (N) NA**
- Custody Signatures Present **Y (N) NA**
- Collector Signatures Present **Y (N) NA**
- Bottles Intact **Y (N) NA**
- Correct Bottles **Y (N) NA**
- Sufficient Volume **Y (N) NA**
- Samples Received on Ice **Y (N) NA**
- VOA - Headspace Acceptable **Y (N) NA**
- USDA Regulated Soils **Y (N) NA**
- Samples in Holding Time **Y (N) NA**
- Residual Chlorine Present **Y (N) NA**
- CI Strips: **Y (N) NA**
- Sample pH Acceptable **Y (N) NA**
- pH Strips: **Y (N) NA**
- Sulfide Present **Y (N) NA**
- Lead Acetate Strips: **Y (N) NA**

LAB USE ONLY: **LAB Sample # / Comments:**

**WO#: 30498257**



SHORT HOLDS PRESENT (<72 hours): **Y (N) N/A**

Lab Tracking #: **2495876**

Samples received via: **7771 1033 6660**

FEDEX UPS Client Courier Pace Courier

Date/Time: **6/16/22 10:00**

Table #: **MTIL LAB USE ONLY**

Acctnum: **MTIL LAB USE ONLY**

Template: **MTIL LAB USE ONLY**

Prelogin: **MTIL LAB USE ONLY**

PM: **MTIL LAB USE ONLY**

PB: **MTIL LAB USE ONLY**

Lab Sample Temperature Info:

Temp Blank Received: **Y (N) NA**

Therm ID#: **OC**

Cooler 1 Temp Upon Receipt: **OC**

Cooler 1 Therm Corr. Factor: **OC**

Cooler 1 Corrected Temp: **OC**

Comments:

Trip Blank Received: **Y (N) NA**

HCL MeOH TSP Other

Non Conformance(s): **YES (NO)**

Page: **11** of **2**



Pace Greensburg Lab -Sample Container Count

Profile Number **2332**

Client  
Site

**Castex/9463-016-0100**

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	SL																											
2																												
3																												
4																												
5																												
6																												
7																												
8																												
9																												
10																												
11																												
12																												

Container Codes

Glass	
JN	1 Gallon Jug with HNO3
G6U	100mL amber glass unpreserved
G5T	100mL amber glass Na Thiosulfate
JN	1 Gallon Jug
G1S	1L amber glass H2SO4
G1H	1L amber glass HCl
G1T	1L amber glass Na Thiosulfate
G1U	1L clear glass unpreserved
G3S	250mL amber glass H2SO4
G3U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosulfate
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WG9U	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250mL plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZI	5g Encore
VOAK	Kit for Volatile Solid
I	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WP	Wipe

**WIO#: 30498257**

Due Date: 06/23/22

PM: SM1  
CLIENT: ICON



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
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June 28, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX: (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22060574

Dear Greg Miller:

Element Materials Technology Lafayette received 6 sample(s) on 6/10/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
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Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 22060574

Date: 6/28/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

---

Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

Due to limited sample, 95.5g of the soil (dry wt basis), instead of 100g as required by the method, was used in the Leachate Chloride procedure for Lab ID 22060574-005. The amount of the extraction fluid was proportionally reduced to yield a 1:4 sample to fluid ratio.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-001  
**Client Sample ID** CD-14 2-4

**Collection Date:** 6/10/2022 8:05:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) CATION EXCHANGE CAPACITY</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Cation Exchange Capacity	44.6	0.100		meq/100g	1	6/21/2022
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	5.20	0.10	*	mmhos/cm	1	6/15/2022 9:39:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	14.8	0.10		%	1	6/21/2022
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	17.4	0.10	*		1	6/20/2022
Soluble Calcium	5.18	0.02		meq/L	1	6/20/2022
Soluble Magnesium	3.68	0.05		meq/L	1	6/20/2022
Soluble Sodium	36.7	0.25		meq/L	1	6/20/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>						
					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.108	0.108		mg/Kg-dry	1	6/17/2022 10:49:33 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	1,260	20.9		mg/Kg-dry	100	6/15/2022 9:28:30 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>						
					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRM</b>
Arsenic	5.46	1.87		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Barium	457	5.60		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Cadmium	< 0.466	0.466		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Chromium	17.2	0.933		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Lead	14.7	0.933		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Strontium	34.0	0.933		mg/Kg-dry	1	6/21/2022 3:45:00 PM
Zinc	22.8	0.933		mg/Kg-dry	1	6/21/2022 3:45:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- B Analyte detected in the associated Method Blank
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2022 8:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-001 **Matrix:** SOIL  
**Client Sample ID** CD-14 2-4

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRM</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	3,400	244		mg/Kg-dry	1	6/16/2022 7:33:41 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Percent Moisture	21.0	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-002  
**Client Sample ID** CD-14 4-6

**Collection Date:** 6/10/2022 8:10:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) CATION EXCHANGE CAPACITY</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Cation Exchange Capacity	48.6	0.100		meq/100g	1	6/21/2022
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	3.97	0.10		mmhos/cm	1	6/15/2022 9:39:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	5.50	0.10		%	1	6/21/2022
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	5.49	0.10			1	6/20/2022
Soluble Calcium	9.63	0.02		meq/L	1	6/20/2022
Soluble Magnesium	8.13	0.05		meq/L	1	6/20/2022
Soluble Sodium	16.4	0.25		meq/L	1	6/20/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>						
					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.108	0.108		mg/Kg-dry	1	6/17/2022 10:51:51 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	963	21.2		mg/Kg-dry	100	6/15/2022 9:42:17 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>						
					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRM</b>
Arsenic	4.22	2.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Barium	595	6.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Chromium	16.0	1.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Lead	11.5	1.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Strontium	30.8	1.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM
Zinc	35.6	1.00		mg/Kg-dry	1	6/21/2022 3:52:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- B Analyte detected in the associated Method Blank
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2022 8:10:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-002 **Matrix:** SOIL  
**Client Sample ID** CD-14 4-6

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRM</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	751	239		mg/Kg-dry	1	6/20/2022 4:38:45 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Percent Moisture	16.9	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-003  
**Client Sample ID** CD-14 6-8

**Collection Date:** 6/10/2022 8:15:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) CATION EXCHANGE CAPACITY</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Cation Exchange Capacity	48.8	0.100		meq/100g	1	6/21/2022
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	2.39	0.10		mmhos/cm	1	6/15/2022 9:39:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	2.63	0.10		%	1	6/21/2022
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	2.51	0.10			1	6/20/2022
Soluble Calcium	8.58	0.02		meq/L	1	6/20/2022
Soluble Magnesium	5.75	0.05		meq/L	1	6/20/2022
Soluble Sodium	6.71	0.25		meq/L	1	6/20/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>						
					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.107	0.107		mg/Kg-dry	1	6/17/2022 10:54:10 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	440	9.08		mg/Kg-dry	50	6/15/2022 9:56:03 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>						
					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRM</b>
Arsenic	3.76	1.99		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Barium	294	5.97		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Cadmium	< 0.497	0.497		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Chromium	14.5	0.995		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Lead	10.5	0.995		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Strontium	31.4	0.995		mg/Kg-dry	1	6/21/2022 3:55:00 PM
Zinc	37.0	0.995		mg/Kg-dry	1	6/21/2022 3:55:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- B Analyte detected in the associated Method Blank
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2022 8:15:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-003 **Matrix:** SOIL  
**Client Sample ID** CD-14 6-8

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>						
<b>TRUE TOTAL BARIUM</b>						Analyst: <b>MRM</b>
True Total Barium	715	237		mg/Kg-dry	1	6/20/2022 4:50:12 PM
<b>PERCENT MOISTURE</b>						Analyst: <b>JMI</b>
Percent Moisture	17.4	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-004  
**Client Sample ID** CD-14 8-10

**Collection Date:** 6/10/2022 8:20:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS (EC, ESP, SAR) CATION EXCHANGE CAPACITY</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Cation Exchange Capacity	60.9	0.100		meq/100g	1	6/21/2022
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	1.97	0.10		mmhos/cm	1	6/15/2022 9:39:00 AM
<b>29B SALTS (EC, ESP, SAR) EXCHANGEABLE SODIUM PERCENTAGE</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Exchangeable Sodium %	3.32	0.10		%	1	6/21/2022
<b>29B SALTS (EC, ESP, SAR) SODIUM ADSORPTION RATIO</b>						
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>MRM</b>
Sodium Adsorption Ratio	3.91	0.10			1	6/20/2022
Soluble Calcium	5.69	0.02		meq/L	1	6/20/2022
Soluble Magnesium	3.36	0.05		meq/L	1	6/20/2022
Soluble Sodium	8.32	0.25		meq/L	1	6/20/2022
<b>29B METALS MERCURY IN SOIL OR SLUDGE</b>						
					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>BXB</b>
Mercury	< 0.107	0.107		mg/Kg-dry	1	6/17/2022 11:01:34 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	558	15.2		mg/Kg-dry	50	6/15/2022 11:46:25 PM
<b>29B METALS METALS IN SOIL OR SLUDGE BY ICP</b>						
					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>MRM</b>
Arsenic	4.49	2.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Barium	649	6.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Cadmium	< 0.500	0.500		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Chromium	22.8	1.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Lead	15.4	1.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Strontium	54.3	1.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM
Zinc	59.2	1.00		mg/Kg-dry	1	6/21/2022 3:57:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- B Analyte detected in the associated Method Blank
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-004  
**Client Sample ID** CD-14 8-10

**Collection Date:** 6/10/2022 8:20:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>				<b>LDNR 29-B</b>		Analyst: <b>MRM</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	11,500	246		mg/Kg-dry	1	6/20/2022 4:52:29 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>JMI</b>
Percent Moisture	23.0	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2022 9:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-005 **Matrix:** SOIL  
**Client Sample ID** CD-14 26-28

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	2.69	0.10		mmhos/cm	1	6/15/2022 9:39:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	181	5.00		mg/L	20	6/21/2022 3:26:25 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	694	12.3		mg/Kg-dry	50	6/16/2022 12:00:13 AM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Percent Moisture	21.9	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 22060574

Date Reported: 6/28/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2022 10:40:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060574-006 **Matrix:** SOIL  
**Client Sample ID** CD-14 64-66

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Electrical Conductivity	7.85	0.10	*	mmhos/cm	1	6/15/2022 9:39:00 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	1,100	24.8		mg/Kg-dry	200	6/16/2022 12:14:00 AM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>JMI</b>
Percent Moisture	25.3	1.00		wt%	1	6/10/2022 1:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | B Analyte detected in the associated Method Blank |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44052

Sample ID: <b>MB-44052</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110662</b>						
Client ID: <b>PBS</b>	Batch ID: <b>44052</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2730865</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury < 0.100 0.100

Sample ID: <b>LCS-44052</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110662</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>44052</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2730866</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.712 0.100 0.8330 0 85.5 80 120

Sample ID: <b>LCSD-44052</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110662</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>44052</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2730869</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 0.713 0.100 0.8330 0 85.6 80 120 0.7122 0.155 20

Sample ID: <b>22060138-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110662</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44052</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2730872</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury 1.28 0.107 0.8923 0.3662 102 75 125

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44052

Sample ID: <b>22060138-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110662</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44052</b>	TestNo: <b>29B/SW7471A SW7471A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2730873</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	1.25	0.108	0.8978	0.3662	98.2	75	125	1.275	2.19	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44103

Sample ID: <b>MB-44103</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/14/2022</b>	RunNo: <b>110655</b>						
Client ID: <b>PBS</b>	Batch ID: <b>44103</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2730633</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 250 250

Sample ID: <b>LCS-44103</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/14/2022</b>	RunNo: <b>110655</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>44103</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2730634</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,260 250 5,000 0 105 75 125

Sample ID: <b>LCSD-44103</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/14/2022</b>	RunNo: <b>110655</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>44103</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2730635</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,480 250 5,000 0 110 75 125 5,259 4.06 20

Sample ID: <b>22060446-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/14/2022</b>	RunNo: <b>110655</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44103</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2730637</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 140,000 248 4,950 114,900 512 75 125 S

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44103

Sample ID: 22060446-001AMSD	SampType: MSD	TestCode: TTBA	Units: mg/Kg-dry	Prep Date: 6/14/2022	RunNo: 110655						
Client ID: ZZZZZZ	Batch ID: 44103	TestNo: LDNR 29-B		Analysis Date: 6/16/2022	SeqNo: 2730638						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	143,000	247	4,946	114,900	572	75	125	140,200	2.08	20	S

**NOTES:**

S - Analyte concentration in native sample was too high for accurate spike recovery(ies). The method is in control as indicated by the laboratory control sample (LCS).

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44128

Sample ID: <b>MB-44128</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110729</b>						
Client ID: <b>PBS</b>	Batch ID: <b>44128</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733733</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 250 250

Sample ID: <b>LCS-44128</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110729</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>44128</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733734</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,130 250 5,000 0 103 75 125

Sample ID: <b>LCSD-44128</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110729</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>44128</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733735</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,150 250 5,000 0 103 75 125 5,126 0.481 20

Sample ID: <b>22060574-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110729</b>						
Client ID: <b>CD-14 4-6</b>	Batch ID: <b>44128</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733739</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 6,180 228 4,558 750.9 119 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44128

Sample ID: <b>22060574-002AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110729</b>						
Client ID: <b>CD-14 4-6</b>	Batch ID: <b>44128</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733740</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	6,520	232	4,634	750.9	124	75	125	6,183	5.30	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44132

Sample ID: <b>22060569-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>6/15/2022</b>	RunNo: <b>110719</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44132</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2733021</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	97.8	0.10						96.53	1.33	20	*
Soluble Calcium	207	0.02						206.1	0.22	20	
Soluble Magnesium	33.2	0.05						33.49	0.90	20	
Soluble Sodium	1,070	0.25						1,057	1.35	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44152

Sample ID: <b>22060569-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>6/17/2022</b>	RunNo: <b>110764</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44152</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2734930</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	294	0.10						208.8	34.0	20	R*

**NOTES:**  
 R - High RPD due to sample matrix.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44153

Sample ID: <b>22060569-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/17/2022</b>	RunNo: <b>110764</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44153</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2734901</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	8.16	0.100						11.22	31.6	20	R

**NOTES:**  
 R - High RPD due to sample matrix. The method is in control as indicated by the LCS/LCSD.

Sample ID: <b>LCS-44153</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/17/2022</b>	RunNo: <b>110764</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>44153</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2734908</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.37	0.100	4.350	0	100	76	124				

Sample ID: <b>LCSD-44153</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/17/2022</b>	RunNo: <b>110764</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>44153</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2734910</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.44	0.100	4.350	0	102	76	124	4.370	1.59	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44169

Sample ID: <b>MB-44169</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2022</b>	RunNo: <b>110783</b>						
Client ID: <b>PBS</b>	Batch ID: <b>44169</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735680</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 6.00	6.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-44169</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2022</b>	RunNo: <b>110783</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>44169</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735681</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.5	2.00	50.00	0	93.1	80	120				
Barium	53.1	6.00	50.00	0	106	80	120				
Cadmium	46.2	0.500	50.00	0	92.4	80	120				
Chromium	48.6	1.00	50.00	0	97.2	80	120				
Lead	46.8	1.00	50.00	0	93.6	80	120				
Strontium	48.2	1.00	50.00	0	96.3	80	120				
Zinc	45.2	1.00	50.00	0	90.3	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44169

Sample ID: <b>LCSD-44169</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2022</b>	RunNo: <b>110783</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>44169</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735682</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.2	2.00	50.00	0	94.5	80	120	46.54	1.51	20	
Barium	52.1	6.00	50.00	0	104	80	120	53.08	1.87	20	
Cadmium	46.2	0.500	50.00	0	92.4	80	120	46.20	0.0368	20	
Chromium	48.5	1.00	50.00	0	96.9	80	120	48.60	0.293	20	
Lead	46.4	1.00	50.00	0	92.9	80	120	46.80	0.798	20	
Strontium	47.9	1.00	50.00	0	95.8	80	120	48.15	0.516	20	
Zinc	45.2	1.00	50.00	0	90.3	80	120	45.15	0.00664	20	

Sample ID: <b>22060574-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2022</b>	RunNo: <b>110783</b>						
Client ID: <b>CD-14 2-4</b>	Batch ID: <b>44169</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735684</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.5	1.93	48.18	5.459	81.1	75	125				
Barium	545	5.78	48.18	457.2	183	75	125				S
Cadmium	39.9	0.482	48.18	0.06435	82.8	75	125				
Chromium	62.7	0.964	48.18	17.24	94.4	75	125				
Lead	54.7	0.964	48.18	14.71	83.1	75	125				
Strontium	76.7	0.964	48.18	34.05	88.6	75	125				
Zinc	67.2	0.964	48.18	22.80	92.1	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44169

Sample ID: 22060574-001AMSD	SampType: MSD	TestCode: 6010_S_29B	Units: mg/Kg-dry	Prep Date: 6/20/2022	RunNo: 110783						
Client ID: CD-14 2-4	Batch ID: 44169	TestNo: SW6010B	SW3050B	Analysis Date: 6/21/2022	SeqNo: 2735685						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	46.9	1.98	49.50	5.459	83.6	75	125	44.54	5.06	20	
Barium	604	5.94	49.50	457.2	297	75	125	545.4	10.2	20	S
Cadmium	41.4	0.495	49.50	0.06435	83.6	75	125	39.94	3.67	20	
Chromium	65.0	0.990	49.50	17.24	96.4	75	125	62.73	3.49	20	
Lead	57.4	0.990	49.50	14.71	86.3	75	125	54.74	4.76	20	
Strontium	79.5	0.990	49.50	34.05	91.9	75	125	76.72	3.61	20	
Zinc	70.7	0.990	49.50	22.80	96.8	75	125	67.17	5.14	20	

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110584

Sample ID: <b>MB-R110584</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>110584</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R110584</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2728198</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity < 0.10 0.10

Sample ID: <b>LCS1-R110584</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>110584</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110584</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2728200</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.47 0.10 0.50 0 93.5 90 110

Sample ID: <b>LCS2-R110584</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>110584</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110584</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2728202</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 52.8 0.10 53.00 0 99.6 90 110

Sample ID: <b>22060452-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>110584</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110584</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2728218</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity < 0.10 0.10 0.13 200 20 R

**NOTES:**

R - High RPD due to low analyte concentration. In this range, high RPD's may be expected. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110588

Sample ID: <b>22060569-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29b</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>110588</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R110588</b>	TestNo: <b>LDNR 29-B</b>	Analysis Date: <b>6/10/2022</b>	SeqNo: <b>2728088</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	29.5	1.00						27.90	5.57	20	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110619-2

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R110619-2</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729246</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>lcs</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R110619-2</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729247</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120				

Sample ID: <b>lcsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110619-2</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729248</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120	10.15	0.137	15	

Sample ID: <b>22060574-003ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>CD-14 6-8</b>	Batch ID: <b>R110619-2</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729271</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	615	9.08	181.5	440.2	96.3	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110619-2

Sample ID: 22060574-003amsd	SampType: MSD	TestCode: 9056_S	Units: mg/Kg-dry	Prep Date:	RunNo: 110619						
Client ID: CD-14 6-8	Batch ID: R110619-2	TestNo: SW9056A	Analysis Date: 6/15/2022	SeqNo: 2729272							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	621	9.08	181.5	440.2	99.5	80	120	615.0	0.915	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110619-3

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R110619-3</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729275</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>lcs</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R110619-3</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729276</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.5	0.250	10.00	0	105	80	120				

Sample ID: <b>lcsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110619-3</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/15/2022</b>	SeqNo: <b>2729277</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.3	0.250	10.00	0	103	80	120	10.48	2.09	15	

Sample ID: <b>22060574-006ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>110619</b>						
Client ID: <b>CD-14 64-66</b>	Batch ID: <b>R110619-3</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2729281</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,590	24.8	495.0	1,096	99.3	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110619-3

Sample ID: 22060574-006amsd	SampType: MSD	TestCode: 9056_S	Units: mg/Kg-dry	Prep Date:	RunNo: 110619						
Client ID: CD-14 64-66	Batch ID: R110619-3	TestNo: SW9056A	Analysis Date: 6/16/2022	SeqNo: 2729282							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,600	24.8	495.0	1,096	101	80	120	1,588	0.553	15	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110790

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110790</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110790</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735848</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110790</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110790</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735849</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.97	0.250	10.00	0	99.7	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110790</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110790</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735850</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.92	0.250	10.00	0	99.2	80	120	9.966	0.445	15	

Sample ID: <b>22060835-010EMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110790</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110790</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735855</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.17	0.250	5.000	0.1484	100	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 22060574  
 28-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110790

Sample ID: <b>22060835-010EMSD</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110790</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R110790</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735856</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.18	0.250	5.000	0.1484	101	80	120	5.169	0.227	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



# Sample Log-In Check List

Client Name: ICON\_ENV

Work Order Number: 22060574

RcptNo: 1

Logged by:	Tammy Thibodeaux	6/10/2022 12:26:00 PM	<i>Tammy Thibodeaux</i>
Completed By:	Tammy Thibodeaux	6/10/2022 12:56:15 PM	<i>Tammy Thibodeaux</i>
Reviewed By:	Buffy Bryant	6/27/2022 5:05:43 PM	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
-----------	---------	-----------	-------------	---------	-----------	-----------



# Chain of Custody

Laboratory Number: **22060574**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page 1 of 1
	ICON		SAME		Quote Number:	Castex Development	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
					Required QC Level	9403-016-0100	
					Bill Monthly	Sampler's Signature <i>Jeffrey Miller</i>	
	Ext:		Ext:		<input type="checkbox"/> Yes	Shipping Method:	
					<input type="checkbox"/> No	UPS / FedEx / NOW DHL / Element / <u>Hand</u> / Mail	

Which Regulations Apply:	Turn Time	Collection Information	Container	Pres.	Requested Tests							Comments		
					Quantity	Type	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	F.C.	% moisture	Soluble Cl <sup>-</sup>	21B metals		CEC/ESP/SAR	Leachate Cl <sup>-</sup>
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	<input type="checkbox"/> Date <input type="checkbox"/> Time <input type="checkbox"/> Grab / Composite <input type="checkbox"/> Matrix	<input type="checkbox"/> P=Plastic <input type="checkbox"/> G=Glass, V=Vial										As, Ba, ITBa, Cd, Cr, Pb, Sr, Zn, Hg	
Sample ID/Description														
CD-1A 2-A	6.10.22	0805	G	SO	1	P	-	X	X	X	X	X		
CD-1A 4-6	6.10.22	0810	G	SO	1	P	-	X	X	X	X	X		
CD-1A 6-8	6.10.22	0815	G	SO	1	P	-	X	X	X	X	X		
BD-1A 8-10	6.10.22	0820	G	SO	1	P	-	X	X	X	X	X		
CD-1A 26-28	6.10.22	0905	G	SO	1	P	-	X	X	X		X		
CD-1A 64-66	6.10.22	1040	G	SO	1	P	-	X	X	X				

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>Jeffrey Miller</i>	6/10/22 1226	<i>Shubdearyp</i>	6/10/22 1226	
2					Received at lab on ice?
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
Columbus, IN  
47201 USA  
P 812-375-0531  
F 812-375-0731

328 Ley Road, Suite 100  
Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-269-6569

3371 Pavilion Rd, Suite 100A  
South Bend, IN  
46628 USA  
P 574-277-0707  
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70508 USA  
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Castex-ICON Report-000812



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June 30, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22060691

Dear Greg Miller:

Element Materials Technology Lafayette received 7 sample(s) on 6/14/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22060691

Date: 6/30/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 12:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-12 A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.259	0.132		mg/L	1	6/17/2022 8:56:00 PM
TPH (Oil Range)	< 0.121	0.121		mg/L	1	6/17/2022 8:56:00 PM
Surr: 4-Terphenyl-d14	137	51.4 - 146		%Rec	1	6/17/2022 8:56:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 10:23:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	107	70 - 130		%Rec	1	6/23/2022 10:23:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:23:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:23:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 10:23:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:23:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 10:23:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 10:23:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	105	70 - 130		%Rec	1	6/23/2022 10:23:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:15:07 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	28.6	2.50		mg/L	10	6/17/2022 10:52:43 AM
Sulfate	16.8	2.50		mg/L	10	6/17/2022 10:52:43 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.121	0.0100		mg/L	1	6/21/2022 2:15:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:15:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 12:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-12 A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	14.1	0.500		mg/L	1	6/21/2022 2:15:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:15:00 PM
Iron	0.452	0.0100		mg/L	1	6/22/2022 2:11:23 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:15:00 PM
Magnesium	4.62	0.500		mg/L	1	6/21/2022 2:15:00 PM
Manganese	0.303	0.0100		mg/L	1	6/21/2022 2:15:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2022 2:15:00 PM
Sodium	57.1	5.00		mg/L	1	6/21/2022 2:15:00 PM
Strontium	0.0683	0.0100		mg/L	1	6/21/2022 2:15:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:15:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	< 2.50	2.50		µg/L	10	6/17/2022 10:03:58 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	110	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	110	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	242	10.0		mg/L	1	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 1:50:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-12B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	6/17/2022 9:28:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	6/17/2022 9:28:00 PM
Surr: 4-Terphenyl-d14	131	51.4 - 146		%Rec	1	6/17/2022 9:28:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 10:51:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/23/2022 10:51:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:51:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:51:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 10:51:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 10:51:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 10:51:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 10:51:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	103	70 - 130		%Rec	1	6/23/2022 10:51:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:25:25 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	30.1	2.50		mg/L	10	6/17/2022 11:06:20 AM
Sulfate	15.4	2.50		mg/L	10	6/17/2022 11:06:20 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.262	0.0100		mg/L	1	6/21/2022 2:22:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:22:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 1:50:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-12B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	44.9	0.500		mg/L	1	6/21/2022 2:22:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:22:00 PM
Iron	0.310	0.0100		mg/L	1	6/22/2022 2:18:16 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:22:00 PM
Magnesium	11.6	0.500		mg/L	1	6/21/2022 2:22:00 PM
Manganese	0.338	0.0100		mg/L	1	6/21/2022 2:22:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2022 2:22:00 PM
Sodium	69.5	5.00		mg/L	1	6/21/2022 2:22:00 PM
Strontium	0.212	0.0100		mg/L	1	6/21/2022 2:22:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:22:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	7.96	2.50		µg/L	10	6/17/2022 10:15:09 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	235	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	235	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	351	10.0		mg/L	1	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 3:45:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-003 **Matrix:** AQUEOUS  
**Client Sample ID** CD-13A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.240	0.129		mg/L	1	6/17/2022 9:59:00 PM
TPH (Oil Range)	0.137	0.119		mg/L	1	6/17/2022 9:59:00 PM
Surr: 4-Terphenyl-d14	137	51.4 - 146		%Rec	1	6/17/2022 9:59:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 11:18:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	103	70 - 130		%Rec	1	6/23/2022 11:18:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:18:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:18:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 11:18:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:18:00 AM
Toluene	0.0234	0.0100		mg/L	1	6/23/2022 11:18:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 11:18:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	102	70 - 130		%Rec	1	6/23/2022 11:18:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:27:44 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	92.1	5.00		mg/L	20	6/17/2022 11:20:07 AM
Sulfate	9.21	5.00		mg/L	20	6/17/2022 11:20:07 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.583	0.0100		mg/L	1	6/21/2022 2:24:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:24:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 3:45:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-003 **Matrix:** AQUEOUS  
**Client Sample ID** CD-13A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	111	0.500		mg/L	1	6/21/2022 2:24:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:24:00 PM
Iron	1.30	0.0100		mg/L	1	6/22/2022 2:20:33 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:24:00 PM
Magnesium	29.7	0.500		mg/L	1	6/21/2022 2:24:00 PM
Manganese	0.409	0.0100		mg/L	1	6/21/2022 2:24:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2022 2:24:00 PM
Sodium	114	5.00		mg/L	1	6/21/2022 2:24:00 PM
Strontium	0.552	0.0100		mg/L	1	6/21/2022 2:24:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:24:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	12.4	2.50		µg/L	10	6/17/2022 10:27:11 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	478	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	478	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	675	10.0		mg/L	1	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 5:00:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-004 **Matrix:** AQUEOUS  
**Client Sample ID** CD-13B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.133	0.133		mg/L	1	6/17/2022 10:31:00 PM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	6/17/2022 10:31:00 PM
Surr: 4-Terphenyl-d14	63.9	51.4 - 146		%Rec	1	6/17/2022 10:31:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 11:45:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/23/2022 11:45:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:45:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:45:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 11:45:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 11:45:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 11:45:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 11:45:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/23/2022 11:45:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:30:02 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	183	12.5		mg/L	50	6/17/2022 11:33:55 AM
Sulfate	14.4	0.250		mg/L	1	6/17/2022 3:34:59 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.703	0.0100		mg/L	1	6/21/2022 2:27:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:27:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-004  
**Client Sample ID** CD-13B

**Collection Date:** 6/13/2022 5:00:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	131	0.500		mg/L	1	6/21/2022 2:27:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:27:00 PM
Iron	4.47	0.0100		mg/L	1	6/22/2022 2:22:51 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:27:00 PM
Magnesium	36.1	0.500		mg/L	1	6/21/2022 2:27:00 PM
Manganese	0.413	0.0100		mg/L	1	6/21/2022 2:27:00 PM
Potassium	6.07	5.00		mg/L	1	6/21/2022 2:27:00 PM
Sodium	90.1	5.00		mg/L	1	6/21/2022 2:27:00 PM
Strontium	0.800	0.0100		mg/L	1	6/21/2022 2:27:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:27:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	8.78	2.50		µg/L	10	6/17/2022 10:30:01 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	180	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	180	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	790	50.0		mg/L	5	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/14/2022 9:00:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-005 **Matrix:** AQUEOUS  
**Client Sample ID** CD-13C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.360	0.133		mg/L	1	6/28/2022 6:07:00 AM
TPH (Oil Range)	< 0.122	0.122		mg/L	1	6/28/2022 6:07:00 AM
Surr: 4-Terphenyl-d14	96.4	51.4 - 146		%Rec	1	6/28/2022 6:07:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 12:12:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	102	70 - 130		%Rec	1	6/23/2022 12:12:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 12:12:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 12:12:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 12:12:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 12:12:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 12:12:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 12:12:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	103	70 - 130		%Rec	1	6/23/2022 12:12:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/28/2022 8:12:20 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	74.6	5.00		mg/L	20	6/17/2022 12:21:59 PM
Sulfate	103	5.00		mg/L	20	6/17/2022 12:21:59 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.129	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/22/2022 2:43:30 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/14/2022 9:00:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-005 **Matrix:** AQUEOUS  
**Client Sample ID** CD-13C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRM</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Calcium	62.0	0.500		mg/L	1	6/22/2022 2:43:30 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Iron	0.328	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Lead	< 0.0100	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Magnesium	15.8	0.500		mg/L	1	6/22/2022 2:43:30 PM
Manganese	0.226	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Potassium	< 5.00	5.00		mg/L	1	6/22/2022 2:43:30 PM
Sodium	104	10.0		mg/L	1	6/22/2022 2:43:30 PM
Strontium	0.373	0.0100		mg/L	1	6/22/2022 2:43:30 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/22/2022 2:43:30 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
Arsenic	8.20	2.50		µg/L	10	6/17/2022 12:55:57 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>AD</b>	
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	225	20.0		mgCaCO <sub>3</sub> /L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	225	20.0		mgCaCO <sub>3</sub> /L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	562	10.0		mg/L	1	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/14/2022 11:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-006 **Matrix:** AQUEOUS  
**Client Sample ID** CD-14A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	6/17/2022 11:34:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	6/17/2022 11:34:00 PM
Surr: 4-Terphenyl-d14	80.9	51.4 - 146		%Rec	1	6/17/2022 11:34:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 2:47:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	103	70 - 130		%Rec	1	6/23/2022 2:47:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 2:47:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 2:47:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 2:47:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 2:47:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 2:47:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 2:47:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	6/23/2022 2:47:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:37:35 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	211	5.00		mg/L	20	6/17/2022 12:35:44 PM
Sulfate	1.34	0.250		mg/L	1	6/17/2022 3:48:46 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.521	0.0100		mg/L	1	6/21/2022 2:29:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:29:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/14/2022 11:05:00 AM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-006 **Matrix:** AQUEOUS  
**Client Sample ID** CD-14A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	72.3	0.500		mg/L	1	6/21/2022 2:29:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:29:00 PM
Iron	2.83	0.0100		mg/L	1	6/22/2022 2:29:44 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:29:00 PM
Magnesium	32.2	0.500		mg/L	1	6/21/2022 2:29:00 PM
Manganese	0.427	0.0100		mg/L	1	6/21/2022 2:29:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2022 2:29:00 PM
Sodium	129	5.00		mg/L	1	6/21/2022 2:29:00 PM
Strontium	0.542	0.0100		mg/L	1	6/21/2022 2:29:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:29:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	73.3	2.50		µg/L	10	6/17/2022 10:32:48 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	325	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	325	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	682	10.0		mg/L	1	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060691

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060691-007  
**Client Sample ID** Trip Blank

**Collection Date:** 6/14/2022

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8015B</b>		Analyst: <b>LG</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 3:14:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	105	70 - 130		%Rec	1	6/23/2022 3:14:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8021B</b>		Analyst: <b>LG</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 3:14:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 3:14:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 3:14:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 3:14:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 3:14:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 3:14:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/23/2022 3:14:00 PM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID <b>MB-44136</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110835</b>
Client ID: <b>PBW</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736850</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	< 0.0100	0.0100			

Sample ID <b>LCS-44136</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110835</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736851</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	0.517	0.0100	0.5000	0	103 80 120

Sample ID <b>LCSD-44136</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110835</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736852</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	0.516	0.0100	0.5000	0	103 80 120 0.5168 0.167 20

Sample ID <b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110835</b>
Client ID: <b>CD-12 A</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736854</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Iron	0.972	0.0100	0.5000	0.4516	104 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>		
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736855</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.923		0.0100	0.5000	0.4516	94.3	75	125	0.9719	5.17	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>MB-44136</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735637</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-44136</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735638</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.491	0.0100	0.5000	0	98.3	80	120				
Cadmium	0.485	0.00500	0.5000	0	97.0	80	120				
Calcium	49.1	0.500	50.00	0	98.1	80	120				
Chromium	0.494	0.0100	0.5000	0	98.8	80	120				
Lead	0.480	0.0100	0.5000	0	96.1	80	120				
Magnesium	48.9	0.500	50.00	0	97.9	80	120				
Manganese	0.489	0.0100	0.5000	0	97.8	80	120				
Potassium	48.7	5.00	50.00	0	97.4	80	120				
Sodium	49.7	10.0	50.00	0	99.4	80	120				

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>LCS-44136</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735638</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium	0.490	0.0100	0.5000	0	98.0	80	120				
Zinc	0.478	0.0100	0.5000	0	95.6	80	120				

Sample ID	<b>LCSD-44136</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735639</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.492	0.0100	0.5000	0	98.3	80	120	0.4914	0.0610	20	
Cadmium	0.488	0.00500	0.5000	0	97.5	80	120	0.4851	0.535	20	
Calcium	49.3	0.500	50.00	0	98.5	80	120	49.06	0.390	20	
Chromium	0.494	0.0100	0.5000	0	98.7	80	120	0.4940	0.0668	20	
Lead	0.485	0.0100	0.5000	0	97.0	80	120	0.4803	0.953	20	
Magnesium	49.2	0.500	50.00	0	98.3	80	120	48.94	0.466	20	
Manganese	0.492	0.0100	0.5000	0	98.4	80	120	0.4892	0.593	20	
Potassium	48.8	5.00	50.00	0	97.7	80	120	48.68	0.327	20	
Sodium	48.6	10.0	50.00	0	97.2	80	120	49.71	2.25	20	
Strontium	0.491	0.0100	0.5000	0	98.2	80	120	0.4900	0.194	20	
Zinc	0.479	0.0100	0.5000	0	95.8	80	120	0.4782	0.182	20	

Sample ID	<b>22060691-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735645</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735645</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.597	0.0100	0.5000	0.1212	95.2	75	125				
Cadmium	0.473	0.00500	0.5000	0	94.6	75	125				
Calcium	62.6	0.500	50.00	14.12	97.0	75	125				
Chromium	0.483	0.0100	0.5000	0	96.6	75	125				
Lead	0.467	0.0100	0.5000	0	93.5	75	125				
Magnesium	53.3	0.500	50.00	4.622	97.4	75	125				
Manganese	0.762	0.0100	0.5000	0.3028	91.8	75	125				
Potassium	49.7	5.00	50.00	1.166	97.0	75	125				
Sodium	103	10.0	50.00	57.09	92.3	75	125				
Strontium	0.546	0.0100	0.5000	0.06829	95.5	75	125				
Zinc	0.467	0.0100	0.5000	0	93.4	75	125				

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735646</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.588	0.0100	0.5000	0.1212	93.5	75	125	0.5970	1.43	20	
Cadmium	0.466	0.00500	0.5000	0	93.1	75	125	0.4731	1.57	20	
Calcium	61.8	0.500	50.00	14.12	95.3	75	125	62.60	1.31	20	
Chromium	0.473	0.0100	0.5000	0	94.6	75	125	0.4830	2.08	20	
Lead	0.461	0.0100	0.5000	0	92.2	75	125	0.4674	1.36	20	
Magnesium	52.6	0.500	50.00	4.622	96.0	75	125	53.34	1.31	20	
Manganese	0.755	0.0100	0.5000	0.3028	90.4	75	125	0.7616	0.880	20	
Potassium	48.9	5.00	50.00	1.166	95.5	75	125	49.67	1.53	20	
Sodium	102	10.0	50.00	57.09	89.4	75	125	103.3	1.45	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>	
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735646</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium		0.540	0.0100	0.5000	0.06829	94.3	75	125	0.5456	1.08	20	
Zinc		0.460	0.0100	0.5000	0	92.0	75	125	0.4671	1.52	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44137

Sample ID <b>MB-44137</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>PBW</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731381</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250			

Sample ID <b>LCS-44137</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731382</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	522	5.00	500.0	0	104 80 120

Sample ID <b>LCSD-44137</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731383</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	509	5.00	500.0	0	102 80 120 522.0 2.56 20

Sample ID <b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>CD-12 A</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731386</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	494	5.00	500.0	1.353	98.6 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44137

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110671</b>		
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44137</b>	TestNo:	<b>SW6020A</b>	Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731387</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		487		5.00	500.0	1.353	97.1	75	125	494.5	1.53	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID	<b>22060792-003C MS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731671</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.49	0.122	1.741	0.06626	81.9	70	130				
Surr: 4-Terphenyl-d14	0.0483		0.05802		83.3	51.4	146				

Sample ID	<b>22060792-003C MS</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731672</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.49	0.120	1.718	0.06626	83.0	70	130	1.493	0.0341	36.4	
Surr: 4-Terphenyl-d14	0.0494		0.05727		86.3	51.4	146		0	40	

Sample ID	<b>LCS-D44142</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731679</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.12	0.136	1.800	0	118	70	130				
Surr: 4-Terphenyl-d14	0.0765		0.05999		128	51.4	146				

Sample ID	<b>LCSD-D44142</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731680</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.09	0.136	1.799	0	116	70	130	2.118	1.40	14.1	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID	<b>LCSD-D44142</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731680</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0763			0.05997			127	51.4	146		0	40	

Sample ID	<b>LCSD-M</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731681</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.86		0.126	1.803	0		103	70	130	2.143	13.9	23.2	
Surr: 4-Terphenyl-d14		0.0628			0.06011			104	51.4	146		0	40	

Sample ID	<b>LCS-M</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731682</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.14		0.126	1.805	0		119	70	130				
Surr: 4-Terphenyl-d14		0.0677			0.06015			113	51.4	146				

Sample ID	<b>MB-44142</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731683</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.137		0.137										
TPH (Oil Range)		< 0.126		0.126										

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID <b>MB-44142</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>PBW</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731683</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Surr: 4-Terphenyl-d14 0.0603 0.06004 100 51.4 146

Sample ID <b>22060792-003C MS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731684</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range) 2.05 0.129 1.705 0.06866 116 70 130  
 Surr: 4-Terphenyl-d14 0.0706 0.05682 124 51.4 146

Sample ID <b>22060792-003C MS</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731685</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range) 2.24 0.129 1.700 0.06866 128 70 130 2.054 8.74 21.9  
 Surr: 4-Terphenyl-d14 0.0779 0.05667 137 51.4 146 0 40

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID <b>MB-44190</b>	SampType: <b>mbk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>PBW</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2737943</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range)	< 0.138	0.138									
TPH (Oil Range)	< 0.127	0.127									
Surr: 4-Terphenyl-d14	0.0401		0.06058		66.2	51.4	146				

Sample ID <b>22060835-001BMS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740515</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Oil Range)	2.09	0.119	1.706	0	122	70	130				
Surr: 4-Terphenyl-d14	0.0748		0.05686		132	51.4	146				

Sample ID <b>22060835-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740516</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Oil Range)	2.04	0.118	1.689	0	121	70	130	2.086	2.14	36.4	
Surr: 4-Terphenyl-d14	0.0659		0.05629		117	51.4	146		0	40	

Sample ID <b>LCS-D44190</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/27/2022</b>	SeqNo: <b>2740520</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID	<b>LCS-D44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740520</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		1.83		0.137	1.801	0		102	70	130				
Surr: 4-Terphenyl-d14		0.0601			0.06004			100	51.4	146				

Sample ID	<b>LCSD-D44190</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740521</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		2.02		0.137	1.805	0		112	70	130	1.834	9.61	14.1	
Surr: 4-Terphenyl-d14		0.0689			0.06017			114	51.4	146		0	40	

Sample ID	<b>LCSD-M44190</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740522</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.09		0.126	1.796	0		117	70	130	2.142	2.32	23.2	
Surr: 4-Terphenyl-d14		0.0694			0.05986			116	51.4	146		0	40	

Sample ID	<b>LCS-M44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740523</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.14		0.126	1.793	0		119	70	130				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID	<b>LCS-M44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740523</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0782      0.05977      131      51.4      146

Sample ID	<b>22060835-001BMS-</b>	SampType:	<b>MS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740524</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)      1.83      0.131      1.726      0.09319      101      70      130  
 Surr: 4-Terphenyl-d14      0.0585      0.05752      102      51.4      146

Sample ID	<b>22060835-001BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2740525</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)      1.94      0.133      1.753      0.09319      105      70      130      1.835      5.69      21.9  
 Surr: 4-Terphenyl-d14      0.0656      0.05843      112      51.4      146      0      40

**Qualifiers:** H Holding times for preparation or analysis exceeded      M Matrix Interference      ND Not Detected at the Reporting Limit  
 RL Reporting Limit      S Spike Recovery outside accepted recovery limits      SDL Sample detection limit  
 U Analyte not detected      W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44193

Sample ID <b>MB-44193</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>PBW</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736771</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.000200	0.000200			

Sample ID <b>LCS-44193</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736772</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 80 120

Sample ID <b>LCSD-44193</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736773</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 80 120 0.01051 0.0582 20

Sample ID <b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>CD-12 A</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736776</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44193

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/22/2022</b>	RunNo:	<b>110833</b>		
Client ID:	<b>CD-12 A</b>	Batch ID:	<b>44193</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2736777</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0105		0.000200	0.01000	0	105	75	125	0.01050	0.349	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44229

Sample ID	<b>MB-44229</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739481</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>22060691-005DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>CD-13C</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739488</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0156		0.000200	0.01000	0		156	75	125				S

Sample ID	<b>22060691-005DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>CD-13C</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739489</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0157		0.000200	0.01000	0		157	75	125	0.01559	0.648	20	S

**NOTES:**

S - Spike recoveries were outside of QC limits in MS/MSD and PDS/PDSD, suggesting matrix effect. The method is in control as indicated by the Lab Control Sample(s).

Sample ID	<b>LCS-44229</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739509</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0108		0.000200	0.01000	0		108	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44229

Sample ID	<b>LCSD-44229</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739510</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104		0.000200	0.01000	0		104	80	120	0.01076	3.25	20	

Sample ID	<b>22060691-005DPDS</b>	SampType:	<b>PDS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110945</b>			
Client ID:	<b>CD-13C</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739511</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		12.6		0.000200	0.0100	-0.00129		126	80	120				S

Sample ID	<b>22060691-005DPDS</b>	SampType:	<b>PDS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110945</b>			
Client ID:	<b>CD-13C</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739512</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0124		0.000200	0.01000	0		124	80	120	0.01257	1.09	20	S

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110614

Sample ID	<b>MB-R110614</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732957</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		< 10.0		10.0										

Sample ID	<b>LCS-R110614</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732958</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		997		10.0	1,000	0		99.7	85	115				

Sample ID	<b>LCSD-R110614</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732959</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		999		10.0	1,000	0		99.9	85	115	997.0	0.200	10	

Sample ID	<b>22060692-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732967</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		12,800		250							12,920	0.582	10	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110614

Sample ID	<b>22060692-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732967</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22060691-004ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>
Client ID:	<b>CD-13B</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732968</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		755		50.0						790.0	4.53 10

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110695

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732223</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732224</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.98	0.250	10.00	0	99.8	80	120				
Sulfate	9.62	0.250	10.00	0	96.2	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732225</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.99	0.250	10.00	0	99.9	80	120	9.984	0.0880	15	
Sulfate	9.60	0.250	10.00	0	96.0	80	120	9.616	0.129	15	

Sample ID <b>22060835-001ems</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732242</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	14.5	0.250	5.000	9.823	92.9	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110695

Sample ID	<b>22060835-001ems</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732242</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.66	0.250	5.000	0.8840	95.5	80	120				

Sample ID	<b>22060835-001emsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732243</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	14.5	0.250	5.000	9.823	92.9	80	120	14.47	0.0120	15	
Sulfate	5.64	0.250	5.000	0.8840	95.1	80	120	5.658	0.321	15	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110733

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110733</b>
Client ID: <b>PBW</b>	Batch ID: <b>R110733</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2733994</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250			

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110733</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R110733</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2733995</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	20.2	0.250	20.00	0	101 80 120

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110733</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>R110733</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2733996</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	20.6	0.250	20.00	0	103 80 120 20.20 1.98 20

Sample ID <b>22060691-005DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110733</b>
Client ID: <b>CD-13C</b>	Batch ID: <b>R110733</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2733998</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	213	2.50	200.0	8.202	103 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110733

Sample ID	<b>22060691-005DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_D</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>110733</b>		
Client ID:	<b>CD-13C</b>	Batch ID:	<b>R110733</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2733999</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		211		2.50	200.0	8.202	101	75	125	213.4	1.06	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>		
Client ID:	<b>PBW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736864</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		< 0.0100		0.0100									
Cadmium		< 0.00500		0.00500									
Calcium		< 0.500		0.500									
Chromium		< 0.0100		0.0100									
Iron		< 0.0100		0.0100									
Lead		< 0.0100		0.0100									
Magnesium		< 0.500		0.500									
Manganese		< 0.0100		0.0100									
Potassium		< 5.00		5.00									
Sodium		< 10.0		10.0									
Strontium		< 0.0100		0.0100									
Zinc		< 0.0100		0.0100									

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736865</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.512		0.0100	0.5000	0	102	80	120				
Cadmium		0.509		0.00500	0.5000	0	102	80	120				
Calcium		50.9		0.500	50.00	0	102	80	120				
Chromium		0.510		0.0100	0.5000	0	102	80	120				
Iron		0.514		0.0100	0.5000	0	103	80	120				
Lead		0.512		0.0100	0.5000	0	103	80	120				
Magnesium		50.3		0.500	50.00	0	101	80	120				
Manganese		0.514		0.0100	0.5000	0	103	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>											
Client ID:	<b>LCSSW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736865</b>											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Potassium		49.8		5.00		50.00		0		99.7		80		120								
Sodium		50.0		10.0		50.00		0		100		80		120								
Strontium		0.510		0.0100		0.5000		0		102		80		120								
Zinc		0.506		0.0100		0.5000		0		101		80		120								

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>											
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736866</b>											
Analyte		Result		PQL		SPK value		SPK Ref Val		%REC		LowLimit		HighLimit		RPD Ref Val		%RPD		RPDLimit		Qual

Barium		0.509		0.0100		0.5000		0		102		80		120		0.5122		0.574		20		
Cadmium		0.505		0.00500		0.5000		0		101		80		120		0.5088		0.823		20		
Calcium		51.2		0.500		50.00		0		102		80		120		50.91		0.534		20		
Chromium		0.507		0.0100		0.5000		0		101		80		120		0.5098		0.500		20		
Iron		0.509		0.0100		0.5000		0		102		80		120		0.5136		0.858		20		
Lead		0.506		0.0100		0.5000		0		101		80		120		0.5125		1.35		20		
Magnesium		50.6		0.500		50.00		0		101		80		120		50.25		0.680		20		
Manganese		0.509		0.0100		0.5000		0		102		80		120		0.5137		0.915		20		
Potassium		50.3		5.00		50.00		0		101		80		120		49.84		0.824		20		
Sodium		50.5		10.0		50.00		0		101		80		120		50.04		0.910		20		
Strontium		0.507		0.0100		0.5000		0		101		80		120		0.5096		0.571		20		
Zinc		0.502		0.0100		0.5000		0		100		80		120		0.5060		0.806		20		

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	22060691-005DMS	SampType:	MS	TestCode:	6010-D	Units:	mg/L	Prep Date:	RunNo:	110835	
Client ID:	CD-13C	Batch ID:	R110835-1	TestNo:	SW6010B	Analysis Date:	6/22/2022	SeqNo:	2736868		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.683	0.0100	0.5000	0.1294	111	75	125				
Cadmium	0.573	0.00500	0.5000	0	115	75	125				
Calcium	116	0.500	50.00	61.99	109	75	125				
Chromium	0.561	0.0100	0.5000	0	112	75	125				
Iron	0.882	0.0100	0.5000	0.3283	111	75	125				
Lead	0.554	0.0100	0.5000	0	111	75	125				
Magnesium	71.5	0.500	50.00	15.76	111	75	125				
Manganese	0.780	0.0100	0.5000	0.2256	111	75	125				
Potassium	59.9	5.00	50.00	3.808	112	75	125				
Sodium	159	10.0	50.00	103.7	110	75	125				
Strontium	0.923	0.0100	0.5000	0.3731	110	75	125				
Zinc	0.596	0.0100	0.5000	0	119	75	125				

Sample ID	22060691-005DMSD	SampType:	MSD	TestCode:	6010-D	Units:	mg/L	Prep Date:	RunNo:	110835	
Client ID:	CD-13C	Batch ID:	R110835-1	TestNo:	SW6010B	Analysis Date:	6/22/2022	SeqNo:	2736869		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.675	0.0100	0.5000	0.1294	109	75	125	0.6830	1.22	20	
Cadmium	0.565	0.00500	0.5000	0	113	75	125	0.5733	1.51	20	
Calcium	116	0.500	50.00	61.99	108	75	125	116.4	0.385	20	
Chromium	0.552	0.0100	0.5000	0	110	75	125	0.5607	1.48	20	
Iron	0.872	0.0100	0.5000	0.3283	109	75	125	0.8816	1.04	20	
Lead	0.542	0.0100	0.5000	0	108	75	125	0.5541	2.29	20	
Magnesium	70.9	0.500	50.00	15.76	110	75	125	71.48	0.772	20	
Manganese	0.774	0.0100	0.5000	0.2256	110	75	125	0.7799	0.710	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>22060691-005DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>CD-13C</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736869</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	59.6	5.00	50.00	3.808	111	75	125	59.90	0.581	20	
Sodium	156	10.0	50.00	103.7	105	75	125	158.6	1.56	20	
Strontium	0.917	0.0100	0.5000	0.3731	109	75	125	0.9234	0.656	20	
Zinc	0.630	0.0100	0.5000	0	126	75	125	0.5957	5.67	20	S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	BTEX LCS	SampType:	LCS	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	110842	
Client ID:	LCSW	Batch ID:	R110842	TestNo:	SW8021B	Analysis Date:	6/23/2022	SeqNo:	2737410		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0516	0.00500	0.05000	0	103	72	120				
Ethylbenzene	0.0519	0.00500	0.05000	0	104	76	129				
m,p-Xylene	0.105	0.0100	0.1000	0	105	75	125				
o-Xylene	0.0515	0.00500	0.05000	0	103	75	125				
Toluene	0.0520	0.0100	0.05000	0	104	78	120				
Xylenes, Total	0.156	0.0500	0.1500	0	104	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0487		0.05000		97.4	70	130				

Sample ID	BTEX LCSD	SampType:	LCSD	TestCode:	8021_BTEX_	Units:	mg/L	Prep Date:	RunNo:	110842	
Client ID:	LCSS02	Batch ID:	R110842	TestNo:	SW8021B	Analysis Date:	6/23/2022	SeqNo:	2737411		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0492	0.00500	0.05000	0	98.4	72	120	0.05160	4.76	20	
Ethylbenzene	0.0498	0.00500	0.05000	0	99.6	76	129	0.05190	4.13	20	
m,p-Xylene	0.100	0.0100	0.1000	0	100	75	125	0.1049	4.68	20	
o-Xylene	0.0495	0.00500	0.05000	0	99.0	75	125	0.05150	3.96	20	
Toluene	0.0497	0.0100	0.05000	0	99.4	78	120	0.05200	4.52	20	
Xylenes, Total	0.150	0.0500	0.1500	0	99.8	75	125	0.1565	4.44	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0492		0.05000		98.4	70	130		0	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737412</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0511		0.05000		102	70	130				

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060691**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110843

Sample ID <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110843</b>						
Client ID: <b>LCSSW</b>	Batch ID: <b>R110843</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2737395</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	12.4	0.150	12.50	0	99.3	80	130				

Sample ID <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110843</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110843</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2737396</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.7	0.150	12.50	0	110	80	130	12.42	9.86	20	

Sample ID <b>MBLK ACID</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110843</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110843</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2737397</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0523		0.05000		105	70	130				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22060691  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110874

Sample ID <b>MB-R110874</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>110874</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110874</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/24/2022</b>	SeqNo: <b>2738558</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Phenolphthalein	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID <b>LCS-R110874</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>110874</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110874</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/24/2022</b>	SeqNo: <b>2738559</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	46.5	20.0	50.00	0	93.0	80	120				
------------------------------	------	------	-------	---	------	----	-----	--	--	--	--

Sample ID <b>22060835-001EDUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>110874</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110874</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/24/2022</b>	SeqNo: <b>2738568</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Phenolphthalein	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	< 20.0	20.0						0	0	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22060691**

RcptNo: 1

Logged by: **Tammy Thibodeaux** 6/14/2022 1:15:00 PM  
 Completed By: **Tammy Thibodeaux** 6/14/2022 2:58:41 PM  
 Reviewed By: **Buffy Bryant** 6/22/2022 1:14:22 PM

*Tammy Thibodeaux*  
*Tammy Thibodeaux*  
*Buffy Bryant*

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0° C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks: added Trip Blank, as per samples received.

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Not Present			



# Chain of Custody

691  
Laboratory Number: 070081

**Client Information:**  
 Company Name: ICON Environmental  
 Contact Name: Jason Sills  
 Address: 2049 Commercial Dr.  
 City, State Zip: Port Allen, LA 70767  
 Phone Number: 225 344 8448 Ext:  
 Fax Number: 225 344 6054  
 E-mail Address: jills@iconenv.com

**Billing Information:**  
 Billing Information: SAME  
 PO Number:  
 Quote Number:  
 Required QC Level:  
 Bill Monthly:  Yes  No  
 Ext:

**Project Name/Number:**  
Castex Development  
9403-016-0100  
 Sampler's Signature: Kath Bell  
 Shipping Method: UPS / FedEx / NOW  
DHL / Element / Hand / Mail

Page 1 of 1  
 Matrix Code: Water  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AC = Aqueous  
 OT = Other  
 SL = Sludge SOL = Solid  
 O = Oil SO = Soil  
 F = Food SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

Sample ID/Description	Collection Information		Rush turn times will incur a surcharge and must be pre-approved by (lab.)	Container	Pres.	Requested Tests						Comments		
	Date	Time				Gasb / Composites	Matrix	TDS/Chlorides	BTEX/TPH G	TPH D/G	Cations/Anions		Total Metals	Dissolved Metals
CD-12A	6.13.22	1200	G	AG	8	PV	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> SO <sub>4</sub>	X	X	X	X	X	X	Metals Ag-Method 6020 Ba, Cd, Cr, Fe, Mn, Sr, Hg, Pb Cations K, Na, Ca, Mg Anions Sulfate Alk Carbonate Alk. Bicarbonate
CD-12B	6.13.22	1250	G	AG	8	PV		X	X	X	X	X	X	
CD-13A	6.13.22	1545	G	AG	8	PV		X	X	X	X	X	X	
CD-13B	6.13.22	1700	G	AG	8	PV		X	X	X	X	X	X	
CD-13C	6.14.22	0900	G	AG	8	PV		X	X	X	X	X	X	
CD-14A	6.14.22	1105	G	AG	8	PV		X	X	X	X	X	X	
<u>TRIP Blank</u>	<u>6/14/22</u>	<u>-</u>	<u>G</u>	<u>A4</u>	<u>2</u>	<u>V</u>	<u>None</u>							

Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<u>Kath Bell</u>	<u>6.14.22 / 1315</u>	<u>Mark Lee</u>	<u>6/14/22 1315</u>	
				Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>2.5°</u>

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
 Columbus, IN  
 47701 USA  
 P 812-375-0531  
 F 812-375-0731

328 Lay Road, Suite 100  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46580 USA  
 P 574-267-3305  
 F 574-260-8888

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628 USA  
 P 574-277-0707  
 F 574-273-5699

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0463  
 F 337-233-0540



Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

July 26, 2022

Mr. Jason Sills  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex Development / 9403-016-  
Pace Project No.: 30500575

Dear Mr. Sills:

Enclosed are the analytical results for sample(s) received by the laboratory on June 23, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sean L. Meredith  
sean.meredith@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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Castex-ICON Report-000862

**BP/Castex-Ltd Adm-Apx I-000863**



### CERTIFICATIONS

Project: Castex Development / 9403-016-

Pace Project No.: 30500575

#### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castex Development / 9403-016-  
Pace Project No.: 30500575

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30500575001	CD-12A	Water	06/13/22 12:00	06/23/22 09:50
30500575002	CD-12B	Water	06/13/22 13:50	06/23/22 09:50
30500575003	CD-13A	Water	06/13/22 15:45	06/23/22 09:50
30500575004	CD-13B	Water	06/13/22 17:00	06/23/22 09:50
30500575005	CD-13C	Water	06/14/22 09:00	06/23/22 09:50
30500575006	CD-14A	Water	06/14/22 11:05	06/23/22 09:50

### REPORT OF LABORATORY ANALYSIS

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**SAMPLE ANALYTE COUNT**

Project: Castex Development / 9403-016-  
 Pace Project No.: 30500575

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30500575001	CD-12A	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30500575002	CD-12B	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30500575003	CD-13A	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30500575004	CD-13B	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30500575005	CD-13C	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30500575006	CD-14A	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

**REPORT OF LABORATORY ANALYSIS**

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## PROJECT NARRATIVE

Project: Castex Development / 9403-016-  
Pace Project No.: 30500575

---

**Method:** EPA 903.1  
**Description:** 903.1 Radium 226  
**Client:** ICON Environmental Services  
**Date:** July 26, 2022

### General Information:

6 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex Development / 9403-016-  
Pace Project No.: 30500575

---

**Method:** EPA 904.0  
**Description:** 904.0 Radium 228  
**Client:** ICON Environmental Services  
**Date:** July 26, 2022

### General Information:

6 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Castex Development / 9403-016-

Pace Project No.: 30500575

**Sample: CD-12A**      **Lab ID: 30500575001**      Collected: 06/13/22 12:00      Received: 06/23/22 09:50      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.210 ± 0.307 (0.524)</b> C:NA T:88%	pCi/L	07/26/22 12:48	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.669 ± 0.398 (0.731)</b> C:72% T:88%	pCi/L	07/16/22 10:28	15262-20-1	

**Sample: CD-12B**      **Lab ID: 30500575002**      Collected: 06/13/22 13:50      Received: 06/23/22 09:50      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>-0.109 ± 0.214 (0.513)</b> C:NA T:88%	pCi/L	07/26/22 13:06	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>-0.700 ± 0.225 (0.680)</b> C:72% T:88%	pCi/L	07/16/22 10:28	15262-20-1	

**Sample: CD-13A**      **Lab ID: 30500575003**      Collected: 06/13/22 15:45      Received: 06/23/22 09:50      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.313 ± 0.345 (0.552)</b> C:NA T:92%	pCi/L	07/26/22 13:06	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.674 ± 0.373 (0.662)</b> C:71% T:92%	pCi/L	07/16/22 10:28	15262-20-1	

**Sample: CD-13B**      **Lab ID: 30500575004**      Collected: 06/13/22 17:00      Received: 06/23/22 09:50      Matrix: Water  
 PWS:      Site ID:      Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.388 ± 0.257 (0.300)</b> C:NA T:97%	pCi/L	07/26/22 13:06	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.386 ± 0.328 (0.656)</b> C:72% T:97%	pCi/L	07/16/22 10:28	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex Development / 9403-016-  
 Pace Project No.: 30500575

**Sample: CD-13C** Lab ID: 30500575005 Collected: 06/14/22 09:00 Received: 06/23/22 09:50 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.23 ± 0.859 (1.04)</b> C:NA T:30%	pCi/L	07/26/22 13:06	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>3.63 ± 1.44 (2.21)</b> C:69% T:30%	pCi/L	07/16/22 10:28	15262-20-1	

**Sample: CD-14A** Lab ID: 30500575006 Collected: 06/14/22 11:05 Received: 06/23/22 09:50 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.0789 ± 0.268 (0.517)</b> C:NA T:87%	pCi/L	07/26/22 13:06	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.903 ± 0.425 (0.707)</b> C:69% T:87%	pCi/L	07/16/22 10:29	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex Development / 9403-016-  
 Pace Project No.: 30500575

---

QC Batch: 516188	Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0	Analysis Description: 904.0 Radium 228
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30500575001, 30500575002, 30500575003, 30500575004, 30500575005, 30500575006

---

METHOD BLANK: 2502043 Matrix: Water  
 Associated Lab Samples: 30500575001, 30500575002, 30500575003, 30500575004, 30500575005, 30500575006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.345 ± 0.351 (0.725) C:72% T:89%	pCi/L	07/16/22 10:34	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex Development / 9403-016-  
 Pace Project No.: 30500575

---

QC Batch:	516187	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30500575001, 30500575002, 30500575003, 30500575004, 30500575005, 30500575006

---

METHOD BLANK: 2502042 Matrix: Water

Associated Lab Samples: 30500575001, 30500575002, 30500575003, 30500575004, 30500575005, 30500575006

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.222 ± 0.231 (0.344) C:NA T:89%	pCi/L	07/26/22 12:48	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castex Development / 9403-016-  
Pace Project No.: 30500575

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.  
Act - Activity  
Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.  
Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.  
(MDC) - Minimum Detectable Concentration  
Trac - Tracer Recovery (%)  
Carr - Carrier Recovery (%)  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY Analytical Request Document

## WO#: 30500575

Submitting a sample via this chain of custody constitutes acknowledgment and acceptance of the Pace Terms and Conditions found at: <https://info.pacelabs.com/files/pas-standard-terms.pdf>

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **ICON Environmental**  
Address: **2019 Commercial Drive**  
**Port Allen, LA 70167**  
Report To: **Jason Sills**  
Copy To: **jsills@iconenv.com**

Billing Information: **SAME**  
Email To: **jsills@iconenv.com**  
Site Collection Info/Address: **LA / Mermentau JPT / JMT / CT / JET**

Customer Project Name/Number: **Castex Development / 9403-016-0100**  
State: **LA** County/City: **Mermentau** Time Zone Collected: **JPT / JMT / CT / JET**

Home: **225.247.8490** Site/Facility ID #: **226/228**  
Container Type: Plastic (P) or Glass (G)

Collected By (print): **Katie Bell**  
Collected By (signature): *Katie Bell*  
Turnaround Date Required: **STD**  
Rush: (Expedite Charges Apply)  
 Same Day  Next Day  
 2 Day  3 Day  
 4 Day  5 Day

Analysis: **Radium**  
Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
CD-12A	GW	G	6.13.22	1200	2	2
CD-12B	GW	G	6.13.22	1350	2	2
CD-13A	GW	G	6.13.22	1545	2	2
CD-13B	GW	G	6.13.22	1700	2	2
CD-13C	GW	G	6.14.22	0900	2	2
CD-14A	GW	G	6.14.22	1105	2	2

Customer Remarks / Special Conditions / Possible Hazards: **Wet Blue Dry (None)**

Type of Ice Used: **None**  
Packing Material Used: **N/A**

Radchem sample(s) screened (<500 cpm): **Y N NA**  
Received by/Company: (Signature) **Jason Sills**

Date/Time: **6.14.22/0900**  
Received by/Company: (Signature) **Jason Sills**

Date/Time: **6.14.22/0900**  
Received by/Company: (Signature) **Jason Sills**

LAB USE ONLY - Affix Workorder # **30500575**  
Container Preservative Type: **ALL BOLD OUTLII**

Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Lab Profile/Line: **226/228**

Lab Sample Receipt Checklist:  
Custody Seals Present/Intact: **Y N NA**  
Custody Signatures Present: **Y N NA**  
Collector Signatures Present: **Y N NA**  
Bottles Intact: **Y N NA**  
Correct Bottles: **Y N NA**  
Sufficient Volume: **Y N NA**  
Samples Received on Ice: **Y N NA**  
VOA - Headspace Acceptable: **Y N NA**  
USDA Regulated Solids: **Y N NA**  
Samples in Holding Time: **Y N NA**  
Residual Chlorine Present: **Y N NA**  
Cl Strips: **Y N NA**  
Sample pH Acceptable: **Y N NA**  
pH Strips: **Y N NA**  
Sulfide Present: **Y N NA**  
Lead Acetate Strips: **Y N NA**

LAB USE ONLY:  
Lab Sample # / Comments: **001**

LAB USE ONLY:  
Lab Sample # / Comments: **002**

LAB USE ONLY:  
Lab Sample # / Comments: **003**

LAB USE ONLY:  
Lab Sample # / Comments: **004**

LAB USE ONLY:  
Lab Sample # / Comments: **005**

LAB USE ONLY:  
Lab Sample # / Comments: **006**

LAB Sample Temperature Info:  
Temp Blank Received: **Y N NA**  
Therm ID#: **206-62432**  
Cooler 1 Temp Upon Receipt: **0C**  
Cooler 1 Therm Corr. Factor: **0C**  
Cooler 1 Corrected Temp: **0C**

Comments: **206-62432**

Trip Blank Received: **Y N NA**  
HCL MeOH TSP Other

Non-Conformance(s): **YES / NO**  
Page: **1** of **1**



Pace Greensburg Lab -Sample Container Count

Client: **ICON Environmental**

Profile Number: **2335**

Site: **Castex Development 9403-016-0100**

Notes

Sample Line Item	Matrix	AG1H	AG1S	AG1T	AG2U	AG3S	AG3U	AG5U	AG5T	BG1U	BG2U	BP1N	BP1U	BP2S	BP2U	BP3C	BP3N	BP3S	BP3U	DG9S	GCUB	VG9H	VG9T	VG9U	VOAK	WGFU	WGKU	ZPLC
1	WT											2																
2												1																
3																												
4																												
5																												
6	WT											2																
7																												
8																												
9																												
10																												
11																												
12																												

**NO#: 30500575**  
 PM: SM1 Due Date: 07/15/22  
 CLIENT: ICON

Container Codes

Glass	
GJN	1 Gallon Jug with HNO3
AG5U	100mL amber glass unpreserved
AG5T	100mL amber glass Na Thiosulfate
GJN	1 Gallon Jug
AG1S	1L amber glass H2SO4
AG1H	1L amber glass HCl
AG1T	1L amber glass Na Thiosulfate
BG1U	1L clear glass unpreserved
AG3S	250mL amber glass H2SO4
AG5U	250mL amber glass unpreserved
DG9S	40mL amber VOA vial H2SO4
VG9U	40mL clear VOA vial
VG9T	40mL clear VOA vial Na Thiosul
VG9H	40mL clear VOA vial HCl
JGFU	4oz amber wide jar
WGFU	4oz wide jar unpreserved
BG2U	500mL clear glass unpreserved
AG2U	500mL amber glass unpreserved
WGKU	8oz wide jar unpreserved

Plastic / Misc.	
GCUB	1 Gallon Cubitainer
12GN	1/2 Gallon Cubitainer
SP5T	120mL Coliform Na Thiosulfate
BP1N	1L plastic HNO3
BP1U	1L plastic unpreserved
BP3S	250mL plastic H2SO4
BP3N	250mL plastic HNO3
BP3U	250mL plastic unpreserved
BP3C	250mL plastic NaOH
BP2S	500mL plastic H2SO4
BP2U	500mL plastic unpreserved
EZI	5g Encore
VOAK	Kit for Volatile Solid
	Wipe/Swab
ZPLC	Ziploc Bag
WT	Water
SL	Solid
OL	Non-aqueous liquid
WIP	Wipe



Element Materials Technology Lafayette  
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Lafayette, LA 70508-3344  
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June 30, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22060692

Dear Greg Miller:

Element Materials Technology Lafayette received 1 sample(s) on 6/14/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22060692

Date: 6/30/2022

---

**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22060692

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 2:30:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060692-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-14 B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.328	0.128		mg/L	1	6/18/2022 12:05:00 AM
TPH (Oil Range)	0.167	0.118		mg/L	1	6/18/2022 12:05:00 AM
Surr: 4-Terphenyl-d14	133	51.4 - 146		%Rec	1	6/18/2022 12:05:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	1.69	0.150		mg/L	1	6/23/2022 3:41:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	6/23/2022 3:41:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	0.322	0.0250		mg/L	5	6/24/2022 6:50:00 PM
Ethylbenzene	0.0113	0.00500		mg/L	1	6/23/2022 3:41:00 PM
m,p-Xylene	0.0356	0.0100		mg/L	1	6/23/2022 3:41:00 PM
o-Xylene	0.0300	0.00500		mg/L	1	6/23/2022 3:41:00 PM
Toluene	0.138	0.0500		mg/L	5	6/24/2022 6:50:00 PM
Xylenes, Total	0.0657	0.0500		mg/L	1	6/23/2022 3:41:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.0	70 - 130		%Rec	5	6/24/2022 6:50:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/23/2022 3:41:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/23/2022 6:39:53 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	8,260	125		mg/L	500	6/17/2022 12:49:31 PM
Sulfate	< 12.5	12.5		mg/L	50	6/17/2022 4:02:34 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: [www.element.com](http://www.element.com)

# Analytical Report

(consolidated)

WO#: 22060692

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2022 2:30:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060692-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-14 B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	9.19	0.100		mg/L	10	6/21/2022 2:43:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2022 2:31:00 PM
Calcium	659	5.00		mg/L	10	6/21/2022 2:43:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2022 2:31:00 PM
Iron	18.4	0.0100		mg/L	1	6/22/2022 2:32:03 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2022 2:31:00 PM
Magnesium	188	5.00		mg/L	10	6/21/2022 2:43:00 PM
Manganese	2.01	0.0100		mg/L	1	6/21/2022 2:31:00 PM
Potassium	34.7	5.00		mg/L	1	6/21/2022 2:31:00 PM
Sodium	4,110	50.0		mg/L	10	6/21/2022 2:43:00 PM
Strontium	18.3	0.100		mg/L	10	6/21/2022 2:43:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2022 2:31:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	32.8	2.50		µg/L	10	6/17/2022 10:35:36 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	298	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	298	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	12,900	250		mg/L	25	6/16/2022 6:51:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>MB-44136</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736850</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		< 0.0100		0.0100										

Sample ID	<b>LCS-44136</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736851</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.517		0.0100	0.5000	0		103	80	120				

Sample ID	<b>LCSD-44136</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736852</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.516		0.0100	0.5000	0		103	80	120	0.5168	0.167	20	

Sample ID	<b>22060691-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736854</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.972		0.0100	0.5000	0.4516		104	75	125				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110835</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736855</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron		0.923		0.0100	0.5000	0.4516	94.3	75	125	0.9719	5.17	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>MB-44136</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735637</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-44136</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735638</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.491	0.0100	0.5000	0	98.3	80	120				
Cadmium	0.485	0.00500	0.5000	0	97.0	80	120				
Calcium	49.1	0.500	50.00	0	98.1	80	120				
Chromium	0.494	0.0100	0.5000	0	98.8	80	120				
Lead	0.480	0.0100	0.5000	0	96.1	80	120				
Magnesium	48.9	0.500	50.00	0	97.9	80	120				
Manganese	0.489	0.0100	0.5000	0	97.8	80	120				
Potassium	48.7	5.00	50.00	0	97.4	80	120				
Sodium	49.7	10.0	50.00	0	99.4	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>LCS-44136</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735638</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium		0.490		0.0100	0.5000	0		98.0	80	120				
Zinc		0.478		0.0100	0.5000	0		95.6	80	120				

Sample ID	<b>LCSD-44136</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735639</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium		0.492		0.0100	0.5000	0		98.3	80	120	0.4914	0.0610	20	
Cadmium		0.488		0.00500	0.5000	0		97.5	80	120	0.4851	0.535	20	
Calcium		49.3		0.500	50.00	0		98.5	80	120	49.06	0.390	20	
Chromium		0.494		0.0100	0.5000	0		98.7	80	120	0.4940	0.0668	20	
Lead		0.485		0.0100	0.5000	0		97.0	80	120	0.4803	0.953	20	
Magnesium		49.2		0.500	50.00	0		98.3	80	120	48.94	0.466	20	
Manganese		0.492		0.0100	0.5000	0		98.4	80	120	0.4892	0.593	20	
Potassium		48.8		5.00	50.00	0		97.7	80	120	48.68	0.327	20	
Sodium		48.6		10.0	50.00	0		97.2	80	120	49.71	2.25	20	
Strontium		0.491		0.0100	0.5000	0		98.2	80	120	0.4900	0.194	20	
Zinc		0.479		0.0100	0.5000	0		95.8	80	120	0.4782	0.182	20	

Sample ID	<b>22060691-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735645</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110783</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735645</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.597	0.0100	0.5000	0.1212	95.2	75	125				
Cadmium	0.473	0.00500	0.5000	0	94.6	75	125				
Calcium	62.6	0.500	50.00	14.12	97.0	75	125				
Chromium	0.483	0.0100	0.5000	0	96.6	75	125				
Lead	0.467	0.0100	0.5000	0	93.5	75	125				
Magnesium	53.3	0.500	50.00	4.622	97.4	75	125				
Manganese	0.762	0.0100	0.5000	0.3028	91.8	75	125				
Potassium	49.7	5.00	50.00	1.166	97.0	75	125				
Sodium	103	10.0	50.00	57.09	92.3	75	125				
Strontium	0.546	0.0100	0.5000	0.06829	95.5	75	125				
Zinc	0.467	0.0100	0.5000	0	93.4	75	125				

Sample ID	<b>22060691-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110783</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44136</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735646</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.588	0.0100	0.5000	0.1212	93.5	75	125	0.5970	1.43	20	
Cadmium	0.466	0.00500	0.5000	0	93.1	75	125	0.4731	1.57	20	
Calcium	61.8	0.500	50.00	14.12	95.3	75	125	62.60	1.31	20	
Chromium	0.473	0.0100	0.5000	0	94.6	75	125	0.4830	2.08	20	
Lead	0.461	0.0100	0.5000	0	92.2	75	125	0.4674	1.36	20	
Magnesium	52.6	0.500	50.00	4.622	96.0	75	125	53.34	1.31	20	
Manganese	0.755	0.0100	0.5000	0.3028	90.4	75	125	0.7616	0.880	20	
Potassium	48.9	5.00	50.00	1.166	95.5	75	125	49.67	1.53	20	
Sodium	102	10.0	50.00	57.09	89.4	75	125	103.3	1.45	20	

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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44136

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110783</b>	
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44136</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735646</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium		0.540	0.0100	0.5000	0.06829	94.3	75	125	0.5456	1.08	20	
Zinc		0.460	0.0100	0.5000	0	92.0	75	125	0.4671	1.52	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44137

Sample ID <b>MB-44137</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>PBW</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731381</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	< 0.250	0.250			

Sample ID <b>LCS-44137</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731382</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	522	5.00	500.0	0	104 80 120

Sample ID <b>LCSD-44137</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731383</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	509	5.00	500.0	0	102 80 120 522.0 2.56 20

Sample ID <b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>µg/L</b>	Prep Date: <b>6/15/2022</b>	RunNo: <b>110671</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44137</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731386</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Arsenic	494	5.00	500.0	1.353	98.6 75 125

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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44137

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/15/2022</b>	RunNo:	<b>110671</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44137</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731387</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		487		5.00	500.0	1.353	97.1	75	125	494.5	1.53	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
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	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID	<b>22060792-003C MS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731671</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.49	0.122	1.741	0.06626	81.9	70	130				
Surr: 4-Terphenyl-d14	0.0483		0.05802		83.3	51.4	146				

Sample ID	<b>22060792-003C MS</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731672</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.49	0.120	1.718	0.06626	83.0	70	130	1.493	0.0341	36.4	
Surr: 4-Terphenyl-d14	0.0494		0.05727		86.3	51.4	146		0	40	

Sample ID	<b>LCS-D44142</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>LCSW</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731679</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.12	0.136	1.800	0	118	70	130				
Surr: 4-Terphenyl-d14	0.0765		0.05999		128	51.4	146				

Sample ID	<b>LCSD-D44142</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>					
Client ID:	<b>LCSS02</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731680</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.09	0.136	1.799	0	116	70	130	2.118	1.40	14.1	

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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID	<b>LCSD-D44142</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731680</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14		0.0763			0.05997			127	51.4	146		0	40	

Sample ID	<b>LCSD-M</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731681</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.86		0.126	1.803	0		103	70	130	2.143	13.9	23.2	
Surr: 4-Terphenyl-d14		0.0628			0.06011			104	51.4	146		0	40	

Sample ID	<b>LCS-M</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731682</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.14		0.126	1.805	0		119	70	130				
Surr: 4-Terphenyl-d14		0.0677			0.06015			113	51.4	146				

Sample ID	<b>MB-44142</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/16/2022</b>	RunNo:	<b>110682</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44142</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2731683</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.137		0.137										
TPH (Oil Range)		< 0.126		0.126										

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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44142

Sample ID <b>MB-44142</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>PBW</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2731683</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

Surr: 4-Terphenyl-d14 0.0603 0.06004 100 51.4 146

Sample ID <b>22060792-003C MS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731684</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range) 2.05 0.129 1.705 0.06866 116 70 130  
 Surr: 4-Terphenyl-d14 0.0706 0.05682 124 51.4 146

Sample ID <b>22060792-003C MS</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/16/2022</b>	RunNo: <b>110682</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44142</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/18/2022</b>	SeqNo: <b>2731685</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range) 2.24 0.129 1.700 0.06866 128 70 130 2.054 8.74 21.9  
 Surr: 4-Terphenyl-d14 0.0779 0.05667 137 51.4 146 0 40

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44193

Sample ID <b>MB-44193</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>PBW</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736771</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.000200	0.000200			

Sample ID <b>LCS-44193</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736772</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 80 120

Sample ID <b>LCSD-44193</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736773</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 80 120 0.01051 0.0582 20

Sample ID <b>22060691-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470</b>	Units: <b>mg/L</b>	Prep Date: <b>6/22/2022</b>	RunNo: <b>110833</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>44193</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2736776</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.0105	0.000200	0.01000	0	105 75 125

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44193

Sample ID	<b>22060691-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/22/2022</b>	RunNo:	<b>110833</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44193</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2736777</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0105		0.000200	0.01000	0	105	75	125	0.01050	0.349	20	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110614

Sample ID <b>MB-R110614</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110614</b>
Client ID: <b>PBW</b>	Batch ID: <b>R110614</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2732957</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0			

Sample ID <b>LCS-R110614</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110614</b>
Client ID: <b>LCSW</b>	Batch ID: <b>R110614</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2732958</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	997	10.0	1,000	0	99.7 85 115

Sample ID <b>LCSD-R110614</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110614</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>R110614</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2732959</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	999	10.0	1,000	0	99.9 85 115 997.0 0.200 10

Sample ID <b>22060692-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110614</b>
Client ID: <b>CD-14 B</b>	Batch ID: <b>R110614</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/16/2022</b>	SeqNo: <b>2732967</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)	12,800	250			12,920 0.582 10

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110614

Sample ID	<b>22060692-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>
Client ID:	<b>CD-14 B</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732967</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22060691-004ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110614</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110614</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/16/2022</b>	SeqNo:	<b>2732968</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable)	755	50.0							790.0	4.53	10
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**Qualifiers:**

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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110695

Sample ID <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732223</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732224</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.98	0.250	10.00	0	99.8	80	120				
Sulfate	9.62	0.250	10.00	0	96.2	80	120				

Sample ID <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732225</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.99	0.250	10.00	0	99.9	80	120	9.984	0.0880	15	
Sulfate	9.60	0.250	10.00	0	96.0	80	120	9.616	0.129	15	

Sample ID <b>22060835-001ems</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110695</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R110695</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/17/2022</b>	SeqNo: <b>2732242</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	14.5	0.250	5.000	9.823	92.9	80	120				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110695

Sample ID	<b>22060835-001ems</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110695</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110695</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2732242</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Sulfate		5.66		0.250	5.000	0.8840	95.5	80	120		

Sample ID	<b>22060835-001emsd</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110695</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110695</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/17/2022</b>	SeqNo:	<b>2732243</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Chloride		14.5		0.250	5.000	9.823	92.9	80	120	14.47	0.0120 15
Sulfate		5.64		0.250	5.000	0.8840	95.1	80	120	5.658	0.321 15

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737410</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene		0.0519	0.00500	0.05000	0	104	76	129				
m,p-Xylene		0.105	0.0100	0.1000	0	105	75	125				
o-Xylene		0.0515	0.00500	0.05000	0	103	75	125				
Xylenes, Total		0.156	0.0500	0.1500	0	104	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0487		0.05000		97.4	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737411</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene		0.0498	0.00500	0.05000	0	99.6	76	129	0.05190	4.13	20	
m,p-Xylene		0.100	0.0100	0.1000	0	100	75	125	0.1049	4.68	20	
o-Xylene		0.0495	0.00500	0.05000	0	99.0	75	125	0.05150	3.96	20	
Xylenes, Total		0.150	0.0500	0.1500	0	99.8	75	125	0.1565	4.44	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0492		0.05000		98.4	70	130		0	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>	
Client ID:	<b>PBW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737412</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Ethylbenzene		< 0.00500	0.00500									
m,p-Xylene		< 0.0100	0.0100									

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>		
Client ID:	<b>PBW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737412</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
o-Xylene		< 0.00500		0.00500									
Xylenes, Total		< 0.0500		0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0511			0.05000		102	70	130				

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: **22060692**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110843

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737395</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.4		0.150	12.50	0		99.3	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737396</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		13.7		0.150	12.50	0		110	80	130	12.42	9.86	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737397</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0523			0.05000			105	70	130				

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110874

Sample ID	<b>MB-R110874</b>	SampType:	<b>MBLK</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>		
Client ID:	<b>PBW</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738558</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0											
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0											
Alkalinity, Phenolphthalein	< 20.0	20.0											
Alkalinity, Total (As CaCO3)	< 20.0	20.0											

Sample ID	<b>LCS-R110874</b>	SampType:	<b>LCS</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>		
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738559</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	46.5	20.0	50.00	0	93.0	80	120						
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Sample ID	<b>22060835-001EDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>		
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738568</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0								0	0	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0								0	0	20	
Alkalinity, Phenolphthalein	< 20.0	20.0								0	0	20	
Alkalinity, Total (As CaCO3)	< 20.0	20.0								0	0	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22060692  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110899

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:		Prep Date:		RunNo:	<b>110899</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110899</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738656</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0486	0.00500	0.05000	0	97.2	72	120				
Toluene		0.0485	0.0100	0.05000	0	97.0	78	120				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0487		0.05000		97.4	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:		Prep Date:		RunNo:	<b>110899</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110899</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738657</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0472	0.00500	0.05000	0	94.4	72	120	0.04860	2.92	20	
Toluene		0.0472	0.0100	0.05000	0	94.4	78	120	0.04850	2.72	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0478		0.05000		95.6	70	130		0	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110899</b>	
Client ID:	<b>PBW</b>	Batch ID:	<b>R110899</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738658</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		< 0.00500	0.00500									
Toluene		< 0.0100	0.0100									
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0487		0.05000		97.4	70	130				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode

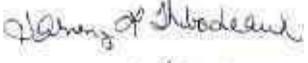
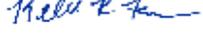


## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22060692**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>6/14/2022 1:15:00 PM</b>	
Completed By:	<b>Tammy Thibodeaux</b>	<b>6/14/2022 3:59:31 PM</b>	
Reviewed By:	<b>Kelli Foreman</b>	<b>6/30/2022 10:11:41 AM</b>	

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Not Present			





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June 30, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development (9403-016-0100)

Order No.: 22060841

Dear Greg Miller:

Element Materials Technology Lafayette received 1 sample(s) on 6/17/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



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## Case Narrative

WO#: 22060841

Date: 6/30/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development (9403-016-0100)

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

Prep Comments for 3511\_D, Sample 22060841-001B: Prep Method hold time was exceeded by 3.977 days.

Prep Comments for 3511\_D, Sample 22060841-001B: Prep Method hold time was exceeded by 3.977 days.



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# Analytical Report

(consolidated)

WO#: 22060841

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/16/2022 3:10:00 PM  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060841-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-50

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.282	0.132		mg/L	1	6/24/2022 9:54:00 AM
TPH (Oil Range)	0.179	0.122		mg/L	1	6/24/2022 9:54:00 AM
Surr: 4-Terphenyl-d14	21.2	51.4 - 146	S	%Rec	1	6/24/2022 9:54:00 AM
<b>NOTES:</b>						
S: Surrogate outside of control limits. Re-extraction was not possible due to insufficient sample or holding time constraints.						
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/23/2022 4:09:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	103	70 - 130		%Rec	1	6/23/2022 4:09:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/23/2022 4:09:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/23/2022 4:09:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/23/2022 4:09:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/23/2022 4:09:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/23/2022 4:09:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/23/2022 4:09:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	6/23/2022 4:09:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/28/2022 8:22:42 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	55.4	2.50		mg/L	10	6/21/2022 2:17:26 PM
Sulfate	0.762	0.250		mg/L	1	6/21/2022 4:07:48 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, DISSOLVED</b>						

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22060841

Date Reported: 6/30/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)  
**Lab ID:** 22060841-001  
**Client Sample ID** CD-50

**Collection Date:** 6/16/2022 3:10:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>		<b>SW6010B</b>			Analyst: <b>MRM</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.349	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/22/2022 2:50:23 PM
Calcium	53.0	0.500		mg/L	1	6/22/2022 2:50:23 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Iron	2.95	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Lead	< 0.0100	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Magnesium	13.7	0.500		mg/L	1	6/22/2022 2:50:23 PM
Manganese	0.235	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Potassium	< 5.00	5.00		mg/L	1	6/22/2022 2:50:23 PM
Sodium	62.1	10.0		mg/L	1	6/22/2022 2:50:23 PM
Strontium	0.272	0.0100		mg/L	1	6/22/2022 2:50:23 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/22/2022 2:50:23 PM
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>		<b>SW6020A</b>			Analyst: <b>MRB</b>	
Arsenic	< 2.50	2.50		µg/L	10	6/22/2022 11:55:00 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>		<b>SM2320 B</b>			Analyst: <b>AD</b>	
Alkalinity, Bicarbonate (As CaCO3)	218	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
Alkalinity, Total (As CaCO3)	218	20.0		mgCaCO3/L	1	6/24/2022 9:41:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>		<b>SM2540C</b>			Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	327	10.0		mg/L	1	6/20/2022 8:17:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID <b>MB-44190</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>PBW</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/23/2022</b>	SeqNo: <b>2737943</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Diesel Range)	< 0.138	0.138									
TPH (Oil Range)	< 0.127	0.127									
Surr: 4-Terphenyl-d14	0.0401		0.06058		66.2	51.4	146				

Sample ID <b>22060835-001BMS-</b>	SampType: <b>MS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740515</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Oil Range)	2.09	0.119	1.706	0	122	70	130				
Surr: 4-Terphenyl-d14	0.0748		0.05686		132	51.4	146				

Sample ID <b>22060835-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740516</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

TPH (Oil Range)	2.04	0.118	1.689	0	121	70	130	2.086	2.14	36.4	
Surr: 4-Terphenyl-d14	0.0659		0.05629		117	51.4	146		0	40	

Sample ID <b>LCS-D44190</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2022</b>	RunNo: <b>110876</b>
Client ID: <b>LCSW</b>	Batch ID: <b>44190</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>6/27/2022</b>	SeqNo: <b>2740520</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID	<b>LCS-D44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740520</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		1.83		0.137	1.801	0		102	70	130				
Surr: 4-Terphenyl-d14		0.0601			0.06004			100	51.4	146				

Sample ID	<b>LCSD-D44190</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740521</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		2.02		0.137	1.805	0		112	70	130	1.834	9.61	14.1	
Surr: 4-Terphenyl-d14		0.0689			0.06017			114	51.4	146		0	40	

Sample ID	<b>LCSD-M44190</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740522</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.09		0.126	1.796	0		117	70	130	2.142	2.32	23.2	
Surr: 4-Terphenyl-d14		0.0694			0.05986			116	51.4	146		0	40	

Sample ID	<b>LCS-M44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740523</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		2.14		0.126	1.793	0		119	70	130				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44190

Sample ID	<b>LCS-M44190</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740523</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14                      0.0782                      0.05977                      131                      51.4                      146

Sample ID	<b>22060835-001BMS-</b>	SampType:	<b>MS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2740524</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)                      1.83                      0.131                      1.726                      0.09319                      101                      70                      130  
 Surr: 4-Terphenyl-d14                      0.0585                      0.05752                      102                      51.4                      146

Sample ID	<b>22060835-001BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/21/2022</b>	RunNo:	<b>110876</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>44190</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2740525</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)                      1.94                      0.133                      1.753                      0.09319                      105                      70                      130                      1.835                      5.69                      21.9  
 Surr: 4-Terphenyl-d14                      0.0656                      0.05843                      112                      51.4                      146                      0                      40

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44229

Sample ID	<b>MB-44229</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739481</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>22060691-005DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739488</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0156		0.000200	0.01000	0		156	75	125				S

Sample ID	<b>22060691-005DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739489</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0157		0.000200	0.01000	0		157	75	125	0.01559	0.648	20	S

**NOTES:**

S - Spike recoveries were outside of QC limits in MS/MSD and PDS/PDSD, suggesting matrix effect. The method is in control as indicated by the Lab Control Sample(s).

Sample ID	<b>LCS-44229</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739509</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0108		0.000200	0.01000	0		108	80	120				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: **22060841**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** 44229

Sample ID	<b>LCSD-44229</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/24/2022</b>	RunNo:	<b>110945</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739510</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104		0.000200	0.01000	0		104	80	120	0.01076	3.25	20	

Sample ID	<b>22060691-005DPDS</b>	SampType:	<b>PDS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110945</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739511</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0126		0.000200	0.0100	0		126	80	120				S

Sample ID	<b>22060691-005DPDS</b>	SampType:	<b>PDS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110945</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>44229</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739512</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0124		0.000200	0.01000	0		124	80	120	0.01257	1.09	20	S

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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# QC SUMMARY REPORT

WO#: **22060841**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110691

Sample ID: <b>MB-R110691</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110691</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110691</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2734661</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0									

Sample ID: <b>LCS-R110691</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110691</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110691</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2734662</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	996	10.0	1,000	0	99.6	85	115				

Sample ID: <b>LCSD-R110691</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110691</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110691</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2734663</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	996	10.0	1,000	0	99.6	85	115	996.0	0	10	

Sample ID: <b>22060841-001CDUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110691</b>						
Client ID: <b>CD-50</b>	Batch ID: <b>R110691</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/20/2022</b>	SeqNo: <b>2734684</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	326	10.0						327.0	0.306	10	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110691

Sample ID	<b>22060841-001CDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110691</b>
Client ID:	<b>CD-50</b>	Batch ID:	<b>R110691</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/20/2022</b>	SeqNo:	<b>2734684</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22060792-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110691</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110691</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/20/2022</b>	SeqNo:	<b>2734685</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable)	2,580	50.0								2,760	6.74	10
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110788

Sample ID	<b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110788</b>
Client ID:	<b>PBW</b>	Batch ID: <b>R110788</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735796</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	< 0.250	0.250				
Sulfate	< 0.250	0.250				

Sample ID	<b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110788</b>
Client ID:	<b>LCSW</b>	Batch ID: <b>R110788</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735797</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	9.97	0.250	10.00	0	99.7	80 120
Sulfate	9.53	0.250	10.00	0	95.3	80 120

Sample ID	<b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110788</b>
Client ID:	<b>LCSS02</b>	Batch ID: <b>R110788</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735798</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	9.92	0.250	10.00	0	99.2	80 120 9.966 0.445 15
Sulfate	9.46	0.250	10.00	0	94.6	80 120 9.528 0.688 15

Sample ID	<b>22060835-010EMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110788</b>
Client ID:	<b>ZZZZZ</b>	Batch ID: <b>R110788</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/21/2022</b>	SeqNo: <b>2735803</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Chloride	5.17	0.250	5.000	0.1484	100	80 120

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110788

Sample ID	<b>22060835-010EMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110788</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110788</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735803</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		4.82		0.250	5.000	0	96.3	80	120				

Sample ID	<b>22060835-010EMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110788</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110788</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/21/2022</b>	SeqNo:	<b>2735804</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5.18		0.250	5.000	0.1484	101	80	120	5.169	0.227	15	
Sulfate		4.82		0.250	5.000	0	96.3	80	120	4.817	0.00596	15	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: **22060841**  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110809

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110809</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110809</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2737710</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.250	0.250									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110809</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110809</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2737711</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.2	0.250	20.00	0	101	80	120				

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110809</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110809</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2737712</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.1	0.250	20.00	0	101	80	120	20.15	0.0332	20	

Sample ID <b>22060841-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110809</b>						
Client ID: <b>CD-50</b>	Batch ID: <b>R110809</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2737715</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	200	2.50	200.0	1.203	99.2	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110809

Sample ID	<b>22060841-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_D</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>110809</b>		
Client ID:	<b>CD-50</b>	Batch ID:	<b>R110809</b>	TestNo:	<b>SW6020A</b>	Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2737716</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		196		2.50	200.0	1.203	97.5	75	125	199.5	1.66	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736864</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736865</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.512	0.0100	0.5000	0	102	80	120				
Cadmium	0.509	0.00500	0.5000	0	102	80	120				
Calcium	50.9	0.500	50.00	0	102	80	120				
Chromium	0.510	0.0100	0.5000	0	102	80	120				
Iron	0.514	0.0100	0.5000	0	103	80	120				
Lead	0.512	0.0100	0.5000	0	103	80	120				
Magnesium	50.3	0.500	50.00	0	101	80	120				
Manganese	0.514	0.0100	0.5000	0	103	80	120				

**Qualifiers:**

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S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736865</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49.8	5.00	50.00	0	99.7	80	120				
Sodium	50.0	10.0	50.00	0	100	80	120				
Strontium	0.510	0.0100	0.5000	0	102	80	120				
Zinc	0.506	0.0100	0.5000	0	101	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736866</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.509	0.0100	0.5000	0	102	80	120	0.5122	0.574	20	
Cadmium	0.505	0.00500	0.5000	0	101	80	120	0.5088	0.823	20	
Calcium	51.2	0.500	50.00	0	102	80	120	50.91	0.534	20	
Chromium	0.507	0.0100	0.5000	0	101	80	120	0.5098	0.500	20	
Iron	0.509	0.0100	0.5000	0	102	80	120	0.5136	0.858	20	
Lead	0.506	0.0100	0.5000	0	101	80	120	0.5125	1.35	20	
Magnesium	50.6	0.500	50.00	0	101	80	120	50.25	0.680	20	
Manganese	0.509	0.0100	0.5000	0	102	80	120	0.5137	0.915	20	
Potassium	50.3	5.00	50.00	0	101	80	120	49.84	0.824	20	
Sodium	50.5	10.0	50.00	0	101	80	120	50.04	0.910	20	
Strontium	0.507	0.0100	0.5000	0	101	80	120	0.5096	0.571	20	
Zinc	0.502	0.0100	0.5000	0	100	80	120	0.5060	0.806	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>22060691-005DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110835</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R110835-1</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736868</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.683	0.0100	0.5000	0.1294	111	75	125				
Cadmium	0.573	0.00500	0.5000	0	115	75	125				
Calcium	116	0.500	50.00	61.99	109	75	125				
Chromium	0.561	0.0100	0.5000	0	112	75	125				
Iron	0.882	0.0100	0.5000	0.3283	111	75	125				
Lead	0.554	0.0100	0.5000	0	111	75	125				
Magnesium	71.5	0.500	50.00	15.76	111	75	125				
Manganese	0.780	0.0100	0.5000	0.2256	111	75	125				
Potassium	59.9	5.00	50.00	3.808	112	75	125				
Sodium	159	10.0	50.00	103.7	110	75	125				
Strontium	0.923	0.0100	0.5000	0.3731	110	75	125				
Zinc	0.596	0.0100	0.5000	0	119	75	125				

Sample ID	<b>22060691-005DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>110835</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R110835-1</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/22/2022</b>	SeqNo: <b>2736869</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.675	0.0100	0.5000	0.1294	109	75	125	0.6830	1.22	20	
Cadmium	0.565	0.00500	0.5000	0	113	75	125	0.5733	1.51	20	
Calcium	116	0.500	50.00	61.99	108	75	125	116.4	0.385	20	
Chromium	0.552	0.0100	0.5000	0	110	75	125	0.5607	1.48	20	
Iron	0.872	0.0100	0.5000	0.3283	109	75	125	0.8816	1.04	20	
Lead	0.542	0.0100	0.5000	0	108	75	125	0.5541	2.29	20	
Magnesium	70.9	0.500	50.00	15.76	110	75	125	71.48	0.772	20	
Manganese	0.774	0.0100	0.5000	0.2256	110	75	125	0.7799	0.710	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110835-1

Sample ID	<b>22060691-005DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110835</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110835-1</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/22/2022</b>	SeqNo:	<b>2736869</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	59.6	5.00	50.00	3.808	111	75	125	59.90	0.581	20	
Sodium	156	10.0	50.00	103.7	105	75	125	158.6	1.56	20	
Strontium	0.917	0.0100	0.5000	0.3731	109	75	125	0.9234	0.656	20	
Zinc	0.630	0.0100	0.5000	0	126	75	125	0.5957	5.67	20	S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737410</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0516	0.00500	0.05000	0	103	72	120				
Ethylbenzene		0.0519	0.00500	0.05000	0	104	76	129				
m,p-Xylene		0.105	0.0100	0.1000	0	105	75	125				
o-Xylene		0.0515	0.00500	0.05000	0	103	75	125				
Toluene		0.0520	0.0100	0.05000	0	104	78	120				
Xylenes, Total		0.156	0.0500	0.1500	0	104	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0487		0.05000		97.4	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737411</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0492	0.00500	0.05000	0	98.4	72	120	0.05160	4.76	20	
Ethylbenzene		0.0498	0.00500	0.05000	0	99.6	76	129	0.05190	4.13	20	
m,p-Xylene		0.100	0.0100	0.1000	0	100	75	125	0.1049	4.68	20	
o-Xylene		0.0495	0.00500	0.05000	0	99.0	75	125	0.05150	3.96	20	
Toluene		0.0497	0.0100	0.05000	0	99.4	78	120	0.05200	4.52	20	
Xylenes, Total		0.150	0.0500	0.1500	0	99.8	75	125	0.1565	4.44	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0492		0.05000		98.4	70	130		0	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110842

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110842</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R110842</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737412</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0511		0.05000		102	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110843

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737395</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		12.4		0.150	12.50	0		99.3	80	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737396</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		13.7		0.150	12.50	0		110	80	130	12.42	9.86	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110843</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R110843</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/23/2022</b>	SeqNo:	<b>2737397</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0523			0.05000			105	70	130				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22060841  
 30-Jun-22

**Client:** ICON Environmental Services  
**Project:** Castex Development (9403-016-0100)

**BatchID:** R110874

Sample ID	<b>MB-R110874</b>	SampType:	<b>MBLK</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738558</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Phenolphthalein	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID	<b>LCS-R110874</b>	SampType:	<b>LCS</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738559</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	46.5	20.0	50.00	0	93.0	80	120				
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Sample ID	<b>22060835-001EDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>ALK</b>	Units:	<b>mgCaCO3/L</b>	Prep Date:		RunNo:	<b>110874</b>
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R110874</b>	TestNo:	<b>SM2320 B</b>			Analysis Date:	<b>6/24/2022</b>	SeqNo:	<b>2738568</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Phenolphthalein	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	< 20.0	20.0						0	0	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22060841**

RcptNo: **1**

Logged by: **Tammy Thibodeaux** **6/17/2022 9:20:00 AM**

*Tammy Thibodeaux*

Completed By: **Tammy Thibodeaux** **6/17/2022 10:05:15 AM**

*Tammy Thibodeaux*

Reviewed By: **Buffy Bryant** **6/21/2022 4:32:22 PM**

*Buffy Bryant*

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.2	Good	Not Present			



# Chain of Custody

Laboratory Number: **22060841**

**Client Information:** Company Name: **ICON** PO Number: **PO Number:** Project Name/Number: **Castex Development** Page 1 of 1  
 Contact Name: **ICAN** Quote Number: **9403-016-0100** Matrix Code  
 Address: Required QC Level: **DT = Drinking Water**  
 City, State Zip: Ext.: Bill Monthly:  Yes  No **DW = Wastewater**  
 Phone Number: Shipping Method: **UPS / FedEx / NOW**  
 Fax Number: DHL / Element (Hand) / Mail **GW = Ground Water**  
 E-mail Address: **Jeffrey Miller** **AQ = Aqueous**  
**OT = Other**  
**SL = Sludge** **SOL = Solid**  
**O = Oil** **SO = Soil**  
**F = Food** **SW = Swab**  
**NG = Natural Gas**  
**NGL = Natural Gas Liquid**  
**P/W = Produced Water**  
**CF = Completion Fluid**

Sample ID/Description	Turn Time		Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container	Pres.	Requested Tests	Comments
	Date	Time					
CD-50	6.16.22	15:16	G	Quantity Type F=Plastic G=Glass, V=Vial	HC, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> NaOH, Na <sub>2</sub> O <sub>2</sub> HCl/HNO <sub>3</sub>	<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USCA/FDA <input type="checkbox"/> RECAP/RISC Dissolved Metals TPH-FTO TPH-G BTEX TDS Chlroids Cations / Anions As, Bi, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg Cations Ca, K, Na, Mg Anions Alk bicarbonate Alk carbonate sulfate	

Relinquished by	Date/Time	Received by	Date/Time	Field Notes
<i>Jeffrey Miller</i>	6/16/22 09:30	<i>Woodward</i>	6/17/22 09:30	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <b>45</b>

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. **120**

8800 North US 31  
 Columbus, IN  
 47501 USA  
 P 812-375-0531  
 F 812-375-0731

328 Loy Road, Suite 110  
 Fort Wayne, IN  
 46825 USA  
 P 260-471-7000  
 F 260-471-7777

909 Executive Dr  
 Warsaw, IN  
 46586 USA  
 P 574-267-3505  
 F 574-269-8669

3371 Cleveland Road, Suite 100A  
 South Bend, IN  
 46628 USA  
 P 574-277-0707  
 F 574-273-8899

2417 W. Pinhook Rd  
 Lafayette, LA  
 70508 USA  
 P 337-235-0403  
 F 337-233-6540



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July 13, 2022

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development 9403-016-0100

Order No.: 22061144

Dear Greg Miller:

Element Materials Technology Lafayette received 5 sample(s) on 6/24/2022 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor



Element Materials Technology Lafayette  
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Lafayette, LA 70508-3344  
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Website: [www.element.com](http://www.element.com)

## Case Narrative

WO#: 22061144

Date: 7/13/2022

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/21/2022 10:00:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-10D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>CRM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.207	0.134		mg/L	1	7/1/2022 7:33:00 PM
TPH (Oil Range)	< 0.124	0.124		mg/L	1	7/1/2022 7:33:00 PM
Surr: 4-Terphenyl-d14	44.8	51.4 - 146	SM	%Rec	1	7/1/2022 7:33:00 PM
<b>NOTES:</b>						
S: Surrogate outside of control limits. Re-extraction and analysis yielded the same result, indicating a matrix effect.						
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>LG</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/30/2022 4:35:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.8	70 - 130		%Rec	1	6/30/2022 4:35:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>LG</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/30/2022 4:35:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/30/2022 4:35:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/30/2022 4:35:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/30/2022 4:35:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/30/2022 4:35:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/30/2022 4:35:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	86.4	70 - 130		%Rec	1	6/30/2022 4:35:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/29/2022 12:05:16 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	80.4	2.50		mg/L	10	6/30/2022 9:42:47 AM
Sulfate	31.3	2.50		mg/L	10	6/30/2022 9:42:47 AM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, DISSOLVED</b>						

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-001  
**Client Sample ID** CD-10D

**Collection Date:** 6/21/2022 10:00:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.161	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/11/2022 2:08:55 PM
Calcium	26.0	0.500		mg/L	1	7/11/2022 2:08:55 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Iron	0.0310	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Lead	< 0.0100	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Magnesium	6.02	0.500		mg/L	1	7/11/2022 2:08:55 PM
Manganese	0.0978	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Potassium	< 5.00	5.00		mg/L	1	7/11/2022 2:08:55 PM
Sodium	60.1	10.0		mg/L	1	7/11/2022 2:08:55 PM
Strontium	0.115	0.0100		mg/L	1	7/11/2022 2:08:55 PM
Zinc	< 0.0100	0.0100		mg/L	1	7/11/2022 2:08:55 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>						
Arsenic	< 2.50	2.50		µg/L	10	6/28/2022 1:10:22 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	225	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Total (As CaCO3)	225	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	245	10.0		mg/L	1	6/27/2022 8:06:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/22/2022 3:30:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-15A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.127	0.127		mg/L	1	6/29/2022 11:01:00 PM
TPH (Oil Range)	< 0.117	0.117		mg/L	1	6/29/2022 11:01:00 PM
Surr: 4-Terphenyl-d14	105	51.4 - 146		%Rec	1	6/29/2022 11:01:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/30/2022 5:03:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	91.2	70 - 130		%Rec	1	6/30/2022 5:03:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:03:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:03:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/30/2022 5:03:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:03:00 PM
Toluene	0.0153	0.0100		mg/L	1	6/30/2022 5:03:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/30/2022 5:03:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	84.4	70 - 130		%Rec	1	6/30/2022 5:03:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/29/2022 11:40:28 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	302	12.5		mg/L	50	6/30/2022 9:56:27 AM
Sulfate	34.9	12.5		mg/L	50	6/30/2022 9:56:27 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.698	0.0100		mg/L	1	6/29/2022 12:12:28 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/29/2022 12:12:28 PM

<b>Qualifiers:</b>	B Analyte detected in the associated Method Blank	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-002  
**Client Sample ID** CD-15A

**Collection Date:** 6/22/2022 3:30:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	105	0.500		mg/L	1	6/29/2022 12:12:28 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/29/2022 12:12:28 PM
Iron	2.22	0.0100		mg/L	1	6/29/2022 12:12:28 PM
Lead	< 0.0100	0.0100		mg/L	1	6/29/2022 12:12:28 PM
Magnesium	37.8	0.500		mg/L	1	6/29/2022 12:12:28 PM
Manganese	0.544	0.0500		mg/L	1	6/29/2022 12:12:28 PM
Potassium	5.31	5.00		mg/L	1	6/29/2022 12:12:28 PM
Sodium	196	5.00		mg/L	1	6/29/2022 12:12:28 PM
Strontium	0.642	0.0100		mg/L	1	6/29/2022 12:12:28 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/29/2022 12:12:28 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	24.3	2.50		µg/L	10	6/28/2022 11:54:53 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	355	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Total (As CaCO3)	355	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	925	50.0		mg/L	5	6/27/2022 8:06:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/23/2022 11:30:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-003 **Matrix:** AQUEOUS  
**Client Sample ID** CD-15B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.196	0.127		mg/L	1	6/29/2022 11:33:00 PM
TPH (Oil Range)	< 0.117	0.117		mg/L	1	6/29/2022 11:33:00 PM
Surr: 4-Terphenyl-d14	146	51.4 - 146	SM	%Rec	1	6/29/2022 11:33:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/30/2022 5:30:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.2	70 - 130		%Rec	1	6/30/2022 5:30:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:30:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:30:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/30/2022 5:30:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:30:00 PM
Toluene	0.0194	0.0100		mg/L	1	6/30/2022 5:30:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/30/2022 5:30:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	85.0	70 - 130		%Rec	1	6/30/2022 5:30:00 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/29/2022 11:32:32 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	241	12.5		mg/L	50	6/30/2022 10:10:14 AM
Sulfate	< 1.25	1.25		mg/L	5	6/30/2022 12:00:35 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.605	0.0100		mg/L	1	6/29/2022 12:28:30 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/29/2022 12:28:30 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-003  
**Client Sample ID** CD-15B

**Collection Date:** 6/23/2022 11:30:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>MRM</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	97.0	0.500		mg/L	1	6/29/2022 12:28:30 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/29/2022 12:28:30 PM
Iron	3.11	0.0100		mg/L	1	6/29/2022 12:28:30 PM
Lead	< 0.0100	0.0100		mg/L	1	6/29/2022 12:28:30 PM
Magnesium	34.2	0.500		mg/L	1	6/29/2022 12:28:30 PM
Manganese	0.409	0.0500		mg/L	1	6/29/2022 12:28:30 PM
Potassium	6.19	5.00		mg/L	1	6/29/2022 12:28:30 PM
Sodium	147	5.00		mg/L	1	6/29/2022 12:28:30 PM
Strontium	0.642	0.0100		mg/L	1	6/29/2022 12:28:30 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/29/2022 12:28:30 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
<b>METALS IN WATER BY ICP-MS, TOTAL</b>						
Arsenic	8.54	2.50		µg/L	10	6/28/2022 12:06:04 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	312	20.0		mgCaCO <sub>3</sub> /L	1	7/5/2022 8:57:00 AM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	7/5/2022 8:57:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	7/5/2022 8:57:00 AM
Alkalinity, Total (As CaCO <sub>3</sub> )	312	20.0		mgCaCO <sub>3</sub> /L	1	7/5/2022 8:57:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	780	50.0		mg/L	5	6/27/2022 8:06:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services **Collection Date:** 6/23/2022 12:10:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-004 **Matrix:** AQUEOUS  
**Client Sample ID** CD-15C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: CRM
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.126	0.126		mg/L	1	6/30/2022 12:35:00 AM
TPH (Oil Range)	0.125	0.117		mg/L	1	6/30/2022 12:35:00 AM
Surr: 4-Terphenyl-d14	104	51.4 - 146		%Rec	1	6/30/2022 12:35:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: LG
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/30/2022 5:57:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.8	70 - 130		%Rec	1	6/30/2022 5:57:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: LG
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:57:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:57:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/30/2022 5:57:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/30/2022 5:57:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/30/2022 5:57:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/30/2022 5:57:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	84.4	70 - 130		%Rec	1	6/30/2022 5:57:00 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: BXB
<b>MERCURY IN GROUND WATER, DISSOLVED</b>						
Mercury	< 0.000200	0.000200		mg/L	1	6/29/2022 12:18:38 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: SGP
Chloride	77.1	5.00		mg/L	20	6/30/2022 10:24:02 AM
Sulfate	4.36	0.250		mg/L	1	6/30/2022 12:14:23 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: MRM
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Barium	0.299	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Cadmium	< 0.00500	0.00500		mg/L	1	7/11/2022 2:15:48 PM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-004  
**Client Sample ID** CD-15C

**Collection Date:** 6/23/2022 12:10:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>MRM</b>	
<b>METALS IN WATER BY ICP, DISSOLVED</b>						
Calcium	54.3	0.500		mg/L	1	7/11/2022 2:15:48 PM
Chromium	< 0.0100	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Iron	0.827	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Lead	< 0.0100	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Magnesium	15.8	0.500		mg/L	1	7/11/2022 2:15:48 PM
Manganese	0.202	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Potassium	< 5.00	5.00		mg/L	1	7/11/2022 2:15:48 PM
Sodium	75.0	10.0		mg/L	1	7/11/2022 2:15:48 PM
Strontium	0.345	0.0100		mg/L	1	7/11/2022 2:15:48 PM
Zinc	< 0.0100	0.0100		mg/L	1	7/11/2022 2:15:48 PM
<b>DISSOLVED RCRA METALS - SW6010/7470A</b>				<b>SW6020A</b>	Analyst: <b>MRB</b>	
<b>METALS IN WATER BY ICP-MS, DISSOLVED</b>						
Arsenic	14.8	2.50		µg/L	10	6/28/2022 1:21:34 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>AD</b>	
Alkalinity, Bicarbonate (As CaCO3)	275	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Phenolphthalein	< 20.0	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
Alkalinity, Total (As CaCO3)	275	20.0		mgCaCO3/L	1	7/5/2022 8:57:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	433	10.0		mg/L	1	6/27/2022 8:06:00 AM

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 22061144

Date Reported: 7/13/2022

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 22061144-005  
**Client Sample ID** Trip Blank

**Collection Date:** 6/23/2022

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8015B</b>		Analyst: <b>LG</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/30/2022 6:24:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.4	70 - 130		%Rec	1	6/30/2022 6:24:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8021B</b>		Analyst: <b>LG</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/30/2022 6:24:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/30/2022 6:24:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	6/30/2022 6:24:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	6/30/2022 6:24:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/30/2022 6:24:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/30/2022 6:24:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	85.8	70 - 130		%Rec	1	6/30/2022 6:24:00 PM

Qualifiers:			
B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44238

Sample ID	<b>MB-44238</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>111000</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>44238</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741068</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0500	0.0500									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-44238</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>111000</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>44238</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741069</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.511	0.0100	0.5000	0	102	80	120				
Cadmium	0.507	0.00500	0.5000	0	101	80	120				
Calcium	52.1	0.500	50.00	0	104	80	120				
Chromium	0.518	0.0100	0.5000	0	104	80	120				
Iron	0.508	0.0100	0.5000	0	102	80	120				
Lead	0.506	0.0100	0.5000	0	101	80	120				
Magnesium	52.0	0.500	50.00	0	104	80	120				
Manganese	0.545	0.0500	0.5000	0	109	80	120				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44238

Sample ID	<b>LC-44238</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>111000</b>
Client ID:	<b>LC-44238</b>	Batch ID:	<b>44238</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741069</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	52.0	5.00	50.00	0	104	80	120				
Sodium	53.0	10.0	50.00	0	106	80	120				
Strontium	0.515	0.0100	0.5000	0	103	80	120				
Zinc	0.506	0.0100	0.5000	0	101	80	120				

Sample ID	<b>LCSD-44238</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>111000</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44238</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741070</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.505	0.0100	0.5000	0	101	80	120	0.5111	1.15	20	
Cadmium	0.501	0.00500	0.5000	0	100	80	120	0.5072	1.13	20	
Calcium	49.7	0.500	50.00	0	99.4	80	120	52.15	4.80	20	
Chromium	0.510	0.0100	0.5000	0	102	80	120	0.5179	1.46	20	
Iron	0.502	0.0100	0.5000	0	100	80	120	0.5082	1.25	20	
Lead	0.504	0.0100	0.5000	0	101	80	120	0.5059	0.374	20	
Magnesium	49.7	0.500	50.00	0	99.4	80	120	51.96	4.48	20	
Manganese	0.544	0.0500	0.5000	0	109	80	120	0.5449	0.0716	20	
Potassium	49.6	5.00	50.00	0	99.3	80	120	52.03	4.69	20	
Sodium	52.2	10.0	50.00	0	104	80	120	52.99	1.59	20	
Strontium	0.509	0.0100	0.5000	0	102	80	120	0.5147	1.20	20	
Zinc	0.505	0.0100	0.5000	0	101	80	120	0.5057	0.162	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44238

Sample ID	<b>22061144-002DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/26/2022</b>	RunNo: <b>111000</b>					
Client ID:	<b>CD-15A</b>	Batch ID: <b>44238</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/29/2022</b>	SeqNo: <b>2741073</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.20	0.0100	0.5000	0.6984	100	75	125				
Cadmium	0.518	0.00500	0.5000	0.001440	103	75	125				
Calcium	156	0.500	50.00	104.6	104	75	125				
Chromium	0.517	0.0100	0.5000	0	103	75	125				
Iron	2.72	0.0100	0.5000	2.224	100	75	125				
Lead	0.502	0.0100	0.5000	0	100	75	125				
Magnesium	90.3	0.500	50.00	37.82	105	75	125				
Manganese	1.04	0.0500	0.5000	0.5445	99.7	75	125				
Potassium	58.8	5.00	50.00	5.309	107	75	125				
Sodium	250	10.0	50.00	195.9	108	75	125				
Strontium	1.15	0.0100	0.5000	0.6420	102	75	125				
Zinc	0.517	0.0100	0.5000	0	103	75	125				

Sample ID	<b>22061144-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/26/2022</b>	RunNo: <b>111000</b>					
Client ID:	<b>CD-15A</b>	Batch ID: <b>44238</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/29/2022</b>	SeqNo: <b>2741078</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.20	0.0100	0.5000	0.6984	101	75	125	1.200	0.201	20	
Cadmium	0.514	0.00500	0.5000	0.001440	102	75	125	0.5177	0.793	20	
Calcium	158	0.500	50.00	104.6	107	75	125	156.4	1.12	20	
Chromium	0.510	0.0100	0.5000	0	102	75	125	0.5166	1.30	20	
Iron	2.75	0.0100	0.5000	2.224	106	75	125	2.724	1.12	20	
Lead	0.499	0.0100	0.5000	0	99.9	75	125	0.5023	0.567	20	
Magnesium	90.9	0.500	50.00	37.82	106	75	125	90.32	0.604	20	
Manganese	1.04	0.0500	0.5000	0.5445	99.6	75	125	1.043	0.0355	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44238

Sample ID	<b>22061144-002DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>111000</b>
Client ID:	<b>CD-15A</b>	Batch ID:	<b>44238</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741078</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	58.9	5.00	50.00	5.309	107	75	125	58.78	0.186	20	
Sodium	254	10.0	50.00	195.9	117	75	125	250.0	1.67	20	
Strontium	1.16	0.0100	0.5000	0.6420	104	75	125	1.152	0.647	20	
Zinc	0.518	0.0100	0.5000	0	104	75	125	0.5167	0.288	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44239

Sample ID	<b>MB-44239</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>110960</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44239</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739892</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.250		0.250										

Sample ID	<b>LCS-44239</b>	SampType:	<b>LCS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>110960</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44239</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739893</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		502		5.00	500.0	0		100	80	120				

Sample ID	<b>LCSD-44239</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>110960</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44239</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739894</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		495		5.00	500.0	0		98.9	80	120	502.1	1.51	20	

Sample ID	<b>22061144-002DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>110960</b>			
Client ID:	<b>CD-15A</b>	Batch ID:	<b>44239</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739897</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		522		5.00	500.0	24.30		99.6	75	125				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44239

Sample ID	<b>22061144-002DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>µg/L</b>	Prep Date:	<b>6/26/2022</b>	RunNo:	<b>110960</b>		
Client ID:	<b>CD-15A</b>	Batch ID:	<b>44239</b>	TestNo:	<b>SW6020A</b>	Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2739898</b>				
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		513		5.00	500.0	24.30	97.7	75	125	522.1	1.81	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44247

Sample ID	<b>22061144-003cdup</b>	SampType:	<b>DUP</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>
Client ID:	<b>CD-15B</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2741477</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	0.195	0.126						0.1957	0.292	40	
TPH (Oil Range)	< 0.117	0.117						0	0	40	
Surr: 4-Terphenyl-d14	0.0929		0.05558		167	51.4	146		0	0	SM

Sample ID	<b>LCSD-D44247</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741482</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.72	0.128	1.691	0	102	70	130	2.035	16.8	14.1	R
Surr: 4-Terphenyl-d14	0.0740		0.05635		131	51.4	146		0	40	

**NOTES:**  
 R - LCS/LCSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both LCS/LCSD.

Sample ID	<b>LCSD-M44247</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741483</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.11	0.119	1.700	0	124	70	130	1.849	13.4	23.2	
Surr: 4-Terphenyl-d14	0.0902		0.05665		159	51.4	146		0	40	S

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44247

Sample ID	<b>LCS-M44247</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741484</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.85		0.119	1.693	0		109	70	130				
Surr: 4-Terphenyl-d14		0.0789			0.05643			140	51.4	146				

Sample ID	<b>MB-44247</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2741485</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.137		0.137										
TPH (Oil Range)		< 0.127		0.127										
Surr: 4-Terphenyl-d14		0.0844			0.06035			140	51.4	146				

Sample ID	<b>LCS-D44247</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/27/2022</b>	RunNo:	<b>111018</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44247</b>	TestNo:	<b>SW8015B</b>		<b>SW3511</b>	Analysis Date:	<b>7/5/2022</b>	SeqNo:	<b>2744423</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		2.04		0.128	1.691	0		120	70	130				
Surr: 4-Terphenyl-d14		0.0717			0.05637			127	51.4	146				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44263

Sample ID	<b>MB-44263</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110997</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44263</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740864</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-44263</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110997</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44263</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740865</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00982		0.000200	0.01000	0		98.2	80	120				

Sample ID	<b>LCSD-44263</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110997</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44263</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740866</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00964		0.000200	0.01000	0		96.4	80	120	0.009817	1.86	20	

Sample ID	<b>22061144-003DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110997</b>			
Client ID:	<b>CD-15B</b>	Batch ID:	<b>44263</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740868</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0101		0.000200	0.01000	0		101	75	125				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44263

Sample ID	<b>22061144-003DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110997</b>		
Client ID:	<b>CD-15B</b>	Batch ID:	<b>44263</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740869</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104		0.000200	0.01000	0	104	75	125	0.01013	2.53	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44265

Sample ID	<b>MB-44265</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110998</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44265</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740931</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-44265</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110998</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44265</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740932</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00988		0.000200	0.01000	0		98.8	80	120				

Sample ID	<b>LCSD-44265</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110998</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44265</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740933</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00965		0.000200	0.01000	0		96.5	80	120	0.009883	2.34	20	

Sample ID	<b>22061144-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110998</b>			
Client ID:	<b>CD-10D</b>	Batch ID:	<b>44265</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740935</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0107		0.000200	0.01000	0		107	75	125				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: [www.element.com](http://www.element.com)

# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44265

Sample ID	<b>22061144-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_D_7470A</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/28/2022</b>	RunNo:	<b>110998</b>		
Client ID:	<b>CD-10D</b>	Batch ID:	<b>44265</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>6/29/2022</b>	SeqNo:	<b>2740936</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0103		0.000200	0.01000	0	103	75	125	0.01070	3.64	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44300

Sample ID	<b>icsd-d44300</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/30/2022</b>	RunNo:	<b>111100</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44300</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/1/2022</b>	SeqNo:	<b>2743229</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		1.93		0.130	1.710	0		113	70	130	1.887	2.18	14.1	
Surr: 4-Terphenyl-d14		0.0879			0.05701			154	51.4	146		0	40	S

**NOTES:**

S - Surrogate recovery(ies) outside of the control limits. However, recovery(ies) of the target analytes are within the limits.

Sample ID	<b>icsd-m44300</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/30/2022</b>	RunNo:	<b>111100</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>44300</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/1/2022</b>	SeqNo:	<b>2743230</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.85		0.120	1.711	0		108	70	130	1.914	3.13	23.2	
Surr: 4-Terphenyl-d14		0.0745			0.05704			131	51.4	146		0	40	

Sample ID	<b>ics-m44300</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/30/2022</b>	RunNo:	<b>111100</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>44300</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/1/2022</b>	SeqNo:	<b>2743231</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.91		0.119	1.706	0		112	70	130				
Surr: 4-Terphenyl-d14		0.0813			0.05686			143	51.4	146				

Sample ID	<b>mb-44300</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>6/30/2022</b>	RunNo:	<b>111100</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>44300</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/1/2022</b>	SeqNo:	<b>2743232</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 44300

Sample ID <b>mb-44300</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/30/2022</b>	RunNo: <b>111100</b>						
Client ID: <b>PBW</b>	Batch ID: <b>44300</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>7/1/2022</b>	SeqNo: <b>2743232</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.129	0.129									
TPH (Oil Range)	< 0.119	0.119									
Surr: 4-Terphenyl-d14	0.0498		0.05672		87.9	51.4	146				

Sample ID <b>lcs-d44300</b>	SampType: <b>LCS</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/30/2022</b>	RunNo: <b>111100</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>44300</b>	TestNo: <b>SW8015B SW3511</b>		Analysis Date: <b>7/5/2022</b>	SeqNo: <b>2744421</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.89	0.127	1.680	0	112	70	130				
Surr: 4-Terphenyl-d14	0.0739		0.05600		132	51.4	146				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R110912

Sample ID	<b>MB-R110912</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739682</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		< 10.0		10.0							

Sample ID	<b>LCS-R110912</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739683</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		1,000		10.0	1,000	0	100	85	115		

Sample ID	<b>LCSD-R110912</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739684</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		1,020		10.0	1,000	0	102	85	115	1,003	1.29 10

Sample ID	<b>22061144-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>CD-10D</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739686</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		248		10.0						245.0	1.22 10

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R110912

Sample ID	<b>22061144-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>CD-10D</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739686</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>22061147-002ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>110912</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R110912</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>6/27/2022</b>	SeqNo:	<b>2739692</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Total Dissolved Solids (Residue, Filterable)	895	50.0							925.0	3.30	10
--	-----	------	--	--	--	--	--	--	-------	------	----

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R110963

Sample ID <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110963</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R110963</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740092</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.250	0.250									

Sample ID <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110963</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R110963</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740093</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.6	0.250	20.00	0	98.2	80	120				

Sample ID <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110963</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R110963</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740094</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.8	0.250	20.00	0	98.8	80	120	19.64	0.587	20	

Sample ID <b>22061144-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>µg/L</b>	Prep Date:	RunNo: <b>110963</b>						
Client ID: <b>CD-10D</b>	Batch ID: <b>R110963</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/28/2022</b>	SeqNo: <b>2740103</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	202	2.50	200.0	1.932	99.9	75	125				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R110963

Sample ID	<b>22061144-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6020A_D</b>	Units:	<b>µg/L</b>	Prep Date:		RunNo:	<b>110963</b>		
Client ID:	<b>CD-10D</b>	Batch ID:	<b>R110963</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>6/28/2022</b>	SeqNo:	<b>2740104</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		202		2.50	200.0	1.932	99.9	75	125	201.7	0.00258	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111048

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111048</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R111048</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742263</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		< 0.250		0.250										
Sulfate		< 0.250		0.250										

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111048</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R111048</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742264</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120				
Sulfate		9.62		0.250	10.00	0		96.2	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111048</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R111048</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742265</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.1		0.250	10.00	0		101	80	120	10.09	0.302	15	
Sulfate		9.59		0.250	10.00	0		95.9	80	120	9.618	0.281	15	

Sample ID	<b>22061329-001DMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111048</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R111048</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742268</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		5.29		0.250	5.000	0.2302		101	80	120				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111048

Sample ID	<b>22061329-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>111048</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R111048</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/30/2022</b>	SeqNo: <b>2742268</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	5.54	0.250	5.000	0.6550	97.7	80	120				

Sample ID	<b>22061329-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>111048</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>R111048</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/30/2022</b>	SeqNo: <b>2742269</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	5.48	0.250	5.000	0.2302	105	80	120	5.286	3.67	15	
Sulfate	5.54	0.250	5.000	0.6550	97.7	80	120	5.539	0.0239	15	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111049

Sample ID	<b>BTEX LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111049</b>	
Client ID:	<b>LCSW</b>	Batch ID:	<b>R111049</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742329</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0465	0.00500	0.05000	0	93.0	72	120				
Ethylbenzene		0.0490	0.00500	0.05000	0	98.0	76	129				
m,p-Xylene		0.0985	0.0100	0.1000	0	98.5	75	125				
o-Xylene		0.0469	0.00500	0.05000	0	93.8	75	125				
Toluene		0.0471	0.0100	0.05000	0	94.2	78	120				
Xylenes, Total		0.146	0.0500	0.1500	0	97.0	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0454		0.05000		90.8	70	130				

Sample ID	<b>BTEX LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111049</b>	
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R111049</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742330</b>	
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene		0.0475	0.00500	0.05000	0	95.0	72	120	0.04650	2.13	20	
Ethylbenzene		0.0500	0.00500	0.05000	0	100	76	129	0.04900	2.02	20	
m,p-Xylene		0.101	0.0100	0.1000	0	101	75	125	0.09850	2.51	20	
o-Xylene		0.0477	0.00500	0.05000	0	95.4	75	125	0.04690	1.69	20	
Toluene		0.0479	0.0100	0.05000	0	95.8	78	120	0.04710	1.68	20	
Xylenes, Total		0.149	0.0500	0.1500	0	99.1	75	125	0.1455	2.18	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0435		0.05000		87.0	70	130		0	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111049

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111049</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R111049</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742331</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0408		0.05000		81.6	70	130				

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111052

Sample ID	<b>GAS LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_G_W</b>	Units:		Prep Date:		RunNo:	<b>111052</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R111052</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742411</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		14.7		0.150	12.50	0		118	80	130				
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0635			0.05000			127	70	130				

Sample ID	<b>GAS LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_G_W</b>	Units:		Prep Date:		RunNo:	<b>111052</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R111052</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742412</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		14.1		0.150	12.50	0		113	80	130	14.74	4.31	20	
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0621			0.05000			124	70	130		0	20	

Sample ID	<b>MBLK ACID</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_G_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111052</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R111052</b>	TestNo:	<b>SW8015B</b>			Analysis Date:	<b>6/30/2022</b>	SeqNo:	<b>2742413</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)		< 0.150		0.150										
Surr: alpha, alpha, alpha-Trifluorotoluene		0.0465			0.05000			93.0	70	130				

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111094

Sample ID <b>MB-R111094</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>111094</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R111094</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/5/2022</b>	SeqNo: <b>2743209</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Phenolphthalein	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID <b>LCS-R111094</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>111094</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R111094</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/5/2022</b>	SeqNo: <b>2743210</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	49.0	20.0	50.00	0	98.0	80	120				
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Sample ID <b>22061144-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>111094</b>						
Client ID: <b>CD-15B</b>	Batch ID: <b>R111094</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/5/2022</b>	SeqNo: <b>2743214</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	300	20.0						312.5	4.08	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Phenolphthalein	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	300	20.0						312.5	4.08	20	

**Qualifiers:**

B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111293-2

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111293</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R111293-2</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/11/2022</b>	SeqNo:	<b>2748843</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111293</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>R111293-2</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/11/2022</b>	SeqNo:	<b>2748845</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.434	0.0100	0.5000	0	86.9	80	120				
Cadmium	0.426	0.00500	0.5000	0	85.2	80	120				
Calcium	43.2	0.500	50.00	0	86.4	80	120				
Chromium	0.432	0.0100	0.5000	0	86.3	80	120				
Iron	0.434	0.0100	0.5000	0	86.9	80	120				
Lead	0.440	0.0100	0.5000	0	88.1	80	120				
Magnesium	42.6	0.500	50.00	0	85.2	80	120				
Manganese	0.428	0.0100	0.5000	0	85.7	80	120				

**Qualifiers:**

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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111293-2

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111293</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R111293-2</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/11/2022</b>	SeqNo:	<b>2748845</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Potassium		41.9		5.00	50.00	0		83.9	80	120				
Sodium		42.8		10.0	50.00	0		85.5	80	120				
Strontium		0.429		0.0100	0.5000	0		85.8	80	120				
Zinc		0.430		0.0100	0.5000	0		86.0	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111293</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R111293-2</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/11/2022</b>	SeqNo:	<b>2748847</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Barium		0.470		0.0100	0.5000	0		93.9	80	120	0.4345	7.79	20	
Cadmium		0.463		0.00500	0.5000	0		92.5	80	120	0.4259	8.28	20	
Calcium		46.7		0.500	50.00	0		93.4	80	120	43.18	7.80	20	
Chromium		0.466		0.0100	0.5000	0		93.2	80	120	0.4315	7.66	20	
Iron		0.467		0.0100	0.5000	0		93.5	80	120	0.4345	7.29	20	
Lead		0.471		0.0100	0.5000	0		94.1	80	120	0.4403	6.66	20	
Magnesium		46.1		0.500	50.00	0		92.2	80	120	42.58	7.89	20	
Manganese		0.467		0.0100	0.5000	0		93.5	80	120	0.4283	8.72	20	
Potassium		45.5		5.00	50.00	0		91.0	80	120	41.93	8.13	20	
Sodium		47.6		10.0	50.00	0		95.2	80	120	42.76	10.7	20	
Strontium		0.463		0.0100	0.5000	0		92.6	80	120	0.4291	7.55	20	
Zinc		0.465		0.0100	0.5000	0		93.0	80	120	0.4298	7.91	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111293-2

Sample ID	22061144-001DMS	SampType:	MS	TestCode:	6010-D	Units:	mg/L	Prep Date:	RunNo:	111293	
Client ID:	CD-10D	Batch ID:	R111293-2	TestNo:	SW6010B	Analysis Date:	7/11/2022	SeqNo:	2748864		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.618	0.0100	0.5000	0.1613	91.4	75	125				
Cadmium	0.474	0.00500	0.5000	0	94.9	75	125				
Calcium	72.1	0.500	50.00	26.03	92.2	75	125				
Chromium	0.464	0.0100	0.5000	0	92.8	75	125				
Iron	0.506	0.0100	0.5000	0.03100	95.0	75	125				
Lead	0.462	0.0100	0.5000	0	92.3	75	125				
Magnesium	52.9	0.500	50.00	6.021	93.7	75	125				
Manganese	0.549	0.0100	0.5000	0.09778	90.3	75	125				
Potassium	50.6	5.00	50.00	3.785	93.6	75	125				
Sodium	106	10.0	50.00	60.13	91.6	75	125				
Strontium	0.569	0.0100	0.5000	0.1147	90.8	75	125				
Zinc	0.489	0.0100	0.5000	0	97.8	75	125				

Sample ID	22061144-001DMSD	SampType:	MSD	TestCode:	6010-D	Units:	mg/L	Prep Date:	RunNo:	111293	
Client ID:	CD-10D	Batch ID:	R111293-2	TestNo:	SW6010B	Analysis Date:	7/11/2022	SeqNo:	2748865		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.624	0.0100	0.5000	0.1613	92.4	75	125	0.6184	0.831	20	
Cadmium	0.478	0.00500	0.5000	0	95.7	75	125	0.4744	0.861	20	
Calcium	72.9	0.500	50.00	26.03	93.7	75	125	72.12	1.02	20	
Chromium	0.466	0.0100	0.5000	0	93.2	75	125	0.4638	0.458	20	
Iron	0.509	0.0100	0.5000	0.03100	95.6	75	125	0.5060	0.560	20	
Lead	0.462	0.0100	0.5000	0	92.3	75	125	0.4615	0.0108	20	
Magnesium	53.6	0.500	50.00	6.021	95.1	75	125	52.89	1.29	20	
Manganese	0.554	0.0100	0.5000	0.09778	91.2	75	125	0.5492	0.811	20	

**Qualifiers:**

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S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 22061144  
 13-Jul-22

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R111293-2

Sample ID	<b>22061144-001DMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010-D</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>111293</b>
Client ID:	<b>CD-10D</b>	Batch ID:	<b>R111293-2</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/11/2022</b>	SeqNo:	<b>2748865</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	51.3	5.00	50.00	3.785	95.0	75	125	50.57	1.45	20	
Sodium	107	10.0	50.00	60.13	94.1	75	125	105.9	1.17	20	
Strontium	0.573	0.0100	0.5000	0.1147	91.6	75	125	0.5687	0.724	20	
Zinc	0.492	0.0100	0.5000	0	98.3	75	125	0.4890	0.547	20	

<b>Qualifiers:</b>	B	Analyte detected in the associated Method Blank	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				

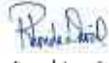


# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **22061144**

RcptNo: **1**

Logged by:	<b>Rhonda David</b>	<b>6/24/2022 1:12:00 PM</b>	
Completed By:	<b>Rhonda David</b>	<b>6/27/2022 5:36:49 AM</b>	
Reviewed By:	<b>Buffy Bryant</b>	<b>7/9/2022 12:15:32 PM</b>	

**Chain of Custody**

- 1. Is Chain of Custody complete? Yes  No  Not Present
- 2. How was the sample delivered? Element

**Log In**

- 3. Coolers are present? Yes  No  NA
- 4. Shipping container/cooler in good condition? Yes  No
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- No. Seal Date: Signed By:
- 5. Was an attempt made to cool the samples? Yes  No  NA
- 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
- 7. Sample(s) in proper container(s)? Yes  No
- 8. Sufficient sample volume for indicated test(s)? Yes  No
- 9. Are samples (except VOA and ONG) properly preserved? Yes  No
- 10. Was preservative added to bottles? Yes  No  NA
- 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials
- 12. Were any sample containers received broken? Yes  No
- 13. Does paperwork match bottle labels? Yes  No   
(Note discrepancies on chain of custody)
- 14. Are matrices correctly identified on Chain of Custody? Yes  No
- 15. Is it clear what analyses were requested? Yes  No
- 16. Were all holding times able to be met? Yes  No   
(If no, notify customer for authorization.)

**Special Handling (if applicable)**

- 17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Added trip blank to COC.

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Not Present			



Chain of Custody

Laboratory Number: 22061144

**Client Information:**  
 Company Name: Icon Environmental  
 Contact Name: Jason Sills  
 Address: 2049 Commerical Dr.  
 City, State Zip: Port Allen, La 70707  
 Phone Number: 225-344-8490  
 Fax Number: Ext.  
 E-mail Address:

**Billing Information:**  
 Same

**PO Number:**

**Project Name/Number:** Forest-Rock Castex Development  
**Quote Number:** 9403-016-0100  
**Sampler's Signature:** [Signature]  
**Shipping Method:** UPS / FedEx / Airborne  
 DHL / Element / Hand / Mail

**Matrix Code:**  
 DW = Drinking Water  
 WW = Waste Water  
 GW = Ground Water  
 AQ = Aqueous  
 OT = Other  
 SL = Sludge  
 SOI = Solid  
 O = Oil  
 SW = Soil  
 F = Food  
 SW = Swab  
 NG = Natural Gas  
 NGL = Natural Gas Liquid  
 PW = Produced Water  
 CF = Completion Fluid

**Required QC Level:** 6440 7499  
 Bill Monthly:  Yes  No

Sample ID/Description	Which Regulations Apply: <input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC	Turn Time <input type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	Collection Information		Rush turn times will incur a surcharge and must be pre-approved by (lab.)	Container Type G=Glass, V=Vial	Pres. HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HClO <sub>4</sub> , Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub>	Requested Tests						Comments Metals: As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg Cations: Na, Ca, K, Mg Anions: Alk Carbonate Alk Bicarbonate Sulfate Field filtered (x3)			
			Date	Time				Matrix	Quantity	TDS	Cations/Anions	Chlorides	BTEX/TPH, G		TPH-DO	Total Metals/Hg	Dissolved Metals
CD-100			6.21.22	1210	AQ	PV		X	X	X	X	X	X				
CD-15A			6.22.22	1530	AQ	PV		X	X	X	X	X	X				
CD-15B			6.23.22	1130	AQ	FIV		X	X	X	X	X	X				
CD-15C			6.23.22	1210	AQ	PV		X	X	X	X	X	X				
Trip Blank					AQ	V											
BB 7/9/22																	

Relinquished by	Date/Time	Received by	Date/Time	Field Notes
[Signature]	6/24/22 0925	[Signature]	6/24/22 0925	Received at lab on ice? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 4°C
[Signature]	6/24/22 1312	[Signature]	6/24/22 1312	

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.

Element Materials Technology reserves the right to return unused sample portions.

3301 Innovation Drive, Suite 115  
 Daleville, IN 47334-0569 USA  
 P 765-378-4103  
 F 765-378-4109

629 Washington St, Suite 300  
 Columbus, IN 47301-6231 USA  
 P 812-375-0831  
 F 812-375-0731

2121 East Washington Boulevard  
 Fort Wayne, IN 46803-1328 USA  
 P 260-471-7000  
 F 260-471-7777

560 South Zimmer Road  
 Warsaw, IN 46580-2368 USA  
 P 574-267-3305  
 F 574-269-6569

3371 Cleveland Road, Suite 100A  
 South Bend, IN 46628-9780 USA  
 P 574-277-0707  
 F 574-273-6689

2417 W. Finhook Rd  
 Lafayette, LA 70508-3144 USA  
 P 337-236-0483  
 F 337-233-6640



Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

July 28, 2022

Mr. Jason Sills  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex 9403-016-0100  
Pace Project No.: 30501527

Dear Mr. Sills:

Enclosed are the analytical results for sample(s) received by the laboratory on June 29, 2022. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Sean L. Meredith  
sean.meredith@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures



## REPORT OF LABORATORY ANALYSIS

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Page 1 of 13

Castex-ICON Report-000969

**BP/Castex-Ltd Adm-Apx I-000970**



## CERTIFICATIONS

Project: Castex 9403-016-0100

Pace Project No.: 30501527

### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601

ANAB DOD-ELAP Rad Accreditation #: L2417

Alabama Certification #: 41590

Arizona Certification #: AZ0734

Arkansas Certification

California Certification #: 04222CA

Colorado Certification #: PA01547

Connecticut Certification #: PH-0694

Delaware Certification

EPA Region 4 DW Rad

Florida/TNI Certification #: E87683

Georgia Certification #: C040

Florida: Cert E871149 SEKS WET

Guam Certification

Hawaii Certification

Idaho Certification

Illinois Certification

Indiana Certification

Iowa Certification #: 391

Kansas/TNI Certification #: E-10358

Kentucky Certification #: KY90133

KY WW Permit #: KY0098221

KY WW Permit #: KY0000221

Louisiana DHH/TNI Certification #: LA180012

Louisiana DEQ/TNI Certification #: 4086

Maine Certification #: 2017020

Maryland Certification #: 308

Massachusetts Certification #: M-PA1457

Michigan/PADEP Certification #: 9991

Missouri Certification #: 235

Montana Certification #: Cert0082

Nebraska Certification #: NE-OS-29-14

Nevada Certification #: PA014572018-1

New Hampshire/TNI Certification #: 297617

New Jersey/TNI Certification #: PA051

New Mexico Certification #: PA01457

New York/TNI Certification #: 10888

North Carolina Certification #: 42706

North Dakota Certification #: R-190

Ohio EPA Rad Approval: #41249

Oregon/TNI Certification #: PA200002-010

Pennsylvania/TNI Certification #: 65-00282

Puerto Rico Certification #: PA01457

Rhode Island Certification #: 65-00282

South Dakota Certification

Tennessee Certification #: 02867

Texas/TNI Certification #: T104704188-17-3

Utah/TNI Certification #: PA014572017-9

USDA Soil Permit #: P330-17-00091

Vermont Dept. of Health: ID# VT-0282

Virgin Island/PADEP Certification

Virginia/VELAP Certification #: 460198

Washington Certification #: C868

West Virginia DEP Certification #: 143

West Virginia DHHR Certification #: 9964C

Wisconsin Approve List for Rad

Wyoming Certification #: 8TMS-L

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castex 9403-016-0100

Pace Project No.: 30501527

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30501527001	CD-14B	Water	06/13/22 14:30	06/29/22 10:05
30501527002	CD-5D	Water	06/16/22 15:10	06/29/22 10:05
30501527003	CD-15A	Water	06/22/22 15:30	06/29/22 10:05
30501527004	CD-15B	Water	06/23/22 11:30	06/29/22 10:05

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**SAMPLE ANALYTE COUNT**

Project: Castex 9403-016-0100  
 Pace Project No.: 30501527

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30501527001	CD-14B	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30501527002	CD-5D	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30501527003	CD-15A	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30501527004	CD-15B	EPA 903.1	SLC	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

**REPORT OF LABORATORY ANALYSIS**

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## PROJECT NARRATIVE

Project: Castex 9403-016-0100

Pace Project No.: 30501527

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** ICON Environmental Services

**Date:** July 28, 2022

**General Information:**

4 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex 9403-016-0100

Pace Project No.: 30501527

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** ICON Environmental Services

**Date:** July 28, 2022

**General Information:**

4 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: Castex 9403-016-0100  
 Pace Project No.: 30501527

Sample: CD-14B		Lab ID: 30501527001	Collected: 06/13/22 14:30	Received: 06/29/22 10:05	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>7.45 ± 1.34 (0.268)</b>		pCi/L	07/27/22 14:16	13982-63-3	
C:NA T:92%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>8.88 ± 1.89 (1.01)</b>		pCi/L	07/18/22 19:23	15262-20-1	
C:75% T:92%							

Sample: CD-5D		Lab ID: 30501527002	Collected: 06/16/22 15:10	Received: 06/29/22 10:05	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.445 ± 0.281 (0.318)</b>		pCi/L	07/27/22 14:16	13982-63-3	
C:NA T:96%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.447 ± 0.475 (0.983)</b>		pCi/L	07/18/22 19:23	15262-20-1	
C:71% T:96%							

Sample: CD-15A		Lab ID: 30501527003	Collected: 06/22/22 15:30	Received: 06/29/22 10:05	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.416 ± 0.291 (0.351)</b>		pCi/L	07/27/22 14:33	13982-63-3	
C:NA T:91%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.967 ± 0.561 (1.00)</b>		pCi/L	07/18/22 19:23	15262-20-1	
C:73% T:91%							

Sample: CD-15B		Lab ID: 30501527004	Collected: 06/23/22 11:30	Received: 06/29/22 10:05	Matrix: Water		
PWS:		Site ID:	Sample Type:				
Parameters	Method	Act ± Unc (MDC)	Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg							
Radium-226	EPA 903.1	<b>0.356 ± 0.341 (0.519)</b>		pCi/L	07/27/22 14:33	13982-63-3	
C:NA T:95%							
Pace Analytical Services - Greensburg							
Radium-228	EPA 904.0	<b>0.509 ± 0.516 (1.07)</b>		pCi/L	07/18/22 19:14	15262-20-1	
C:74% T:95%							

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex 9403-016-0100  
 Pace Project No.: 30501527

---

QC Batch: 516207	Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0	Analysis Description: 904.0 Radium 228
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30501527001, 30501527002, 30501527003, 30501527004

---

METHOD BLANK: 2502055 Matrix: Water  
 Associated Lab Samples: 30501527001, 30501527002, 30501527003, 30501527004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.258 ± 0.327 (0.692) C:72% T:89%	pCi/L	07/18/22 16:09	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex 9403-016-0100  
 Pace Project No.: 30501527

---

QC Batch: 516206	Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1	Analysis Description: 903.1 Radium-226
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30501527001, 30501527002, 30501527003, 30501527004

---

METHOD BLANK: 2502054 Matrix: Water  
 Associated Lab Samples: 30501527001, 30501527002, 30501527003, 30501527004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.0852 ± 0.195 (0.313) C:NA T:89%	pCi/L	07/27/22 13:47	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castex 9403-016-0100  
Pace Project No.: 30501527

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.  
ND - Not Detected at or above adjusted reporting limit.  
TNTC - Too Numerous To Count  
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.  
MDL - Adjusted Method Detection Limit.  
PQL - Practical Quantitation Limit.  
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.  
S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.  
LCS(D) - Laboratory Control Sample (Duplicate)  
MS(D) - Matrix Spike (Duplicate)  
DUP - Sample Duplicate  
RPD - Relative Percent Difference  
NC - Not Calculable.  
SG - Silica Gel - Clean-Up  
U - Indicates the compound was analyzed for, but not detected.  
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.  
Act - Activity  
Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.  
Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.  
(MDC) - Minimum Detectable Concentration  
Trac - Tracer Recovery (%)  
Carr - Carrier Recovery (%)  
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.  
TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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Company: **ICON Environmental**  
 Address: **2049 Commercial Dr.**  
 Report To: **Joson S. IIS**  
 Copy To:

Billing Information:  
 Billing Information:  
 Email To:  
 Site Collection Info/Address:  
 Customer Project Name/Number: **9403-016-0103-Development 0100**  
 State: **LA** / County/City: **Port Allen** / Time Zone Collected: **MT**  
 Phone: **225-344-8446** / Site/Facility ID #:  
 Collected By (print): **Geoffrey Miller**  
 Quote #: **11111111**  
 Turnaround Date Required:  
 Rush:  Same Day  Next Day  3 Day  5 Day  
 Sample Disposal:  Dispose as appropriate  Return  Hold

\* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
CD-14B	GW	G	6.13.22	1430		2
CD-5D	GW	G	6.16.22	1510		2
CD-15A	GW	G	6.22.22	1530		2
CD-15B	GW	G	6.23.22	1130		2

Customer Remarks / Special Conditions / Possible Hazards:  
 Type of Ice Used: **Wet** Blue Dry **None**  
 Packing Material Used: **n/a**  
 Radchem sample(s) screened (<500 cpm):  N  NA

Received by/Company, (Signature): **FEDEX**  
 Date/Time: **6.24.22 / 1200**

Received by/Company, (Signature): **Rwp**  
 Date/Time: **6.24.22 / 1240**

Received by/Company, (Signature): **Rwp**  
 Date/Time: **6.29.22 / 10:05**

LAB USE ONLY - Affix Workorder/Lo  
**MTIL**  
**WO#: 30501527**



Container Preservative Type \*\*  
**ALL SHADED AR**

Analyses:  
 Lab Sample Receipt Checklist:  
 Custody Seals Present/Intact  Y  N  NA  
 Custody Signatures Present  Y  N  NA  
 Collector Signatures Present  Y  N  NA  
 Bottles Intact  Y  N  NA  
 Correct Bottles  Y  N  NA  
 Sufficient Volume  Y  N  NA  
 Samples Received on Ice  Y  N  NA  
 VOA - Headspace Acceptable  Y  N  NA  
 USDA Regulated Soils  Y  N  NA  
 Samples in Holding Time  Y  N  NA  
 Residual Chlorine Present  Y  N  NA  
 Cl Strips:  Y  N  NA  
 Sample pH Acceptable  Y  N  NA  
 pH Strips: **10.5**  Y  N  NA  
 Sulfide Present  Y  N  NA  
 Lead Acetate Strips:  Y  N  NA  
 LAB USE ONLY:  
 Lab Sample # / Comments: **201 / VPI**

Lab Sample #	Comments
201	VPI
202	
203	
204	

Lab Sample Temperature Info:  
 Temp Blank Received:  Y  N  
 Therm ID#: **0C**  
 Cooler 1 Temp Upon Receipt: **0C**  
 Cooler 1 Therm Corr. Factor: **0C**  
 Cooler 1 Corrected Temp: **0C**  
 Comments: **201-29-22**

Trip Blank Received:  Y  N  NA  
 HCL MeOH TSP Other

Non Conformance(s):  YES  NO  
 Page: **1** of **1**



**WO# : 30501527**

PM: SM1

Due Date: 07/21/22

CLIENT: ICON

**Sample Receiving Non-Conformance Form (NCF)**

Date: <i>6-29-22</i>	Evaluated by: <i>Amy Chabrejan</i>
Client: <i>ICON Environmental</i>	

Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-in Number Here

1. If Chain-of-Custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

<input checked="" type="checkbox"/> Collection date/time missing or incorrect	Analyses or analytes: missing or clarification needed	Samples listed on COC do not match samples received (missing, additional, etc.)
Sample IDs on COC do not match sample labels	Required trip blanks were not received	Required signatures are missing

Comments/Details/Other issues not listed above:  
*no time on 003 (one bottle)*

3. Sample integrity issues: check applicable issues below and add details where appropriate:

Samples: Past holding time	Samples: Condition needs to be brought to lab personnel's attention (details below)	Preservation: Improper
Samples: Not field filtered	Containers: Broken or compromised	Temperature: not within acceptance criteria (typically 0-6C)
Samples: Insufficient volume received	Containers: Incorrect	Temperature: Samples arrived frozen
Samples: Cooler damaged or compromised	Custody Seals: Missing or compromised on samples, trip blanks or coolers	Vials received with improper headspace
Samples: contain chlorine or sulfides	Packing Material: Insufficient/Improper	Other:

Comments/Details:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:
Sample ID:	Date/Time:	Amount/type pres added:
Preserved by:	Initial and Final pH:	Lot # of pres added:

5. Client Contact: If client is contacted for any issue listed above, fill in details below:

Client:	Contacted per:
PM Initials:	Date/Time:

Client Comments/Instructions:





Element Materials Technology Lafayette  
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TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

June 29, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development 9403-016-0100

Order No.: 24060753

Dear Greg Miller:

Element Materials Technology Lafayette received 8 sample(s) on 6/14/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads "Buffy Bryant".

Buffy Bryant  
Customer Service Supervisor



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## Case Narrative

WO#: 24060753

Date: 6/29/2024

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-001  
**Client Sample ID** CD-16 (10-12')

**Collection Date:** 6/10/2024 1:25:00 PM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	36.2	0.100		meq/100g	1	6/24/2024
						LDNR 29-B LDNR 29-B Analyst: IO
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.77	0.10		mmhos/cm	1	6/18/2024 10:50:00 AM
						LDNR 29-B Analyst: BB
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	6.08	0.10		%	1	6/24/2024
						LDNR 29-B LDNR 29-B Analyst: IO
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	3.43	0.10			1	6/20/2024
Soluble Calcium	1.61	0.02		meq/L	1	6/20/2024
Soluble Magnesium	1.04	0.05		meq/L	1	6/20/2024
Soluble Sodium	3.95	0.25		meq/L	1	6/20/2024
						LDNR 29-B LDNR 29-B Analyst: IO
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	6/26/2024 5:20:41 PM
						29B/SW7471A SW7471A Analyst: SAR
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	114	4.21		mg/Kg-dry	20	6/20/2024 12:42:54 PM
						SW9056A Analyst: BXB
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	7.06	1.92		mg/Kg-dry	1	6/18/2024 5:36:00 PM
Barium	722	0.962		mg/Kg-dry	1	6/18/2024 5:36:00 PM
Cadmium	< 0.481	0.481		mg/Kg-dry	1	6/18/2024 5:36:00 PM
Chromium	22.1	0.977		mg/Kg-dry	1	6/21/2024 4:37:00 PM
Lead	12.9	0.962		mg/Kg-dry	1	6/18/2024 5:36:00 PM
Strontium	52.6	0.962		mg/Kg-dry	1	6/18/2024 5:36:00 PM
Zinc	53.6	0.962		mg/Kg-dry	1	6/18/2024 5:36:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2024 1:25:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-001 **Matrix:** SOIL  
**Client Sample ID** CD-16 (10-12')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	5.22	1.56		mg/Kg	1	6/21/2024 4:37:00 PM
Barium	452	1.56		mg/Kg	1	6/21/2024 4:37:00 PM
Cadmium	< 0.782	0.782		mg/Kg	1	6/21/2024 4:37:00 PM
Chromium	17.7	0.782		mg/Kg	1	6/21/2024 4:37:00 PM
Lead	10.5	0.782		mg/Kg	1	6/21/2024 4:37:00 PM
Strontium	42.8	0.782		mg/Kg	1	6/21/2024 4:37:00 PM
Zinc	45.7	0.782		mg/Kg	1	6/21/2024 4:37:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: IO
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	4,450	48.2		mg/Kg-dry	1	6/21/2024 5:40:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: HXW
Percent Moisture	20.0	1.00		wt%	1	6/14/2024 3:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **24060753**

Date Reported **6/29/2024**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2024 1:35:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-002 **Matrix:** SOIL  
**Client Sample ID** CD-16 (14-16')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.44	0.10		mmhos/cm	1	6/18/2024 10:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	5.50	0.500		mg/L	2	6/25/2024 10:47:32 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	36.9	2.02		mg/Kg-dry	10	6/20/2024 1:24:16 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	20.5	1.00		wt%	1	6/14/2024 3:00:00 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: **24060753**

Date Reported **6/29/2024**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2024 3:15:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-003 **Matrix:** SOIL  
**Client Sample ID** CD-16 (54-56')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	0.97	0.10		mmhos/cm	1	6/18/2024 10:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	8.13	1.25		mg/L	5	6/25/2024 11:01:18 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	64.3	3.10		mg/Kg-dry	20	6/20/2024 1:38:03 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	26.6	1.00		wt%	1	6/14/2024 3:00:00 PM

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range
	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits
	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode	



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-004  
**Client Sample ID** CD-17 (8-10')

**Collection Date:** 6/14/2024 8:20:00 AM

**Matrix:** SOIL

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.4	0.100		meq/100g	1	6/24/2024
<b>LDNR 29-B LDNR 29-B Analyst: IO</b>						
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.57	0.10		mmhos/cm	1	6/18/2024 10:50:00 AM
<b>LDNR 29-B Analyst: BB</b>						
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	18.8	0.10	*	%	1	6/24/2024
<b>LDNR 29-B LDNR 29-B Analyst: IO</b>						
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	12.8	0.10	*		1	6/21/2024
Soluble Calcium	0.68	0.02		meq/L	1	6/21/2024
Soluble Magnesium	0.80	0.05		meq/L	1	6/21/2024
Soluble Sodium	11.0	0.25		meq/L	1	6/21/2024
<b>LDNR 29-B LDNR 29-B Analyst: IO</b>						
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	6/26/2024 5:24:21 PM
<b>29B/SW7471A SW7471A Analyst: SAR</b>						
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
<b>SW9056A Analyst: BXB</b>						
Chloride	289	9.30		mg/Kg-dry	50	6/20/2024 1:51:50 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
<b>SW6010B SW3050B Analyst: IO</b>						
Arsenic	3.25	1.98		mg/Kg-dry	1	6/18/2024 5:39:00 PM
Barium	397	0.992		mg/Kg-dry	1	6/18/2024 5:39:00 PM
Cadmium	< 0.496	0.496		mg/Kg-dry	1	6/18/2024 5:39:00 PM
Chromium	15.5	0.969		mg/Kg-dry	1	6/21/2024 4:52:00 PM
Lead	10.8	0.992		mg/Kg-dry	1	6/18/2024 5:39:00 PM
Strontium	31.3	0.992		mg/Kg-dry	1	6/18/2024 5:39:00 PM
Zinc	32.6	0.992		mg/Kg-dry	1	6/18/2024 5:39:00 PM

**Qualifiers:**

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- ND Not Detected at the Reporting Limit
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- SDL Sample detection limit
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- E Value above quantitation range
- M Matrix Interference
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- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/14/2024 8:20:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-004 **Matrix:** SOIL  
**Client Sample ID** CD-17 (8-10')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	2.44	1.62		mg/Kg	1	6/21/2024 4:52:00 PM
Barium	389	1.62		mg/Kg	1	6/21/2024 4:52:00 PM
Cadmium	< 0.812	0.812		mg/Kg	1	6/21/2024 4:52:00 PM
Chromium	13.0	0.812		mg/Kg	1	6/21/2024 4:52:00 PM
Lead	8.19	0.812		mg/Kg	1	6/21/2024 4:52:00 PM
Strontium	27.3	0.812		mg/Kg	1	6/21/2024 4:52:00 PM
Zinc	29.1	0.812		mg/Kg	1	6/21/2024 4:52:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: IO
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	942	49.7		mg/Kg-dry	1	6/21/2024 5:43:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: HWX
Percent Moisture	16.2	1.00		wt%	1	6/14/2024 3:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: **24060753**

Date Reported **6/29/2024**

**CLIENT:** ICON Environmental Services **Collection Date:** 6/10/2024 8:35:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-005 **Matrix:** SOIL  
**Client Sample ID** CD-17 (14-16')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	1.53	0.10		mmhos/cm	1	6/18/2024 10:50:00 AM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	69.7	2.50		mg/L	10	6/25/2024 11:14:53 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	255	7.99		mg/Kg-dry	50	6/20/2024 2:33:14 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	19.8	1.00		wt%	1	6/14/2024 3:00:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 11:50:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-006 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 A1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	6/18/2024 4:07:00 AM
TPH (Oil Range)	< 0.149	0.149		mg/L	1	6/18/2024 4:07:00 AM
Surr: 4-Terphenyl-d14	96.3	51.4 - 146		%Rec	1	6/18/2024 4:07:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/17/2024 3:41:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	6/17/2024 3:41:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/17/2024 3:41:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/17/2024 3:41:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/17/2024 3:41:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/17/2024 3:41:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.0	70 - 130		%Rec	1	6/17/2024 3:41:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	6/21/2024 11:04:32 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	0.339	0.100		mg/L	1	6/20/2024 5:14:34 AM
Chloride	82.0	5.00		mg/L	20	6/19/2024 1:08:52 PM
Sulfate	20.7	0.250		mg/L	1	6/20/2024 5:14:34 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.317	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/27/2024 5:17:00 PM
Calcium	71.7	0.500		mg/L	1	6/27/2024 5:17:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 11:50:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-006 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 A1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>				<b>SW6010B</b>		Analyst: <b>IO</b>
Chromium	< 0.0100	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Iron	0.463	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Magnesium	25.3	0.500		mg/L	1	6/27/2024 5:17:00 PM
Manganese	0.0851	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/27/2024 5:17:00 PM
Sodium	146	10.0		mg/L	1	6/25/2024 2:04:00 PM
Strontium	0.405	0.0100		mg/L	1	6/27/2024 5:17:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/27/2024 5:17:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>				<b>SW6020A</b>		Analyst: <b>MRB</b>
Arsenic	< 0.0100	0.0100		mg/L	40	6/26/2024 11:00:00 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>		Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	452	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Total (As CaCO3)	452	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>		Analyst: <b>GMS</b>
Total Dissolved Solids (Residue, Filterable)	626	10.0		mg/L	1	6/17/2024 5:50:00 AM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 2:00:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-007 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 A2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.131	0.131		mg/L	1	6/18/2024 5:53:00 PM
TPH (Oil Range)	< 0.148	0.148		mg/L	1	6/18/2024 5:53:00 PM
Surr: 4-Terphenyl-d14	77.2	51.4 - 146		%Rec	1	6/18/2024 5:53:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/17/2024 4:08:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	6/17/2024 4:08:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/17/2024 4:08:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/17/2024 4:08:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/17/2024 4:08:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/17/2024 4:08:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.0	70 - 130		%Rec	1	6/17/2024 4:08:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	6/21/2024 11:07:39 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	0.671	0.100		mg/L	1	6/20/2024 5:28:22 AM
Chloride	195	5.00		mg/L	20	6/19/2024 1:22:47 PM
Sulfate	0.297	0.250		mg/L	1	6/20/2024 5:28:22 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.469	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/27/2024 5:20:00 PM
Calcium	90.9	0.500		mg/L	1	6/27/2024 5:20:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 2:00:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-007 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 A2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Chromium	< 0.0100	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Iron	2.81	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Magnesium	30.8	0.500		mg/L	1	6/27/2024 5:20:00 PM
Manganese	0.338	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Potassium	7.32	5.00		mg/L	1	6/27/2024 5:20:00 PM
Sodium	115	10.0		mg/L	1	6/25/2024 2:07:00 PM
Strontium	0.622	0.0100		mg/L	1	6/27/2024 5:20:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/27/2024 5:20:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0212	0.0100		mg/L	40	6/26/2024 11:00:00 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	325	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Total (As CaCO3)	325	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	673	10.0		mg/L	1	6/17/2024 5:50:00 AM
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**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 3:50:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-008 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.143	0.143		mg/L	1	6/18/2024 5:21:00 PM
TPH (Oil Range)	< 0.132	0.132		mg/L	1	6/18/2024 5:21:00 PM
Surr: 4-Terphenyl-d14	30.1	51.4 - 146	S	%Rec	1	6/18/2024 5:21:00 PM
<b>NOTES:</b>						
SM*: Low surrogate recovery caused by emulsions during extraction procedure. The low surrogate may be representative of a low bias in the analytical reported value(s).						
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/17/2024 4:35:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	98.8	70 - 130		%Rec	1	6/17/2024 4:35:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/17/2024 4:35:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/17/2024 4:35:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/17/2024 4:35:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/17/2024 4:35:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.0	70 - 130		%Rec	1	6/17/2024 4:35:00 PM
<b>MERCURY IN GROUND WATER, DISSOLVED</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	6/27/2024 11:56:36 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	0.157	0.100		mg/L	1	6/20/2024 5:42:09 AM
Chloride	74.0	2.50		mg/L	10	6/19/2024 1:36:34 PM
Sulfate	2.31	0.250		mg/L	1	6/20/2024 5:42:09 AM
<b>METALS IN WATER BY ICP, DISSOLVED</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.220	0.0100		mg/L	1	6/21/2024 3:20:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
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# Analytical Report

(consolidated)

WO#: 24060753

Date Reported 6/29/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/13/2024 3:50:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24060753-008 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-16 B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, DISSOLVED**

**SW6010B**

Analyst: **IO**

Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2024 3:20:00 PM
Calcium	46.5	0.500		mg/L	1	6/21/2024 3:20:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	6/21/2024 3:20:00 PM
Iron	0.397	0.0100		mg/L	1	6/21/2024 3:20:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2024 3:20:00 PM
Magnesium	13.0	0.500		mg/L	1	6/21/2024 3:20:00 PM
Manganese	0.156	0.0100		mg/L	1	6/21/2024 3:20:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2024 3:20:00 PM
Sodium	63.4	10.0		mg/L	1	6/21/2024 3:20:00 PM
Strontium	0.279	0.0100		mg/L	1	6/21/2024 3:20:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2024 3:20:00 PM

**METALS IN WATER BY ICP-MS, DISSOLVED**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0181	0.0100		mg/L	40	6/18/2024 11:00:00 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	300	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM
Alkalinity, Total (As CaCO3)	300	20.0		mgCaCO3/L	1	6/25/2024 12:35:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	361	10.0		mg/L	1	6/17/2024 5:50:00 AM
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**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54971

Sample ID: <b>MB-54971</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136007</b>						
Client ID: <b>PBW</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407668</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-54971</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136007</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407669</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0103	0.000200	0.01000	0	103	80	120				

Sample ID: <b>LCSD-54971</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136007</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407670</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0103	0.000200	0.01000	0	103	80	120	0.01027	0.0646	20	

Sample ID: <b>24060761-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136007</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407673</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00785	0.000200	0.01000	0.00009653	77.5	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54971

Sample ID: <b>24060761-001BMDS</b>	SampType: <b>MSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136007</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407674</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00800	0.000200	0.01000	0.00009653	79.0	75	125	0.007846	1.89	20	

Sample ID: <b>24060761-001BPDS</b>	SampType: <b>PDS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136007</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407682</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0112	0.000200	0.0100	0.0000965	111	80	120				

Sample ID: <b>24060761-001BPDS</b>	SampType: <b>PDS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136007</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54971</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3407683</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0111	0.000200	0.01000	0.00009653	110	80	120	0.01124	1.28	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54972

Sample ID: <b>MB-54972</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136170</b>						
Client ID: <b>PBW</b>	Batch ID: <b>54972</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412118</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-54972</b>	SampType: <b>LCS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136170</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>54972</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412119</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00993	0.000200	0.01000	0	99.3	80	120				

Sample ID: <b>LCSD-54972</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136170</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54972</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412120</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00959	0.000200	0.01000	0	95.9	80	120	0.009931	3.51	20	

Sample ID: <b>24060753-008DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136170</b>						
Client ID: <b>CD-16 B</b>	Batch ID: <b>54972</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412123</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00993	0.000200	0.01000	0	99.3	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54972

Sample ID: <b>24060753-008DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/15/2024</b>	RunNo: <b>136170</b>						
Client ID: <b>CD-16 B</b>	Batch ID: <b>54972</b>	TestNo: <b>SW7470A</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412124</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0104	0.000200	0.01000	0	104	75	125	0.009930	4.26	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54980

Sample ID: <b>24060710-001cms</b>	SampType: <b>ms</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403611</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.70	0.132	1.745	0	97.6	70	130				
Surr: 4-Terphenyl-d14	0.0646		0.05815		111	51.4	146				

Sample ID: <b>24060710-001cmsd</b>	SampType: <b>msd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403612</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.97	0.132	1.738	0	113	70	130	1.702	14.4	21.9	
Surr: 4-Terphenyl-d14	0.0656		0.05792		113	51.4	146		0	40	

Sample ID: <b>lcs-d54980</b>	SampType: <b>lcs</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403620</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.95	0.136	1.800	0	108	70	130				
Surr: 4-Terphenyl-d14	0.0675		0.05999		113	51.4	146				

Sample ID: <b>lcsd-d54980</b>	SampType: <b>lcsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403621</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.03	0.137	1.810	0	112	70	130	1.951	3.94	14.1	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54980

Sample ID: <b>icsd-d54980</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403621</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.0696		0.06033		115	51.4	146		0	40	

Sample ID: <b>icsd-m54980</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403622</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.28	0.136	1.797	0	127	70	130	2.090	8.62	23.2	
Surr: 4-Terphenyl-d14	0.0720		0.05991		120	51.4	146		0	40	

Sample ID: <b>ics-m54980</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403623</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.09	0.138	1.814	0	115	70	130				
Surr: 4-Terphenyl-d14	0.0667		0.06046		110	51.4	146				

Sample ID: <b>mb-54980</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>PBW</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403624</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.137	0.137									
TPH (Oil Range)	< 0.137	0.137									

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54980

Sample ID: <b>mb-54980</b>	SampType: <b>mbk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>135864</b>						
Client ID: <b>PBW</b>	Batch ID: <b>54980</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403624</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.0555		0.06024		92.1	51.4	146				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54982

Sample ID: <b>MB-54982</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>136165</b>						
Client ID: <b>PBS</b>	Batch ID: <b>54982</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411986</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.100	0.100									

Sample ID: <b>LCS-54982</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>136165</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>54982</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411987</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.797	0.100	0.8330	0	95.7	80	120				

Sample ID: <b>LCSD-54982</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>136165</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54982</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411988</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.796	0.100	0.8330	0	95.5	80	120	0.7970	0.140	20	

Sample ID: <b>24060723-003AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>136165</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54982</b>	TestNo: <b>29B/SW7471 SW7471A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411993</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.846	0.106	0.8788	0.03458	92.4	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54982

Sample ID: <b>24060723-003AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/17/2024</b>	RunNo: <b>136165</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54982</b>	TestNo: <b>29B/SW7471</b>	<b>SW7471A</b>	Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411994</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.881	0.107	0.8943	0.03458	94.7	75	125	0.8462	4.04	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54995

Sample ID: <b>MB-54995</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>PBS</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404967</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-54995</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404968</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.5	2.00	50.00	0	95.0	80	120				
Barium	50.4	1.00	50.00	0	101	80	120				
Cadmium	47.8	0.500	50.00	0	95.5	80	120				
Lead	49.5	1.00	50.00	0	98.9	80	120				
Strontium	49.1	1.00	50.00	0	98.1	80	120				
Zinc	47.8	1.00	50.00	0	95.6	80	120				

Sample ID: <b>LCSD-54995</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404971</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.5	2.00	50.00	0	96.9	80	120	47.50	2.02	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54995

Sample ID: <b>LCSD-54995</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404971</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	50.9	1.00	50.00	0	102	80	120	50.38	0.946	20	
Cadmium	48.3	0.500	50.00	0	96.7	80	120	47.76	1.19	20	
Lead	49.6	1.00	50.00	0	99.2	80	120	49.46	0.323	20	
Strontium	49.8	1.00	50.00	0	99.6	80	120	49.07	1.45	20	
Zinc	48.1	1.00	50.00	0	96.3	80	120	47.78	0.757	20	

Sample ID: <b>24060723-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404973</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.7	1.90	47.50	4.812	83.9	75	125				
Barium	1,380	0.950	47.50	1,218	335	75	125				S
Cadmium	40.0	0.475	47.50	0.2890	83.6	75	125				
Lead	50.9	0.950	47.50	11.75	82.3	75	125				
Strontium	97.4	0.950	47.50	49.61	101	75	125				
Zinc	83.7	0.950	47.50	44.13	83.3	75	125				

Sample ID: <b>24060723-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404974</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	47.6	1.96	49.05	4.812	87.1	75	125	44.67	6.27	20	
Barium	1,340	0.981	49.05	1,218	251	75	125	1,377	2.63	20	S

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54995

Sample ID: <b>24060723-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>135916</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54995</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3404974</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	42.4	0.491	49.05	0.2890	85.8	75	125	40.01	5.78	20	
Lead	54.2	0.981	49.05	11.75	86.4	75	125	50.87	6.27	20	
Strontium	96.6	0.981	49.05	49.61	95.7	75	125	97.35	0.824	20	
Zinc	87.9	0.981	49.05	44.13	89.3	75	125	83.71	4.93	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54998

Sample ID: <b>24060745-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>6/18/2024</b>	RunNo: <b>136072</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54998</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/24/2024</b>	SeqNo: <b>3409297</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	99.6	0.10						82.54	18.7	20	*

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 54999

Sample ID: <b>24060745-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>136072</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>54999</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/24/2024</b>	SeqNo: <b>3409319</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	10.1	0.100						12.32	19.6	20	

Sample ID: <b>LCS-54999</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>136072</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>54999</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/24/2024</b>	SeqNo: <b>3409324</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.43	0.100	4.350	0	102	76	124				

Sample ID: <b>LCSD-54999</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>6/18/2024</b>	RunNo: <b>136072</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>54999</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/24/2024</b>	SeqNo: <b>3409325</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.48	0.100	4.350	0	103	76	124	4.430	1.12	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55017A

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135950</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55017A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3405929</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135950</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55017A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3405930</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0200	0.000250	0.0200	0	99.8	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135950</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55017A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3405931</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0205	0.000250	0.0200	0	103	80	120	0.0200	2.92	20	

Sample ID: <b>24060336-004BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135950</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55017A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3405934</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.823	0.0100	0.800	0.00114	103	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55017A

Sample ID: <b>24060336-004BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135950</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55017A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3405935</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.816	0.0100	0.800	0.00114	102	75	125	0.823	0.866	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55042

Sample ID: <b>MB-55042</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136049</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55042</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408621</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	< 1.00	1.00									

Sample ID: <b>LCS-55042</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136049</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55042</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408622</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	51.4	1.00	50.00	0	103	80	120				

Sample ID: <b>LCSD-55042</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136049</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55042</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408623</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	50.2	1.00	50.00	0	100	80	120	51.36	2.34	20	

Sample ID: <b>24060723-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136049</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55042</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408625</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	55.1	0.979	48.96	11.62	88.9	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55042

Sample ID: <b>24060723-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136049</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55042</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408626</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	55.4	0.983	49.15	11.62	89.0	75	125	53.64	3.16	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55043

Sample ID: <b>MB-55043</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136050</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55043</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408651</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 2.00	2.00									
Cadmium	< 1.00	1.00									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-55043</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136050</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55043</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408652</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.2	2.00	50.00	0	98.5	80	120				
Barium	51.4	2.00	50.00	0	103	80	120				
Cadmium	50.4	1.00	50.00	0	101	80	120				
Chromium	51.4	1.00	50.00	0	103	80	120				
Lead	49.9	1.00	50.00	0	99.8	80	120				
Strontium	51.8	1.00	50.00	0	104	80	120				
Zinc	48.8	1.00	50.00	0	97.6	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55043

Sample ID: <b>LCSD-55043</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136050</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55043</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408653</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.4	2.00	50.00	0	96.8	80	120	49.23	1.73	20	
Barium	50.2	2.00	50.00	0	100	80	120	51.41	2.47	20	
Cadmium	49.2	1.00	50.00	0	98.5	80	120	50.35	2.21	20	
Chromium	50.2	1.00	50.00	0	100	80	120	51.36	2.34	20	
Lead	48.5	1.00	50.00	0	96.9	80	120	49.90	2.95	20	
Strontium	50.2	1.00	50.00	0	100	80	120	51.77	3.15	20	
Zinc	47.6	1.00	50.00	0	95.2	80	120	48.79	2.46	20	

Sample ID: <b>24060723-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136050</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55043</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408653</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	22.7	0.979	24.48	2.398	82.7	75	125				
Barium	787	0.979	24.48	735.8	209	75	125				S
Cadmium	21.1	0.636	24.48	0.3928	84.7	75	125				
Chromium	27.6	0.490	24.48	6.090	87.7	75	125				
Lead	25.8	0.490	24.48	5.782	81.9	75	125				
Strontium	52.1	0.490	24.48	28.02	98.3	75	125				
Zinc	43.2	0.490	24.48	22.40	84.9	75	125				

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55043

Sample ID: <b>24060723-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136050</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55043</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408656</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	23.0	0.983	24.57	2.398	83.9	75	125	22.65	1.60	20	
Barium	769	0.983	24.57	735.8	135	75	125	786.9	2.30	20	S
Cadmium	21.1	0.639	24.57	0.3928	84.4	75	125	21.12	0.0929	20	
Chromium	27.7	0.491	24.57	6.090	87.9	75	125	27.56	0.421	20	
Lead	25.7	0.491	24.57	5.782	81.3	75	125	25.84	0.359	20	
Strontium	49.7	0.491	24.57	28.02	88.0	75	125	52.09	4.79	20	
Zinc	43.8	0.491	24.57	22.40	86.9	75	125	43.19	1.29	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55045

Sample ID: <b>MB-55045</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136051</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55045</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408683</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	< 50.0	50.0									

Sample ID: <b>LCS-55045</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136051</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55045</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408684</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	5,200	50.0	5,000	0	104	75	125				

Sample ID: <b>LCSD-55045</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136051</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55045</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408685</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	5,210	50.0	5,000	0	104	75	125	5,204	0.204	20	

Sample ID: <b>24060723-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136051</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55045</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408689</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	11,600	48.8	4,878	7,387	85.8	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55045

Sample ID: <b>24060723-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>6/20/2024</b>	RunNo: <b>136051</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55045</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408690</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	11,500	46.8	4,682	7,387	87.4	75	125	11,570	0.787	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55048

Sample ID: <b>24060649-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>6/20/2024</b>	RunNo: <b>136005</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55048</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407561</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	0.51	0.10						0.45	12.5	20	
Soluble Calcium	3.24	0.02						3.44	5.99	20	
Soluble Magnesium	0.70	0.05						0.62	12.1	20	
Soluble Sodium	0.71	0.25						0.65	8.82	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>MB-55064</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>PBW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408582</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55064</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408583</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.501	0.0100	0.5000	0	100	80	120				
Cadmium	0.510	0.00500	0.5000	0	102	80	120				
Calcium	49.9	0.500	50.00	0	99.8	80	120				
Chromium	0.501	0.0100	0.5000	0	100	80	120				
Iron	0.507	0.0100	0.5000	0	101	80	120				
Lead	0.505	0.0100	0.5000	0	101	80	120				
Magnesium	49.7	0.500	50.00	0	99.4	80	120				
Manganese	0.502	0.0100	0.5000	0	100	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
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U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>LCS-55064</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408583</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49.1	5.00	50.00	0	98.1	80	120				
Sodium	49.7	10.0	50.00	0	99.4	80	120				
Strontium	0.498	0.0100	0.5000	0	99.5	80	120				
Zinc	0.502	0.0100	0.5000	0	100	80	120				

Sample ID: <b>LCSD-55064</b>	SampType: <b>LCSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408584</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.529	0.0100	0.5000	0	106	80	120	0.5014	5.28	20	
Cadmium	0.536	0.00500	0.5000	0	107	80	120	0.5101	4.89	20	
Calcium	52.3	0.500	50.00	0	105	80	120	49.88	4.83	20	
Chromium	0.527	0.0100	0.5000	0	105	80	120	0.5008	5.08	20	
Iron	0.529	0.0100	0.5000	0	106	80	120	0.5074	4.19	20	
Lead	0.532	0.0100	0.5000	0	106	80	120	0.5046	5.36	20	
Magnesium	52.2	0.500	50.00	0	104	80	120	49.69	4.87	20	
Manganese	0.528	0.0100	0.5000	0	106	80	120	0.5020	5.03	20	
Potassium	51.5	5.00	50.00	0	103	80	120	49.07	4.85	20	
Sodium	51.3	10.0	50.00	0	103	80	120	49.72	3.03	20	
Strontium	0.524	0.0100	0.5000	0	105	80	120	0.4976	5.19	20	
Zinc	0.528	0.0100	0.5000	0	106	80	120	0.5020	5.00	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>24061067-003BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408587</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.932	0.0100	0.5000	0.4508	96.3	75	125				
Cadmium	0.520	0.00500	0.5000	0.001000	104	75	125				
Calcium	137	0.500	50.00	89.16	95.7	75	125				
Chromium	0.490	0.0100	0.5000	0	98.0	75	125				
Iron	1.95	0.0100	0.5000	1.490	91.1	75	125				
Lead	0.490	0.0100	0.5000	0	97.9	75	125				
Magnesium	75.2	0.500	50.00	25.78	98.9	75	125				
Manganese	0.847	0.0100	0.5000	0.3710	95.2	75	125				
Potassium	54.1	5.00	50.00	4.069	100	75	125				
Sodium	142	10.0	50.00	93.13	96.8	75	125				
Strontium	1.02	0.0100	0.5000	0.5389	96.5	75	125				
Zinc	0.513	0.0100	0.5000	0	103	75	125				

Sample ID: <b>24061067-003BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408588</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.937	0.0100	0.5000	0.4508	97.2	75	125	0.9322	0.510	20	
Cadmium	0.524	0.00500	0.5000	0.001000	105	75	125	0.5198	0.767	20	
Calcium	138	0.500	50.00	89.16	97.4	75	125	137.0	0.623	20	
Chromium	0.491	0.0100	0.5000	0	98.3	75	125	0.4901	0.269	20	
Iron	1.95	0.0100	0.5000	1.490	92.9	75	125	1.945	0.457	20	
Lead	0.493	0.0100	0.5000	0	98.6	75	125	0.4896	0.692	20	
Magnesium	75.7	0.500	50.00	25.78	99.8	75	125	75.21	0.651	20	
Manganese	0.852	0.0100	0.5000	0.3710	96.2	75	125	0.8472	0.536	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>24061067-003BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408588</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	54.4	5.00	50.00	4.069	101	75	125	54.11	0.619	20	
Sodium	143	10.0	50.00	93.13	99.4	75	125	141.5	0.934	20	
Strontium	1.03	0.0100	0.5000	0.5389	98.6	75	125	1.021	1.03	20	
Zinc	0.518	0.0100	0.5000	0	104	75	125	0.5134	0.823	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55079

Sample ID: <b>MB-55079</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410154</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	< 10.0	10.0									

Sample ID: <b>LCS-55079</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410155</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	48.6	10.0	50.00	0	97.2	80	120				

Sample ID: <b>LCSD-55079</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410156</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	45.5	10.0	50.00	0	90.9	80	120	48.62	6.73	20	

Sample ID: <b>24061067-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410160</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	137	10.0	50.00	133.4	7.17	75	125				S

**NOTES:**

S/R - Poor spike recoveries and high RPD due to sample matrix. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55079

Sample ID: <b>24061067-002BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410161</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	188	10.0	50.00	133.4	109	75	125	137.0	31.3	20	R

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55080

Sample ID: <b>MB-55080</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411563</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS-55080</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411564</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.476	0.00500	0.500	0	95.2	80	120				

Sample ID: <b>LCSD-55080</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411565</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.477	0.00500	0.500	0	95.3	80	120	0.476	0.121	20	

Sample ID: <b>24061067-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411568</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.386	0.0125	0.500	0.00666	75.8	75	125				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55080

Sample ID: <b>24061067-002BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411569</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.499	0.0125	0.500	0.00666	98.4	75	125	0.386	25.6	20	R

**NOTES:**

R - MS/MSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both MS/MSD. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>MB-55147</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413389</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55147</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413390</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.485	0.0100	0.5000	0	97.0	80	120				
Cadmium	0.475	0.00500	0.5000	0	95.0	80	120				
Calcium	49.4	0.500	50.00	0	98.7	80	120				
Chromium	0.476	0.0100	0.5000	0	95.2	80	120				
Iron	0.489	0.0100	0.5000	0	97.8	80	120				
Lead	0.466	0.0100	0.5000	0	93.2	80	120				
Magnesium	49.2	0.500	50.00	0	98.3	80	120				
Manganese	0.481	0.0100	0.5000	0	96.3	80	120				
Potassium	49.1	5.00	50.00	0	98.2	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>LCS-55147</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413390</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium	0.491	0.0100	0.5000	0	98.1	80	120				
Zinc	0.464	0.0100	0.5000	0	92.8	80	120				

Sample ID: <b>LCSD-55147</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413393</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.484	0.0100	0.5000	0	96.8	80	120	0.4851	0.235	20	
Cadmium	0.471	0.00500	0.5000	0	94.3	80	120	0.4749	0.721	20	
Calcium	48.8	0.500	50.00	0	97.7	80	120	49.37	1.09	20	
Chromium	0.475	0.0100	0.5000	0	95.0	80	120	0.4760	0.189	20	
Iron	0.488	0.0100	0.5000	0	97.6	80	120	0.4891	0.256	20	
Lead	0.466	0.0100	0.5000	0	93.2	80	120	0.4660	0.0386	20	
Magnesium	48.6	0.500	50.00	0	97.2	80	120	49.16	1.10	20	
Manganese	0.481	0.0100	0.5000	0	96.1	80	120	0.4813	0.164	20	
Potassium	48.7	5.00	50.00	0	97.4	80	120	49.11	0.801	20	
Strontium	0.492	0.0100	0.5000	0	98.5	80	120	0.4905	0.362	20	
Zinc	0.463	0.0100	0.5000	0	92.5	80	120	0.4641	0.324	20	

Sample ID: <b>24061218-022CMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413395</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>24061218-022CMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413395</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.07	0.0100	0.5000	0.6198	90.6	75	125				
Cadmium	0.474	0.00500	0.5000	0	94.8	75	125				
Calcium	175	0.500	50.00	127.5	94.8	75	125				
Chromium	0.471	0.0100	0.5000	0.007270	92.7	75	125				
Iron	6.93	0.0100	0.5000	6.445	97.6	75	125				
Lead	0.458	0.0100	0.5000	0	91.5	75	125				
Magnesium	92.8	0.500	50.00	44.59	96.4	75	125				
Manganese	1.24	0.0100	0.5000	0.7908	89.6	75	125				
Potassium	54.4	5.00	50.00	3.098	103	75	125				
Strontium	1.01	0.0100	0.5000	0.5252	96.2	75	125				
Zinc	0.479	0.0100	0.5000	0.01764	92.3	75	125				

**NOTES:**

S/R - Poor spike recoveries and high RPD due to sample matrix. The method is in control as indicated by the LCS/LCSD.

Sample ID: <b>24061218-022CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413396</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.07	0.0100	0.5000	0.6198	89.6	75	125	1.073	0.432	20	
Cadmium	0.465	0.00500	0.5000	0	93.0	75	125	0.4741	1.96	20	
Calcium	175	0.500	50.00	127.5	94.6	75	125	174.9	0.0676	20	
Chromium	0.509	0.0100	0.5000	0.007270	100	75	125	0.4706	7.84	20	
Iron	7.37	0.0100	0.5000	6.445	184	75	125	6.933	6.06	20	S
Lead	0.445	0.0100	0.5000	0	89.0	75	125	0.4576	2.85	20	
Magnesium	92.5	0.500	50.00	44.59	95.9	75	125	92.79	0.262	20	
Manganese	1.24	0.0100	0.5000	0.7908	89.8	75	125	1.239	0.0476	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>24061218-022CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413396</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	54.1	5.00	50.00	3.098	102	75	125	54.37	0.545	20	
Strontium	0.998	0.0100	0.5000	0.5252	94.6	75	125	1.006	0.776	20	
Zinc	0.819	0.0100	0.5000	0.01764	160	75	125	0.4790	52.3	20	RS

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135821

Sample ID: <b>MB-R135821</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403824</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0									

Sample ID: <b>LCS-R135821</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403825</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	998	10.0	1,000	0	99.8	85	115				

Sample ID: <b>LCSD-R135821</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403826</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	989	10.0	1,000	0	98.9	85	115	998.0	0.906	10	

Sample ID: <b>24060734-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403843</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	1,560	50.0						1,580	0.954	10	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135821

Sample ID: <b>24060734-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403843</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>24060753-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135821</b>						
Client ID: <b>CD-16 A1</b>	Batch ID: <b>R135821</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403844</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	645	10.0						626.0	2.99	10	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135829

Sample ID: <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135829</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R135829</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402461</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0479	0.00500	0.05000	0	95.8	72.6	120				
Ethylbenzene	0.0468	0.00500	0.05000	0	93.6	71.8	120				
Toluene	0.0480	0.0100	0.05000	0	96.0	72.8	120				
Xylenes, Total	0.143	0.0500	0.1500	0	95.3	73.4	120				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0502		0.05000		100	76	116				

Sample ID: <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135829</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R135829</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402463</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0514	0.00500	0.05000	0	103	72.6	120	0.04790	7.05	20	
Ethylbenzene	0.0507	0.00500	0.05000	0	101	71.8	120	0.04680	8.00	20	
Toluene	0.0509	0.0100	0.05000	0	102	72.8	120	0.04800	5.86	20	
Xylenes, Total	0.154	0.0500	0.1500	0	102	73.4	120	0.1430	7.15	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0486		0.05000		97.2	76	116		0	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135829</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R135829</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402698</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135829

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135829</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R135829</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402698</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0479		0.05000		95.8	70	130				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135836

Sample ID: <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402606</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.3	0.150	12.50	0	106	80	130				

Sample ID: <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402689</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.7	0.150	12.50	0	109	80	130	13.25	3.12	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3402699</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0493		0.05000		98.6	70	130				

Sample ID: <b>24060710-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403547</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.3	0.150	12.50	0	106	70	130				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0626		0.05000		125	70	130				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135836

Sample ID: <b>24060710-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403547</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>24060710-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135836</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135836</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/17/2024</b>	SeqNo: <b>3403548</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.1	0.150	12.50	0	105	70	130	13.27	1.33	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0620		0.05000		124	70	130		0	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135869

Sample ID: <b>MB-R135869</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>135869</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R135869</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3403737</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID: <b>LCS1-R135869</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>135869</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135869</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3403738</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.49	0.10	0.50	0	96.6	90	110				

Sample ID: <b>LCS2-R135869</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>135869</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135869</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3403739</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	54.7	0.10	53.00	0	103	90	110				

Sample ID: <b>24060649-006ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>135869</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135869</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/18/2024</b>	SeqNo: <b>3403741</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.45	0.10						0.46	3.02	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135912

Sample ID: <b>24060745-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>135912</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R135912</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/14/2024</b>	SeqNo: <b>3404687</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	30.5	1.00						36.50	17.9	20	

Sample ID: <b>24060701-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>135912</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R135912</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/14/2024</b>	SeqNo: <b>3404705</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	75.6	1.00						75.60	0	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135948

Sample ID: <b>mbk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135948</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R135948</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/19/2024</b>	SeqNo: <b>3405688</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	< 0.100	0.100									
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135948</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R135948</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/19/2024</b>	SeqNo: <b>3405689</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	4.26	0.100	4.000	0	107	80	120				
Chloride	9.97	0.250	10.00	0	99.7	80	120				
Sulfate	10.4	0.250	10.00	0	104	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135948</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R135948</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/19/2024</b>	SeqNo: <b>3405690</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	3.96	0.100	4.000	0	98.9	80	120	4.260	7.36	15	
Chloride	9.89	0.250	10.00	0	98.9	80	120	9.973	0.860	15	
Sulfate	9.94	0.250	10.00	0	99.4	80	120	10.37	4.19	15	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135948

Sample ID: <b>24060710-001fms</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135948</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135948</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/19/2024</b>	SeqNo: <b>3405692</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.01	0.100	2.000	0	101	80	120				
Chloride	6.56	0.250	5.000	1.736	96.5	80	120				
Sulfate	5.16	0.250	5.000	0.1651	99.9	80	120				

Sample ID: <b>24060710-001fmsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>135948</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R135948</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/19/2024</b>	SeqNo: <b>3405693</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	2.04	0.100	2.000	0	102	80	120	2.014	1.53	15	
Chloride	6.53	0.250	5.000	1.736	96.0	80	120	6.561	0.404	15	
Sulfate	5.27	0.250	5.000	0.1651	102	80	120	5.161	2.01	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135991

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>135991</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R135991</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407009</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>135991</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R135991</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407010</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.87	0.250	10.00	0	98.7	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>135991</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R135991</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407011</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.81	0.250	10.00	0	98.1	80	120	9.871	0.640	15	

Sample ID: <b>24060753-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>135991</b>						
Client ID: <b>CD-16 (10-12')</b>	Batch ID: <b>R135991</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407019</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	191	4.21	84.20	114.0	91.5	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R135991

Sample ID: <b>24060753-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>135991</b>						
Client ID: <b>CD-16 (10-12')</b>	Batch ID: <b>R135991</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/20/2024</b>	SeqNo: <b>3407020</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	192	4.21	84.20	114.0	92.7	80	120	191.1	0.520	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136088

Sample ID: <b>MB-R136088</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136088</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136088</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410247</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID: <b>LCS-R136088</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136088</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136088</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410248</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	51.0	20.0	50.00	0	102	80	120				

Sample ID: <b>24060710-006FDUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136088</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136088</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410259</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	322	20.0						307.5	4.76	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	322	20.0						307.5	4.76	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136112

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136112</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136112</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410398</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136112</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136112</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410399</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.48	0.250	10.00	0	94.8	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136112</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136112</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410400</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.48	0.250	10.00	0	94.8	80	120	9.477	0.00760	15	

Sample ID: <b>24061067-003ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136112</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136112</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410408</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	344	5.00	100.0	277.7	66.0	80	120				S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24060753  
 29-Jun-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136112

Sample ID: <b>24061067-003amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136112</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136112</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410409</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	355	5.00	100.0	277.7	77.1	80	120	343.7	3.20	15	S

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24060753**

RcptNo: **1**

Logged by:	<b>Martin Lee</b>	<b>6/14/2024 12:26:00 PM</b>	
Completed By:	<b>Martin Lee</b>	<b>6/14/2024 1:41:53 PM</b>	
Reviewed By:	<b>Buffy Bryant</b>	<b>6/29/2024 2:02:00 PM</b>	

### Chain of Custody

1. Is Chain of Custody complete? Yes  No  Not Present
2. How was the sample delivered? Client

### Log In

3. Coolers are present? Yes  No  NA
4. Shipping container/cooler in good condition? Yes  No
- Custody seals intact on shipping container/cooler? Yes  No  Not Present
- No. Seal Date: Signed By:
5. Was an attempt made to cool the samples? Yes  No  NA
6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA
7. Sample(s) in proper container(s)? Yes  No
8. Sufficient sample volume for indicated test(s)? Yes  No
9. Are samples (except VOA and ONG) properly preserved? Yes  No
10. Was preservative added to bottles? Yes  No  NA
11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials
12. Were any sample containers received broken? Yes  No
13. Does paperwork match bottle labels? Yes  No   
(Note discrepancies on chain of custody)
14. Are matrices correctly identified on Chain of Custody? Yes  No
15. Is it clear what analyses were requested? Yes  No
16. Were all holding times able to be met? Yes  No   
(If no, notify customer for authorization.)

### Special Handling (if applicable)

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text" value="Jason Sills"/>	Date:	<input type="text" value="6/29/2024"/>
By Whom:	<input type="text" value="Buffy Bryant"/>	Via:	<input checked="" type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text" value="Confirm metals list for GW. Sr is listed twice"/>		
Client Instructions:	<input type="text" value="Cr is needed."/>		

18. Additional remarks:  
 Improper error correction(s) made by client

### Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Not Present			



# Chain of Custody

Laboratory Number: **24060753**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page of <b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NGL = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	<i>Acorn</i>		<i>Same</i>		Quote Number:	<i>Castex Development</i>	
					Required QC Level	<i>9403-016-0100</i>	
					Bill Monthly	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
					Shipping Method:	UPS / FedEx / NOW DHL / Element / <u>Hand</u> / Mail	

Which Regulations Apply:	Turn Time	Collection Information	Matrix	Container		Pres.	Requested Tests										Comments	
				Quantity	Type		HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	TDS	Chlorides	BTEX	TPHG	TPH PFO	Cationy/Aniont	Total Metals	Dissolved/Undissolved	Bromides		
<input type="checkbox"/> RCRA <input type="checkbox"/> POTW <input type="checkbox"/> NPDES <input type="checkbox"/> USDA/FDA <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Drinking Water <input type="checkbox"/> Distribution <input type="checkbox"/> Special <input type="checkbox"/> State <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other	<input type="checkbox"/> Date <input type="checkbox"/> Time <input type="checkbox"/> Grab / Composite																As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg BB 6/29/24 Catione Ca K Na Mg Anions Sulfate Alk - Bicarbonate Alk - Carbonate
<b>Sample ID/Description</b>																		
<i>CD-16 A1</i>				<i>6-13-24</i>	<i>1150</i>	<i>G</i>	<i>GW</i>	<i>3</i>	<i>PG</i>	<i>HCl HNO<sub>3</sub></i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>CD-16 A2</i>				<i>6-13-24</i>	<i>1400</i>	<i>G</i>	<i>GW</i>	<i>8</i>	<i>PG</i>	<i>↓</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>
<i>CD-16 B</i>				<i>6-13-24</i>	<i>1500</i>	<i>G</i>	<i>GW</i>	<i>7</i>	<i>PG</i>	<i>↓</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>	<i>X</i>

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>M. Long</i>	<i>6-14-24 12:26</i>	<i>[Signature]</i>	<i>6-14-24 12:26</i>	
2					Received at lab on ice?
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <i>3.5 IRLO ET</i>

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31 Columbus, IN 47201 USA P 812-375-0531 F 812-375-0731	328 Ley Road, Suite 100 Fort Wayne, IN 46825 USA P 260-471-7000 F 260-471-7777	909 Executive Dr Warsaw, IN 46580 USA P 574-267-3305 F 574-269-6569	3371 Cleveland Road, Suite 100A Pascago, IN 46628 USA P 574-277-0707 F 574-273-5699	2417 W. Pinhook Rd Lafayette, LA 70508 USA P 337-235-0483 F 337-233-6540
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Castex-ICON Report-001049





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Website: [www.element.com](http://www.element.com)

July 10, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex Development 9403-016-0100

Order No.: 24061067

Dear Greg Miller:

Element Materials Technology Lafayette received 4 sample(s) on 6/21/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads "Buffy Bryant".

Buffy Bryant  
Customer Service Supervisor



Element Materials Technology Lafayette  
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Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 24061067

Date: 7/10/2024

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**CLIENT:** ICON Environmental Services

**Project:** Castex Development 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-001  
**Client Sample ID** CD-17A1

**Collection Date:** 6/19/2024 8:00:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	1.05	0.132		mg/L	1	6/25/2024 2:36:00 PM
TPH (Oil Range)	1.34	0.122		mg/L	1	6/25/2024 2:36:00 PM
Surr: 4-Terphenyl-d14	204	51.4 - 146	SM	%Rec	1	6/25/2024 2:36:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/25/2024 2:32:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	105	70 - 130		%Rec	1	6/25/2024 2:32:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/25/2024 2:32:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/25/2024 2:32:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/25/2024 2:32:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/25/2024 2:32:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.8	70 - 130		%Rec	1	6/25/2024 2:32:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	7/5/2024 11:37:58 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	1.36	0.500		mg/L	5	6/25/2024 6:11:46 AM
Chloride	474	12.5		mg/L	50	6/25/2024 6:25:33 AM
Sulfate	13.0	1.25		mg/L	5	6/25/2024 6:11:46 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.521	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/27/2024 5:29:00 PM
Calcium	131	0.500		mg/L	1	6/27/2024 5:29:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/19/2024 8:00:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-001 **Matrix:** AQUEOUS  
**Client Sample ID** CD-17A1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Chromium	< 0.0100	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Iron	1.17	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Magnesium	50.3	0.500		mg/L	1	6/27/2024 5:29:00 PM
Manganese	1.05	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Potassium	7.20	5.00		mg/L	1	6/27/2024 5:29:00 PM
Sodium	133	10.0		mg/L	1	6/25/2024 2:02:00 PM
Strontium	0.916	0.0100		mg/L	1	6/27/2024 5:29:00 PM
Zinc	0.0217	0.0100		mg/L	1	6/27/2024 5:29:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0291	0.0100		mg/L	40	6/26/2024 11:00:00 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	348	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Total (As CaCO3)	348	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	975	50.0		mg/L	5	6/22/2024 7:36:00 AM
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Qualifiers:			
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/18/2024 3:40:00 PM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-002 **Matrix:** AQUEOUS  
**Client Sample ID** CD-17A2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134		mg/L	1	6/25/2024 3:08:00 PM
TPH (Oil Range)	0.207	0.124		mg/L	1	6/25/2024 3:08:00 PM
Surr: 4-Terphenyl-d14	125	51.4 - 146		%Rec	1	6/25/2024 3:08:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/25/2024 2:59:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	6/25/2024 2:59:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/25/2024 2:59:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/25/2024 2:59:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/25/2024 2:59:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/25/2024 2:59:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	99.0	70 - 130		%Rec	1	6/25/2024 2:59:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	7/5/2024 11:51:26 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	2.71	0.500		mg/L	5	6/25/2024 6:39:21 AM
Chloride	230	12.5		mg/L	50	6/25/2024 6:53:08 AM
Sulfate	3.34	1.25		mg/L	5	6/25/2024 6:39:21 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.595	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/27/2024 5:31:00 PM
Calcium	113	0.500		mg/L	1	6/27/2024 5:31:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-002  
**Client Sample ID** CD-17A2

**Collection Date:** 6/18/2024 3:40:00 PM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Chromium	< 0.0100	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Iron	5.61	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Magnesium	38.8	0.500		mg/L	1	6/27/2024 5:31:00 PM
Manganese	0.412	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Potassium	9.63	5.00		mg/L	1	6/27/2024 5:31:00 PM
Sodium	133	10.0		mg/L	1	6/25/2024 1:47:00 PM
Strontium	0.770	0.0100		mg/L	1	6/27/2024 5:31:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/27/2024 5:31:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	< 0.0100	0.0100		mg/L	40	6/26/2024 11:00:00 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	502	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Total (As CaCO3)	502	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	835	50.0		mg/L	5	6/22/2024 7:36:00 AM
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Qualifiers:			
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-003  
**Client Sample ID** CD-17B

**Collection Date:** 6/19/2024 9:40:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.136	0.136		mg/L	1	6/25/2024 3:40:00 PM
TPH (Oil Range)	0.181	0.125		mg/L	1	6/25/2024 3:40:00 PM
Surr: 4-Terphenyl-d14	107	51.4 - 146		%Rec	1	6/25/2024 3:40:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	6/25/2024 3:27:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	6/25/2024 3:27:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	6/25/2024 3:27:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	6/25/2024 3:27:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	6/25/2024 3:27:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	6/25/2024 3:27:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	94.6	70 - 130		%Rec	1	6/25/2024 3:27:00 PM
<b>MERCURY IN GROUND WATER, DISSOLVED</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	7/5/2024 12:12:10 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Bromide	0.811	0.100		mg/L	1	6/25/2024 7:06:55 AM
Chloride	278	5.00		mg/L	20	6/25/2024 7:20:42 AM
Sulfate	< 0.250	0.250		mg/L	1	6/25/2024 7:06:55 AM
<b>METALS IN WATER BY ICP, DISSOLVED</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.451	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	6/21/2024 3:08:00 PM
Calcium	89.2	0.500		mg/L	1	6/21/2024 3:08:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-003  
**Client Sample ID** CD-17B

**Collection Date:** 6/19/2024 9:40:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, DISSOLVED**

**SW6010B**

Analyst: **IO**

Chromium	< 0.0100	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Iron	1.49	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Lead	< 0.0100	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Magnesium	25.8	0.500		mg/L	1	6/21/2024 3:08:00 PM
Manganese	0.371	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Potassium	< 5.00	5.00		mg/L	1	6/21/2024 3:08:00 PM
Sodium	93.1	10.0		mg/L	1	6/21/2024 3:08:00 PM
Strontium	0.539	0.0100		mg/L	1	6/21/2024 3:08:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	6/21/2024 3:08:00 PM

**METALS IN WATER BY ICP-MS, DISSOLVED**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0132	0.0100		mg/L	40	6/26/2024 1:37:49 PM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	212	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM
Alkalinity, Total (As CaCO3)	212	20.0		mgCaCO3/L	1	6/28/2024 11:57:00 AM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **GMS**

Total Dissolved Solids (Residue, Filterable)	621	10.0		mg/L	1	6/22/2024 7:36:00 AM
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Qualifiers:			
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24061067

Date Reported 7/10/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 6/17/2024 11:30:00 AM  
**Project:** Castex Development 9403-016-0100  
**Lab ID:** 24061067-004 **Matrix:** SOIL  
**Client Sample ID** CD-17 (60-62)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	1.02	0.10		mmhos/cm	1	6/26/2024 3:37:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	55.7	2.50		mg/L	10	7/2/2024 4:21:34 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	130	3.02		mg/Kg-dry	20	6/27/2024 10:33:04 AM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	25.0	1.00		wt%	1	6/21/2024 10:50:00 AM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>MB-55064</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>PBW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408582</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55064</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408583</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.501	0.0100	0.5000	0	100	80	120				
Cadmium	0.510	0.00500	0.5000	0	102	80	120				
Calcium	49.9	0.500	50.00	0	99.8	80	120				
Chromium	0.501	0.0100	0.5000	0	100	80	120				
Iron	0.507	0.0100	0.5000	0	101	80	120				
Lead	0.505	0.0100	0.5000	0	101	80	120				
Magnesium	49.7	0.500	50.00	0	99.4	80	120				
Manganese	0.502	0.0100	0.5000	0	100	80	120				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>LCS-55064</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408583</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49.1	5.00	50.00	0	98.1	80	120				
Sodium	49.7	10.0	50.00	0	99.4	80	120				
Strontium	0.498	0.0100	0.5000	0	99.5	80	120				
Zinc	0.502	0.0100	0.5000	0	100	80	120				

Sample ID: <b>LCSD-55064</b>	SampType: <b>LCSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408584</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.529	0.0100	0.5000	0	106	80	120	0.5014	5.28	20	
Cadmium	0.536	0.00500	0.5000	0	107	80	120	0.5101	4.89	20	
Calcium	52.3	0.500	50.00	0	105	80	120	49.88	4.83	20	
Chromium	0.527	0.0100	0.5000	0	105	80	120	0.5008	5.08	20	
Iron	0.529	0.0100	0.5000	0	106	80	120	0.5074	4.19	20	
Lead	0.532	0.0100	0.5000	0	106	80	120	0.5046	5.36	20	
Magnesium	52.2	0.500	50.00	0	104	80	120	49.69	4.87	20	
Manganese	0.528	0.0100	0.5000	0	106	80	120	0.5020	5.03	20	
Potassium	51.5	5.00	50.00	0	103	80	120	49.07	4.85	20	
Sodium	51.3	10.0	50.00	0	103	80	120	49.72	3.03	20	
Strontium	0.524	0.0100	0.5000	0	105	80	120	0.4976	5.19	20	
Zinc	0.528	0.0100	0.5000	0	106	80	120	0.5020	5.00	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>24061067-003BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408587</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.932	0.0100	0.5000	0.4508	96.3	75	125				
Cadmium	0.520	0.00500	0.5000	0.001000	104	75	125				
Calcium	137	0.500	50.00	89.16	95.7	75	125				
Chromium	0.490	0.0100	0.5000	0	98.0	75	125				
Iron	1.95	0.0100	0.5000	1.490	91.1	75	125				
Lead	0.490	0.0100	0.5000	0	97.9	75	125				
Magnesium	75.2	0.500	50.00	25.78	98.9	75	125				
Manganese	0.847	0.0100	0.5000	0.3710	95.2	75	125				
Potassium	54.1	5.00	50.00	4.069	100	75	125				
Sodium	142	10.0	50.00	93.13	96.8	75	125				
Strontium	1.02	0.0100	0.5000	0.5389	96.5	75	125				
Zinc	0.513	0.0100	0.5000	0	103	75	125				

Sample ID: <b>24061067-003BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408588</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.937	0.0100	0.5000	0.4508	97.2	75	125	0.9322	0.510	20	
Cadmium	0.524	0.00500	0.5000	0.001000	105	75	125	0.5198	0.767	20	
Calcium	138	0.500	50.00	89.16	97.4	75	125	137.0	0.623	20	
Chromium	0.491	0.0100	0.5000	0	98.3	75	125	0.4901	0.269	20	
Iron	1.95	0.0100	0.5000	1.490	92.9	75	125	1.945	0.457	20	
Lead	0.493	0.0100	0.5000	0	98.6	75	125	0.4896	0.692	20	
Magnesium	75.7	0.500	50.00	25.78	99.8	75	125	75.21	0.651	20	
Manganese	0.852	0.0100	0.5000	0.3710	96.2	75	125	0.8472	0.536	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064

Sample ID: <b>24061067-003BMDS</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136047</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55064</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3408588</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	54.4	5.00	50.00	4.069	101	75	125	54.11	0.619	20	
Sodium	143	10.0	50.00	93.13	99.4	75	125	141.5	0.934	20	
Strontium	1.03	0.0100	0.5000	0.5389	98.6	75	125	1.021	1.03	20	
Zinc	0.518	0.0100	0.5000	0	104	75	125	0.5134	0.823	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064A

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136139</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55064A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411654</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136139</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55064A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411655</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0206	0.000250	0.0200	0	103	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136139</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55064A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411656</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0207	0.000250	0.0200	0	104	80	120	0.0206	0.514	20	

Sample ID: <b>24061067-003BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136139</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55064A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411659</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.811	0.0100	0.800	0.0132	99.8	75	125				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55064A

Sample ID: <b>24061067-003BM</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date: <b>6/21/2024</b>	RunNo: <b>136139</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55064A</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411660</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.810	0.0100	0.800	0.0132	99.5	75	125	0.811	0.229	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55072

Sample ID: <b>MB-55072</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136386</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55072</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417774</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-55072</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136386</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55072</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417775</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0106	0.000200	0.01000	0	106	80	120				

Sample ID: <b>LCSD-55072</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136386</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55072</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417776</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0106	0.000200	0.01000	0	106	80	120	0.01058	0.287	20	

Sample ID: <b>24061067-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136386</b>						
Client ID: <b>CD-17A1</b>	Batch ID: <b>55072</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417779</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00996	0.000200	0.01000	0.00007259	98.9	75	125				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55072

Sample ID: <b>24061067-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136386</b>						
Client ID: <b>CD-17A1</b>	Batch ID: <b>55072</b>	TestNo: <b>SW7470A</b>	Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417780</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0103	0.000200	0.01000	0.00007259	102	75	125	0.009960	3.27	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55073

Sample ID: <b>MB-55073</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136387</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55073</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417804</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-55073</b>	SampType: <b>LCS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136387</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55073</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417805</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0101	0.000200	0.01000	0	101	80	120				

Sample ID: <b>LCSD-55073</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136387</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55073</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417808</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0103	0.000200	0.01000	0	103	80	120	0.01013	1.86	20	

Sample ID: <b>24061067-003BMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136387</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55073</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417811</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.00995	0.000200	0.01000	0.0001019	98.5	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55073

Sample ID: <b>24061067-003BMDS</b>	SampType: <b>MSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136387</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>55073</b>	TestNo: <b>SW7470A</b>	Analysis Date: <b>7/5/2024</b>	SeqNo: <b>3417812</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0106	0.000200	0.01000	0.0001019	105	75	125	0.009950	5.93	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55079

Sample ID: <b>MB-55079</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410154</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	< 10.0	10.0									

Sample ID: <b>LCS-55079</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410155</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	48.6	10.0	50.00	0	97.2	80	120				

Sample ID: <b>LCSD-55079</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410156</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	45.5	10.0	50.00	0	90.9	80	120	48.62	6.73	20	

Sample ID: <b>24061067-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>CD-17A2</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410160</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	137	10.0	50.00	133.4	7.17	75	125				S

**NOTES:**  
 S/R - Poor spike recoveries and high RPD due to sample matrix. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55079

Sample ID: <b>24061067-002BMMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136100</b>						
Client ID: <b>CD-17A2</b>	Batch ID: <b>55079</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410161</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	188	10.0	50.00	133.4	109	75	125	137.0	31.3	20	R

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55080

Sample ID: <b>MB-55080</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411563</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS-55080</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411564</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.476	0.00500	0.500	0	95.2	80	120				

Sample ID: <b>LCSD-55080</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411565</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.477	0.00500	0.500	0	95.3	80	120	0.476	0.121	20	

Sample ID: <b>24061067-002BMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>CD-17A2</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411568</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.386	0.0125	0.500	0.00666	75.8	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55080

Sample ID: <b>24061067-002BM</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136138</b>						
Client ID: <b>CD-17A2</b>	Batch ID: <b>55080</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411569</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.499	0.0125	0.500	0.00666	98.4	75	125	0.386	25.6	20	R

**NOTES:**

R - MS/MSD RPD above the control limit. Recovery of the analyte was within the acceptance limits in both MS/MSD. The method is in control as indicated by the LCS/LCSD.

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55085

Sample ID: <b>ics-d55085</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410866</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.98	0.136	1.788	0	111	70	130				
Surr: 4-Terphenyl-d14	0.0728		0.05959		122	51.4	146				

Sample ID: <b>icsd-d55085</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410867</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	2.07	0.133	1.759	0	118	70	130	1.983	4.51	14.1	
Surr: 4-Terphenyl-d14	0.0707		0.05863		121	51.4	146		0	40	

Sample ID: <b>LCSD-M55085</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410868</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.24	0.134	1.768	0	127	70	130	2.162	3.61	23.2	
Surr: 4-Terphenyl-d14	0.0752		0.05892		128	51.4	146		0	40	

Sample ID: <b>ics-m55085</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410869</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.16	0.135	1.779	0	122	70	130				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
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W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55085

Sample ID: <b>ics-m55085</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410869</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.0734		0.05929		124	51.4	146				

Sample ID: <b>mb-55085</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>6/24/2024</b>	RunNo: <b>136119</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55085</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410870</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.136	0.136									
TPH (Oil Range)	< 0.136	0.136									
Surr: 4-Terphenyl-d14	0.0593		0.05991		99.1	51.4	146				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>MB-55147</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413389</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55147</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413390</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.485	0.0100	0.5000	0	97.0	80	120				
Cadmium	0.475	0.00500	0.5000	0	95.0	80	120				
Calcium	49.4	0.500	50.00	0	98.7	80	120				
Chromium	0.476	0.0100	0.5000	0	95.2	80	120				
Iron	0.489	0.0100	0.5000	0	97.8	80	120				
Lead	0.466	0.0100	0.5000	0	93.2	80	120				
Magnesium	49.2	0.500	50.00	0	98.3	80	120				
Manganese	0.481	0.0100	0.5000	0	96.3	80	120				
Potassium	49.1	5.00	50.00	0	98.2	80	120				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>LCS-55147</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413390</b>	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Strontium	0.491	0.0100	0.5000	0	98.1	80	120				
Zinc	0.464	0.0100	0.5000	0	92.8	80	120				

Sample ID: <b>LCSD-55147</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413393</b>	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.484	0.0100	0.5000	0	96.8	80	120	0.4851	0.235	20	
Cadmium	0.471	0.00500	0.5000	0	94.3	80	120	0.4749	0.721	20	
Calcium	48.8	0.500	50.00	0	97.7	80	120	49.37	1.09	20	
Chromium	0.475	0.0100	0.5000	0	95.0	80	120	0.4760	0.189	20	
Iron	0.488	0.0100	0.5000	0	97.6	80	120	0.4891	0.256	20	
Lead	0.466	0.0100	0.5000	0	93.2	80	120	0.4660	0.0386	20	
Magnesium	48.6	0.500	50.00	0	97.2	80	120	49.16	1.10	20	
Manganese	0.481	0.0100	0.5000	0	96.1	80	120	0.4813	0.164	20	
Potassium	48.7	5.00	50.00	0	97.4	80	120	49.11	0.801	20	
Strontium	0.492	0.0100	0.5000	0	98.5	80	120	0.4905	0.362	20	
Zinc	0.463	0.0100	0.5000	0	92.5	80	120	0.4641	0.324	20	

Sample ID: <b>24061218-022CMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413395</b>	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>24061218-022CMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413395</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.07	0.0100	0.5000	0.6198	90.6	75	125				
Cadmium	0.474	0.00500	0.5000	0	94.8	75	125				
Calcium	175	0.500	50.00	127.5	94.8	75	125				
Chromium	0.471	0.0100	0.5000	0.007270	92.7	75	125				
Iron	6.93	0.0100	0.5000	6.445	97.6	75	125				
Lead	0.458	0.0100	0.5000	0	91.5	75	125				
Magnesium	92.8	0.500	50.00	44.59	96.4	75	125				
Manganese	1.24	0.0100	0.5000	0.7908	89.6	75	125				
Potassium	54.4	5.00	50.00	3.098	103	75	125				
Strontium	1.01	0.0100	0.5000	0.5252	96.2	75	125				
Zinc	0.479	0.0100	0.5000	0.01764	92.3	75	125				

**NOTES:**

S/R - Poor spike recoveries and high RPD due to sample matrix. The method is in control as indicated by the LCS/LCSD.

Sample ID: <b>24061218-022CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413396</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	1.07	0.0100	0.5000	0.6198	89.6	75	125	1.073	0.432	20	
Cadmium	0.465	0.00500	0.5000	0	93.0	75	125	0.4741	1.96	20	
Calcium	175	0.500	50.00	127.5	94.6	75	125	174.9	0.0676	20	
Chromium	0.509	0.0100	0.5000	0.007270	100	75	125	0.4706	7.84	20	
Iron	7.37	0.0100	0.5000	6.445	184	75	125	6.933	6.06	20	S
Lead	0.445	0.0100	0.5000	0	89.0	75	125	0.4576	2.85	20	
Magnesium	92.5	0.500	50.00	44.59	95.9	75	125	92.79	0.262	20	
Manganese	1.24	0.0100	0.5000	0.7908	89.8	75	125	1.239	0.0476	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** 55147

Sample ID: <b>24061218-022CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>6/27/2024</b>	RunNo: <b>136208</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55147</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3413396</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	54.1	5.00	50.00	3.098	102	75	125	54.37	0.545	20	
Strontium	0.998	0.0100	0.5000	0.5252	94.6	75	125	1.006	0.776	20	
Zinc	0.819	0.0100	0.5000	0.01764	160	75	125	0.4790	52.3	20	RS

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136026

Sample ID: <b>MB-R136026</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136026</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136026</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/22/2024</b>	SeqNo: <b>3408488</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0									

Sample ID: <b>LCS-R136026</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136026</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136026</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/22/2024</b>	SeqNo: <b>3408489</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	998	10.0	1,000	0	99.8	85	115				

Sample ID: <b>LCSD-R136026</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136026</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136026</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/22/2024</b>	SeqNo: <b>3408490</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	996	10.0	1,000	0	99.6	85	115	998.0	0.201	10	

Sample ID: <b>24061021-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136026</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136026</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/22/2024</b>	SeqNo: <b>3408499</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	183	10.0						181.0	1.10	10	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136026

Sample ID: <b>24061021-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136026</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R136026</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>6/22/2024</b>	SeqNo: <b>3408499</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136075

Sample ID: <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136075</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136075</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409244</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0512	0.00500	0.05000	0	102	72.6	120				
Ethylbenzene	0.0506	0.00500	0.05000	0	101	71.8	120				
Toluene	0.0515	0.0100	0.05000	0	103	72.8	120				
Xylenes, Total	0.154	0.0500	0.1500	0	103	73.4	120				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0514		0.05000		103	76	116				

Sample ID: <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136075</b>						
Client ID: <b>LCS02</b>	Batch ID: <b>R136075</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409326</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0501	0.00500	0.05000	0	100	72.6	120	0.05120	2.17	20	
Ethylbenzene	0.0493	0.00500	0.05000	0	98.6	71.8	120	0.05060	2.60	20	
Toluene	0.0501	0.0100	0.05000	0	100	72.8	120	0.05150	2.76	20	
Xylenes, Total	0.148	0.0500	0.1500	0	98.8	73.4	120	0.1542	3.97	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0505		0.05000		101	76	116		0	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136075</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136075</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409574</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136075

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136075</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136075</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409574</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0495		0.05000		99.0	70	130				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136080

Sample ID: <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136080</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136080</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409398</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.0	0.150	12.50	0	104	80	130				

Sample ID: <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136080</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136080</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409571</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	12.9	0.150	12.50	0	103	80	130	13.02	0.999	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136080</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136080</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3409573</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0511		0.05000		102	70	130				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136111

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136111</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136111</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410357</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	< 0.100	0.100									
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136111</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136111</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410358</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	3.80	0.100	4.000	0	95.0	80	120				
Chloride	9.48	0.250	10.00	0	94.8	80	120				
Sulfate	9.44	0.250	10.00	0	94.4	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136111</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136111</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410359</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	3.74	0.100	4.000	0	93.5	80	120	3.801	1.63	15	
Chloride	9.48	0.250	10.00	0	94.8	80	120	9.477	0.00760	15	
Sulfate	9.43	0.250	10.00	0	94.3	80	120	9.437	0.0593	15	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136111

Sample ID: <b>24061067-003ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136111</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>R136111</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410367</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	39.7	2.00	40.00	0	99.2	80	120				
Chloride	344	5.00	100.0	277.7	66.0	80	120				S
Sulfate	96.9	5.00	100.0	0.4914	96.4	80	120				

Sample ID: <b>24061067-003amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136111</b>						
Client ID: <b>CD-17B</b>	Batch ID: <b>R136111</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/25/2024</b>	SeqNo: <b>3410368</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	40.8	2.00	40.00	0	102	80	120	39.68	2.69	15	
Chloride	355	5.00	100.0	277.7	77.1	80	120	343.7	3.20	15	S
Sulfate	99.8	5.00	100.0	0.4914	99.3	80	120	96.89	2.99	15	

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136131

Sample ID: <b>24061067-004ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>136131</b>						
Client ID: <b>CD-17 (60-62)</b>	Batch ID: <b>R136131</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3411212</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	25.7	1.00						25.00	2.76	20	

Sample ID: <b>24061076-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>136131</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R136131</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/21/2024</b>	SeqNo: <b>3411216</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	74.6	1.00						76.20	2.12	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136141

Sample ID: <b>MB-R136141</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>136141</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R136141</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411677</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	< 0.10	0.10									

Sample ID: <b>LCS1-R136141</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>136141</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136141</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411678</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.47	0.10	0.50	0	93.9	90	110				

Sample ID: <b>LCS2-R136141</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>136141</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136141</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411679</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	53.6	0.10	53.00	0	101	90	110				

Sample ID: <b>24061094-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>136141</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136141</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>6/26/2024</b>	SeqNo: <b>3411683</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Electrical Conductivity	0.33	0.10						0.33	0.30	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136171

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>136171</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R136171</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412173</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>lcs</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>136171</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R136171</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412174</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.44	0.250	10.00	0	94.4	80	120				

Sample ID: <b>lcsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>136171</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136171</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412175</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.32	0.250	10.00	0	93.2	80	120	9.443	1.33	15	

Sample ID: <b>24060444-004ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>136171</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R136171</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412184</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	58.6	2.41	48.20	11.75	97.2	80	120				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136171

Sample ID: <b>24060444-004amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>136171</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R136171</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>6/27/2024</b>	SeqNo: <b>3412185</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	57.3	2.41	48.20	11.75	94.6	80	120	58.58	2.12	15	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136215

Sample ID: <b>MB-R136215</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136215</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136215</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/28/2024</b>	SeqNo: <b>3414148</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID: <b>LCS-R136215</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136215</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136215</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/28/2024</b>	SeqNo: <b>3414148</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	45.5	20.0	50.00	0	91.0	80	120				

Sample ID: <b>24061151-001DDUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>136215</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136215</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>6/28/2024</b>	SeqNo: <b>3414159</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Bicarbonate (As CaCO3)	512	20.0						507.5	0.980	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	512	20.0						507.5	0.980	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136312

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136312</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R136312</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>7/2/2024</b>	SeqNo: <b>3416093</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>lcs</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136312</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R136312</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>7/2/2024</b>	SeqNo: <b>3416094</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.9	0.250	10.00	0	109	80	120				

Sample ID: <b>lcsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136312</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R136312</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>7/2/2024</b>	SeqNo: <b>3416095</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.9	0.250	10.00	0	109	80	120	10.90	0.322	15	

Sample ID: <b>24061095-037ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136312</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R136312</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>7/2/2024</b>	SeqNo: <b>3416097</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3,750	50.0	1,000	2,953	79.9	80	120				S

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24061067  
 10-Jul-24

**Client:** ICON Environmental Services  
**Project:** Castex Development 9403-016-0100

**BatchID:** R136312

Sample ID: <b>24061095-037amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>136312</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R136312</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>7/2/2024</b>	SeqNo: <b>3416098</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3,750	50.0	1,000	2,953	79.3	80	120	3,752	0.151	15	S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24061067**

RcptNo: **1**

Logged by:	<b>Martin Lee</b>	<b>6/21/2024 9:34:00 AM</b>	
Completed By:	<b>Lindsay Roussel</b>	<b>7/10/2024 1:30:41 PM</b>	
Reviewed By:	<b>Lindsay Roussel</b>	<b>7/10/2024 1:30:44 PM</b>	

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

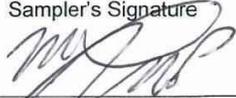
**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.0	Good				

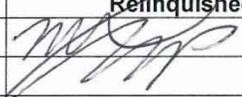
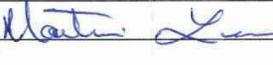


# Chain of Custody

Laboratory Number: 24061067

Company Name:	Icon Enviromental	Billing Information:	Same	PO Number:	Project Name/Number:	Page of
Contact Name:	Jason Sills			Quote Number:	Castex Development 9403-016-0100	<b>Matrix Code</b>
Address:	2049 Commerical Dr.			Required QC Level	 Sampler's Signature	DW = Drinking Water VW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
City, State Zip:	Port Allen, La 70707			Bill Monthly		Shipping Method:
Phone Number:	225-344-8490 Ext:		Ext:	<input type="checkbox"/> Yes	UPS / FedEx / Airborne	
Fax Number:				<input type="checkbox"/> No	DHL / Element <u>Hand</u> / Mail	
E-mail Address:						

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests							Comments			
			Quantity	Type P=Plastic, G=Glass, V=Vial		TDS	Cations/Anions	Chlorides	BTEX/TPH_G	TPH-DO	Total Metals/Hg	Dissolved Metals				
<input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	<input type="checkbox"/> Standard <input checked="" type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other				HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>									Metals: As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg  Cations: Na, Ca, K, Mg  Anions: Alk Carbonate Alk Bicarbonate Sulfate		
Sample ID/Description		Collection Information		Matrix	Quantity	Type	Pres.	TDS	Cations/Anions	Chlorides	BTEX/TPH_G	TPH-DO	Total Metals/Hg	Dissolved Metals		
Date	Time	Grab / Composite	Matrix													
CD-17A1	6-19-24	0800	G	AQ	8	P/V	HCL/HNO3	X	X	X	X	X	X	X		
CD-17A2	6-18-24	1540	G	AQ	8	PIG		X	X	X	X	X	X	X		
CD-17B	6-19-24	0940	G	AQ	8	PIG		X	X	X	X	X	X	X		

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1		6/21/24 0934		6/21/24 0934	
2					Received at lab on ice? <u>IRD</u>
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>5.0</u>

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

9301 Innovation Drive, Suite 115    629 Washington St. Suite 300    2121 East Washington Boulevard    560 South Zimmer Road    3371 Cleveland Road, Suite 100A    2417 W. Pinhook Rd  
 Daleville, IN    Columbus, IN    Fort Wayne, IN    Warsaw, IN    South Bend, IN    Lafayette, LA  
 47334-0569 USA    47201-6231 USA    46803-1328 USA    46580-2368 USA    46628-9780 USA    70508-3344 USA  
 P 765-378-4103    P 812-375-0531    P 260-471-7000    P 574-267-3305    P 574-277-0707    P 337-235-0483  
 F 765-378-4109    F 812-375-0731    F 260-471-7777    F 574-269-6569    F 574-273-5699    F 337-233-6540  
 Castex-ICON Report-001095





Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

July 09, 2024

Mr. Jason Sills  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex / 9403-016-0100  
Pace Project No.: 30694724

Dear Mr. Sills:

Enclosed are the analytical results for sample(s) received by the laboratory on June 24, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carla Cmar  
carla.cmar@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Mr. Greg Miller, ICON Environmental Services  
Mr. Derek Pourciau, ICON Environmental Services



### REPORT OF LABORATORY ANALYSIS

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Castex-ICON Report-001097

**BP/Castex-Ltd Adm-Apx I-001098**



## CERTIFICATIONS

Project: Castex / 9403-016-0100  
Pace Project No.: 30694724

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### Pace Analytical Services Pennsylvania

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
ANABISO/IEC 17025:2017 Rad Cert#: L24170  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 2950  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA010  
Louisiana DEQ/TNI Certification #: 04086  
Maine Certification #: 2023021  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572023-03  
New Hampshire/TNI Certification #: 297622  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-015  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: TN02867  
Texas/TNI Certification #: T104704188-22-18  
Utah/TNI Certification #: PA014572223-14  
USDA Soil Permit #: 525-23-67-77263  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 460198  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad

---

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30694724001	CD16 A1	Water	06/13/24 11:50	06/24/24 13:45
30694724002	CD16 A2	Water	06/13/24 14:00	06/24/24 13:45
30694724003	CD16 B	Water	06/13/24 15:50	06/24/24 13:45
30694724004	CD17 B	Water	06/19/24 09:40	06/24/24 13:45
30694724005	CD17 A2	Water	06/18/24 15:40	06/24/24 13:45

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30694724001	CD16 A1	EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
30694724002	CD16 A2	EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
30694724003	CD16 B	EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
30694724004	CD17 B	EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA
30694724005	CD17 A2	EPA 903.1	LL1	1	PASI-PA
		EPA 904.0	ZPC	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** ICON Environmental Services

**Date:** July 09, 2024

**General Information:**

5 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** ICON Environmental Services

**Date:** July 09, 2024

**General Information:**

5 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

**Sample: CD16 A1** Lab ID: 30694724001 Collected: 06/13/24 11:50 Received: 06/24/24 13:45 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.501 ± 0.454 (0.669)</b> C:NA T:92%	pCi/L	07/05/24 14:45	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.503 ± 0.351 (0.676)</b> C:85% T:87%	pCi/L	07/08/24 15:09	15262-20-1	

**Sample: CD16 A2** Lab ID: 30694724002 Collected: 06/13/24 14:00 Received: 06/24/24 13:45 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.579 ± 0.537 (0.816)</b> C:NA T:91%	pCi/L	07/05/24 14:45	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.261 ± 0.388 (0.837)</b> C:84% T:88%	pCi/L	07/08/24 15:10	15262-20-1	

**Sample: CD16 B** Lab ID: 30694724003 Collected: 06/13/24 15:50 Received: 06/24/24 13:45 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • Roughly 375 ml present if 003, BP1N 2/2.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.54 ± 0.914 (1.28)</b> C:NA T:96%	pCi/L	07/05/24 14:45	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.17 ± 0.548 (0.933)</b> C:81% T:75%	pCi/L	07/08/24 15:10	15262-20-1	

**Sample: CD17 B** Lab ID: 30694724004 Collected: 06/19/24 09:40 Received: 06/24/24 13:45 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.34 ± 0.864 (1.21)</b> C:NA T:95%	pCi/L	07/05/24 14:45	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.08 ± 0.499 (0.866)</b> C:85% T:84%	pCi/L	07/08/24 15:10	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

Sample: **CD17 A2** Lab ID: **30694724005** Collected: 06/18/24 15:40 Received: 06/24/24 13:45 Matrix: Water  
PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
	Pace Analytical Services - Greensburg					
Radium-226	EPA 903.1	<b>-0.115 ± 0.320 (0.757)</b> <b>C:NA T:95%</b>	pCi/L	07/05/24 14:45	13982-63-3	
	Pace Analytical Services - Greensburg					
Radium-228	EPA 904.0	<b>0.603 ± 0.414 (0.814)</b> <b>C:79% T:92%</b>	pCi/L	07/08/24 11:46	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

---

QC Batch:	678396	Analysis Method:	EPA 903.1
QC Batch Method:	EPA 903.1	Analysis Description:	903.1 Radium-226
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30694724001, 30694724002, 30694724003, 30694724004, 30694724005

---

METHOD BLANK: 3303056 Matrix: Water

Associated Lab Samples: 30694724001, 30694724002, 30694724003, 30694724004, 30694724005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.220 ± 0.311 (0.528) C:NA T:96%	pCi/L	07/05/24 14:45	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

---

QC Batch:	678398	Analysis Method:	EPA 904.0
QC Batch Method:	EPA 904.0	Analysis Description:	904.0 Radium 228
		Laboratory:	Pace Analytical Services - Greensburg

Associated Lab Samples: 30694724001, 30694724002, 30694724003, 30694724004, 30694724005

---

METHOD BLANK: 3303057 Matrix: Water

Associated Lab Samples: 30694724001, 30694724002, 30694724003, 30694724004, 30694724005

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.381 ± 0.362 (0.735) C:78% T:78%	pCi/L	07/08/24 15:09	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castex / 9403-016-0100  
Pace Project No.: 30694724

---

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate  
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.  
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.  
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. Is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Castex / 9403-016-0100

Pace Project No.: 30694724

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30694724001	CD16 A1	EPA 903.1	678396		
30694724002	CD16 A2	EPA 903.1	678396		
30694724003	CD16 B	EPA 903.1	678396		
30694724004	CD17 B	EPA 903.1	678396		
30694724005	CD17 A2	EPA 903.1	678396		
30694724001	CD16 A1	EPA 904.0	678398		
30694724002	CD16 A2	EPA 904.0	678398		
30694724003	CD16 B	EPA 904.0	678398		
30694724004	CD17 B	EPA 904.0	678398		
30694724005	CD17 A2	EPA 904.0	678398		

### REPORT OF LABORATORY ANALYSIS

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# Chain of Custody Record

WO#: 30694724

ment Testing  
rica

TAL-8210



30694724

Address:

Regulatory Program:  DW  NPDES  RCRA  Other:

Client Contact  
 Company Name: clean  
 Address: 2049 Commercial Drive  
 City/State/Zip: Port Allen, LA  
 Phone: 225-344-8470  
 Fax: \_\_\_\_\_  
 Project Name: CASTEX  
 Site: 0403-016-0100  
 P O #: \_\_\_\_\_

Site Contact:  
 Project Manager: Jane Sellers  
 Tell/Email: 225-344-8470  
 Lab Contact: \_\_\_\_\_  
 Carrier: \_\_\_\_\_

Analysis Turnaround Time  
 CALENDAR DAYS  WORKING DAYS  
 TAT if different from Below  
 2 weeks  
 1 week  
 2 days  
 1 day

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=Grab)	Matrix	# of Cont.	Filtered Sample (Y/N)	Perform MS/MSD (Y/N)	Sample Specific Notes:
CD16 A1	6-13-24	1150	G	GW	2	X	X	04
CD16 A2	6-13-24	1400	G	GW	2	X	X	062
CD16 B	6-13-24	1580	G	GW	2	X	X	063
CD-17 B	6-14-24	0940	G	GW	2	X	X	004
CD-17 A2	6-18-24	1540	G	GW	2	X	X	005

Preservation Used: 1= Ice, 2= HCl, 3= H2SO4, 4=HNO3, 5=NaOH, 6= Other: \_\_\_\_\_  
 Possible Hazard Identification: \_\_\_\_\_  
 Are any samples from a listed EPA Hazardous Waste? Please List any EPA Waste Codes for the sample in the Comments Section if the lab is to dispose of the sample.  
 Non-Hazard  Flammable  Skin Irritant  Poison B  Unknown  
 Return to Client  Disposal by Lab  Archive for: \_\_\_\_\_ Months

Special Instructions/QC Requirements & Comments:

Relinquished by: \_\_\_\_\_  
 Relinquished by: clean  
 Relinquished by: \_\_\_\_\_  
 Relinquished by: \_\_\_\_\_

Received by: Jane Sellers  
 Received by: \_\_\_\_\_  
 Received in Laboratory by: \_\_\_\_\_

Company: clean  
 Company: PLCS  
 Company: \_\_\_\_\_  
 Company: \_\_\_\_\_

Date/Time: 6-20-24/1030  
 Date/Time: 6-24-24 13:45  
 Date/Time: \_\_\_\_\_  
 Date/Time: \_\_\_\_\_

Custody Seal No.: \_\_\_\_\_  
 Cooler Temp. (°C): Obs'd: \_\_\_\_\_  
 Therm ID No.: \_\_\_\_\_



DC#\_Title: ENV-FRM-GBUR-0088 v07\_Sam  
Greensburg  
Effective Date: 01/04/2024

WO#: 30694724

PM: CMC Due Date: 07/16/24  
CLIENT: ICON

Client Name: Icon Environmental

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other  
Tracking Number: 7769 6506 4728

Initial/Date  
Examined By: LB 6/24/24  
Labeled By: LB 6/24/24  
Temped By:

Custody Seal on Cooler/Box Present:  Yes  No Seals Intact:  Yes  No  
Thermometer Used: Type of Ice: Wet Blue (None)  
Cooler Temperature: Observed Temp: °C Correction Factor: °C Final Temp: °C  
Temp should be above freezing to 6°C

Comments:	Yes	No	NA	pH paper Lot#	D.P.D. Residual Chlorine Lot #
Chain of Custody Present	X			W02431	
Chain of Custody Filled Out:	X				
-Were client corrections present on GOC		X			
Chain of Custody Relinquished	X				
Sampler Name & Signature on COC:		X			
Sample Labels match COC:	X				
-Includes date/time/ID					
Matrix:					
Samples Arrived within Hold Time:	X				
Short Hold Time Analysis (<72hr remaining):		X			
Rush Turn Around Time Requested:		X			
Sufficient Volume:		X			
Correct Containers Used:	X				
-Pace Containers Used	X				
Containers Intact:	X				
Orthophosphate field filtered:			X		
Hex Cr Aqueous samples field filtered:			X		
Organic Samples checked for dichlorination			X		
Filtered volume received for dissolved tests:			X		
All containers checked for preservation:	X				
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix					
All containers meet method preservation requirements:	X			Initial when completed LB	Date/Time of Preservation
				Lot# of added Preservative	
8260C/D: Headspace in VOA Vials (> 6mm)			X		
624.1: Headspace in VOA Vials (0mm)			X		
Radon: Headspace in RAD Vials (0mm)			X		
Trip Blank Present:			X		Trip blank custody seal present? YES or NO
Rad Samples Screened <.05 mrem/hr.	X			Initial when completed LB	Date: 6/24/24 Survey Meter SN: 25014350
Comments:					

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office. PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen. Qualtrax ID: 55680

Client

Site Castex 9403-016-0100

Profile/EZ Login Number 2335

Page 1 of 1

Notes

Sample Line Item	Matrix	Amber Glass					Plastic					Vials					Other														
		AG1H	AG3S	AG3U	AG5U	AG5T	BP1N	BP1U	BP2S	BP2U	BP3B	BP3N	BP3S	BP3U	DG9S	VG9H	VG9T	VG9U	VOAK	WG9U	WG9V	WG9W	WG9X	ZPLC	GCUB	GJN	12GN	AG1U	BG1U	BP2N	
001	WT																														
002																															
003																															
004																															
005																															

Container Codes

**Glass**

AG1U	1 Gallon Jug with HNO3	DG9S	40mL amber VOA vial H2SO4
AG5U	100mL amber glass unpreserved	VG9U	40mL clear VOA vial
AG5T	100mL amber glass Na Thiosulfate	VG9T	40mL clear VOA vial Na Thiosulfate
GJN	1 Gallon Jug	VG9H	40mL clear VOA vial HCl
AG1S	1L amber glass H2SO4	JGFU	4oz amber wide jar
AG1H	1L amber glass HCl	WGFU	4oz wide jar unpreserved
AG1T	1L amber glass NA Thiosulfate	BG2U	500mL clear glass unpreserved
BG1U	1L clear glass unpreserved	AG2U	500mL amber glass unpreserved
AG3S	250mL amber glass H2SO4	WGKU	8oz wide jar unpreserved
AG3U	250mL amber glass unpreserved	GN	

**WO#: 30694724**

PM: CMC Due Date: 07/16/24  
 CLIENT: ICON

Qualtrax ID: 55678

**Plastic/Misc.**

GCUB	1 gallon cubitainer	EZI	5g Encore
12GN	1/2 gallon cubitainer	VOAK	Kit Volatile Solid
SP5T	120mL collform Na Thiosulfate	I	Wipe/Swab
BP1N	1L plastic HNO3	ZPLC	Siploc Bag
BP1U	1L plastic unpreserved	WT	Water
BP3S	250mL plastic H2SO4	SL	Solid
BP3N	250mL plastic HNO3	OL	Non-Aq Liquid
BP3U	250mL plastic unpreserved	WP	Wipe
BP3B	250mL plastic NAOH		
BP2S	500mL plastic H2SO4		
BP2U	500mL plastic unpreserved		



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August 28, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex/9403-016-0100

Order No.: 24071270

Dear Greg Miller:

Element Materials Technology Lafayette received 6 sample(s) on 7/26/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads "Buffy Bryant".

Buffy Bryant  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 24071270

Date: 8/28/2024

---

**CLIENT:** ICON Environmental Services

**Project:** Castex/9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:15:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-001

**Matrix:** SOIL

**Client Sample ID** CD-18 (0-4)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	33.3	0.100		meq/100g	1	8/9/2024
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>IO</b>
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.53	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	16.5	0.10	*	%	1	8/14/2024
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>IO</b>
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	6.45	0.10			1	8/2/2024
Soluble Calcium	0.51	0.02		meq/L	1	8/2/2024
Soluble Magnesium	0.42	0.05		meq/L	1	8/2/2024
Soluble Sodium	4.40	0.25		meq/L	1	8/2/2024
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.103	0.103		mg/Kg-dry	1	7/31/2024 12:04:28 PM
					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>SAR</b>
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	75.3	1.80		mg/Kg-dry	10	8/1/2024 2:50:34 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	5.09	1.98		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Barium	479	0.988		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Cadmium	< 0.494	0.494		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Chromium	14.1	0.988		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Lead	11.2	0.988		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Strontium	43.4	0.988		mg/Kg-dry	1	8/1/2024 5:34:00 PM
Zinc	39.9	0.988		mg/Kg-dry	1	8/1/2024 5:34:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:15:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-001

**Matrix:** SOIL

**Client Sample ID** CD-18 (0-4)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	4.24	1.64		mg/Kg	1	8/1/2024 5:34:00 PM
Barium	399	1.64		mg/Kg	1	8/1/2024 5:34:00 PM
Cadmium	< 0.411	0.411		mg/Kg	1	8/1/2024 5:34:00 PM
Chromium	11.7	0.822		mg/Kg	1	8/1/2024 5:34:00 PM
Lead	9.32	0.822		mg/Kg	1	8/1/2024 5:34:00 PM
Strontium	36.1	0.822		mg/Kg	1	8/1/2024 5:34:00 PM
Zinc	33.2	0.822		mg/Kg	1	8/1/2024 5:34:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	868	48.8		mg/Kg-dry	1	8/1/2024 6:03:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	16.1	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:25:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-002

**Matrix:** SOIL

**Client Sample ID** CD-18 (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	28.6	0.100		meq/100g	1	8/9/2024
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	0.44	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	3.37	0.10		%	1	8/14/2024
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	1.87	0.10			1	8/2/2024
Soluble Calcium	2.05	0.02		meq/L	1	8/2/2024
Soluble Magnesium	0.74	0.05		meq/L	1	8/2/2024
Soluble Sodium	2.21	0.25		meq/L	1	8/2/2024
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.107	0.107		mg/Kg-dry	1	7/31/2024 12:08:09 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	16.5	1.37		mg/Kg-dry	10	8/1/2024 3:04:21 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	3.91	1.95		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Barium	845	0.976		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Cadmium	< 0.488	0.488		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Chromium	13.1	0.976		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Lead	10.7	0.976		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Strontium	74.7	0.976		mg/Kg-dry	1	8/1/2024 5:26:00 PM
Zinc	29.2	0.976		mg/Kg-dry	1	8/1/2024 5:26:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:25:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-002

**Matrix:** SOIL

**Client Sample ID** CD-18 (6-8)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	3.20	1.60		mg/Kg	1	8/1/2024 5:26:00 PM
Barium	693	1.60		mg/Kg	1	8/1/2024 5:26:00 PM
Cadmium	< 0.400	0.400		mg/Kg	1	8/1/2024 5:26:00 PM
Chromium	10.7	0.800		mg/Kg	1	8/1/2024 5:26:00 PM
Lead	8.73	0.800		mg/Kg	1	8/1/2024 5:26:00 PM
Strontium	61.3	0.800		mg/Kg	1	8/1/2024 5:26:00 PM
Zinc	23.9	0.800		mg/Kg	1	8/1/2024 5:26:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	1,580	48.7		mg/Kg-dry	1	8/1/2024 5:49:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	18.0	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



Element Materials Technology Lafayette  
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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:35:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-003

**Matrix:** SOIL

**Client Sample ID** CD-18 (10-12)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>						
Cation Exchange Capacity	39.5	0.100		meq/100g	1	8/9/2024
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
Electrical Conductivity	1.21	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>						
Exchangeable Sodium %	13.4	0.10		%	1	8/14/2024
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>						
Sodium Adsorption Ratio	7.34	0.10			1	8/2/2024
Soluble Calcium	1.67	0.02		meq/L	1	8/2/2024
Soluble Magnesium	1.29	0.05		meq/L	1	8/2/2024
Soluble Sodium	8.93	0.25		meq/L	1	8/2/2024
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>						
Mercury	< 0.0988	0.0988		mg/Kg-dry	1	7/31/2024 11:37:26 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
Chloride	233	4.38		mg/Kg-dry	20	8/1/2024 3:18:09 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						
Arsenic	9.85	1.98		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Barium	475	0.990		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Cadmium	< 0.495	0.495		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Chromium	17.8	0.990		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Lead	15.6	0.990		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Strontium	57.1	0.990		mg/Kg-dry	1	8/1/2024 5:37:00 PM
Zinc	55.4	0.990		mg/Kg-dry	1	8/1/2024 5:37:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/23/2024 8:35:00 AM

**Project:** Castex/9403-016-0100

**Lab ID:** 24071270-003

**Matrix:** SOIL

**Client Sample ID** CD-18 (10-12)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	8.01	1.61		mg/Kg	1	8/1/2024 5:37:00 PM
Barium	386	1.61		mg/Kg	1	8/1/2024 5:37:00 PM
Cadmium	< 0.402	0.402		mg/Kg	1	8/1/2024 5:37:00 PM
Chromium	14.5	0.805		mg/Kg	1	8/1/2024 5:37:00 PM
Lead	12.7	0.805		mg/Kg	1	8/1/2024 5:37:00 PM
Strontium	46.4	0.805		mg/Kg	1	8/1/2024 5:37:00 PM
Zinc	45.0	0.805		mg/Kg	1	8/1/2024 5:37:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	809	48.2		mg/Kg-dry	1	8/1/2024 6:06:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	18.7	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/23/2024 8:45:00 AM  
**Project:** Castex/9403-016-0100  
**Lab ID:** 24071270-004 **Matrix:** SOIL  
**Client Sample ID** CD-18 (14-16)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.50	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	32.9	1.25		mg/L	5	8/7/2024 5:36:36 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	79.3	2.00		mg/Kg-dry	10	8/1/2024 3:31:57 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	22.7	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/23/2024 9:10:00 AM  
**Project:** Castex/9403-016-0100  
**Lab ID:** 24071270-005 **Matrix:** SOIL  
**Client Sample ID** CD-18 (26-28)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.66	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	49.0	1.66		mg/Kg-dry	10	8/1/2024 3:45:44 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	21.1	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24071270

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/23/2024 10:25:00 AM  
**Project:** Castex/9403-016-0100  
**Lab ID:** 24071270-006 **Matrix:** SOIL  
**Client Sample ID** CD-18 (56-58)

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.52	0.10		mmhos/cm	1	7/31/2024 2:33:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	16.1	1.25		mg/L	5	8/7/2024 5:50:23 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	27.7	0.850		mg/Kg-dry	10	8/1/2024 3:59:31 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	21.7	1.00		wt%	1	7/26/2024 2:29:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55725

Sample ID: <b>24071252-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>7/31/2024</b>	RunNo: <b>138858</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55725</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3463279</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	7.20	0.10						7.85	8.64	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55726

Sample ID: <b>24071252-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55726</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3467602</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	21.7	0.100						20.51	5.61	20	

Sample ID: <b>LCS-55726</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55726</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3469067</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.23	0.100	4.350	0	97.2	76	124				

Sample ID: <b>LCS-55726</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55726</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3469068</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.13	0.100	4.350	0	95.0	76	124	4.227	2.30	20	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55728

Sample ID: <b>MB-55728</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137353</b>
Client ID: <b>PBS</b>	Batch ID: <b>55728</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446196</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	< 0.100	0.100			

Sample ID: <b>LCS-55728</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137353</b>
Client ID: <b>LCSS</b>	Batch ID: <b>55728</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446197</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.819	0.100	0.8330	0	98.4 80 120

Sample ID: <b>LCSD-55728</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137353</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>55728</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446198</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.825	0.100	0.8330	0	99.0 80 120 0.8195 0.650 20

Sample ID: <b>24071270-003AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137353</b>
Client ID: <b>CD-18 (10-12)</b>	Batch ID: <b>55728</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446201</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC LowLimit HighLimit RPD Ref Val %RPD RPDLimit Qual
Mercury	0.881	0.103	0.8607	0.02634	99.3 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55728

Sample ID: <b>24071270-003AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>7/31/2024</b>	RunNo: <b>137353</b>						
Client ID: <b>CD-18 (10-12)</b>	Batch ID: <b>55728</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446202</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.846	0.0998	0.8312	0.02634	98.6	75	125	0.8812	4.09	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55741

Sample ID: <b>MB-55741</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137438</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55741</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448778</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-55741</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137438</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55741</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448779</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.7	2.00	50.00	0	97.5	80	120				
Barium	51.2	1.00	50.00	0	102	80	120				
Cadmium	48.4	0.500	50.00	0	96.7	80	120				
Chromium	51.6	1.00	50.00	0	103	80	120				
Lead	50.2	1.00	50.00	0	100	80	120				
Strontium	50.7	1.00	50.00	0	101	80	120				
Zinc	47.5	1.00	50.00	0	94.9	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55741

Sample ID: <b>LCSD-55741</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137438</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55741</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448782</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	2.00	50.00	0	98.3	80	120	48.74	0.783	20	
Barium	51.0	1.00	50.00	0	102	80	120	51.23	0.519	20	
Cadmium	47.7	0.500	50.00	0	95.3	80	120	48.37	1.46	20	
Chromium	51.4	1.00	50.00	0	103	80	120	51.58	0.348	20	
Lead	50.0	1.00	50.00	0	100	80	120	50.20	0.431	20	
Strontium	50.6	1.00	50.00	0	101	80	120	50.66	0.174	20	
Zinc	47.3	1.00	50.00	0	94.7	80	120	47.47	0.312	20	

Sample ID: <b>24071270-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137438</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55741</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448786</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	35.1	1.83	45.67	3.906	68.4	75	125				S
Barium	715	0.913	45.67	845.5	-285	75	125				S
Cadmium	32.5	0.457	45.67	0.2176	70.6	75	125				S
Chromium	46.2	0.913	45.67	13.07	72.5	75	125				S
Lead	42.1	0.913	45.67	10.65	68.9	75	125				S
Strontium	97.8	0.913	45.67	74.72	50.6	75	125				S
Zinc	59.9	0.913	45.67	29.18	67.3	75	125				S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55741

Sample ID: <b>24071270-002AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137438</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55741</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448787</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	41.6	1.98	49.55	3.906	76.1	75	125	35.14	16.9	20	
Barium	860	0.991	49.55	845.5	29.4	75	125	715.1	18.4	20	S
Cadmium	38.5	0.496	49.55	0.2176	77.3	75	125	32.48	17.0	20	
Chromium	54.0	0.991	49.55	13.07	82.7	75	125	46.19	15.7	20	
Lead	49.4	0.991	49.55	10.65	78.3	75	125	42.14	15.9	20	
Strontium	114	0.991	49.55	74.72	78.6	75	125	97.82	15.0	20	
Zinc	69.2	0.991	49.55	29.18	80.8	75	125	59.93	14.4	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55742

Sample ID: <b>MB-55742</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137498</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55742</b>	TestNo: <b>SW6010B SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3450617</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 2.00	2.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-55742</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137498</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55742</b>	TestNo: <b>SW6010B SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3450618</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	48.7	2.00	50.00	0	97.5	80	120				
Barium	51.2	2.00	50.00	0	102	80	120				
Cadmium	48.4	0.500	50.00	0	96.7	80	120				
Chromium	51.6	1.00	50.00	0	103	80	120				
Lead	50.2	1.00	50.00	0	100	80	120				
Strontium	50.7	1.00	50.00	0	101	80	120				
Zinc	47.5	1.00	50.00	0	94.9	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55742

Sample ID: <b>LCSD-55742</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137498</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55742</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3450621</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	49.1	2.00	50.00	0	98.3	80	120	48.74	0.783	20	
Barium	51.0	2.00	50.00	0	102	80	120	51.23	0.519	20	
Cadmium	47.7	0.500	50.00	0	95.3	80	120	48.37	1.46	20	
Chromium	51.4	1.00	50.00	0	103	80	120	51.58	0.348	20	
Lead	50.0	1.00	50.00	0	100	80	120	50.20	0.431	20	
Strontium	50.6	1.00	50.00	0	101	80	120	50.66	0.174	20	
Zinc	47.3	1.00	50.00	0	94.7	80	120	47.47	0.312	20	

Sample ID: <b>24071270-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137498</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55742</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3450623</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	28.8	1.50	37.45	3.203	68.4	75	125				S
Barium	586	1.50	37.45	693.3	-285	75	125				S
Cadmium	26.6	0.375	37.45	0.1784	70.6	75	125				S
Chromium	37.9	0.749	37.45	10.72	72.5	75	125				S
Lead	34.6	0.749	37.45	8.735	68.9	75	125				S
Strontium	80.2	0.749	37.45	61.27	50.6	75	125				S
Zinc	49.1	0.749	37.45	23.92	67.3	75	125				S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
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U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55742

Sample ID: <b>24071270-002AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137498</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55742</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3450624</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	34.1	1.63	40.63	3.203	76.1	75	125	28.82	16.9	20	
Barium	705	1.63	40.63	693.3	29.4	75	125	586.4	18.4	20	S
Cadmium	31.6	0.406	40.63	0.1784	77.3	75	125	26.64	17.0	20	
Chromium	44.3	0.813	40.63	10.72	82.7	75	125	37.87	15.7	20	
Lead	40.5	0.813	40.63	8.735	78.3	75	125	34.56	15.9	20	
Strontium	93.2	0.813	40.63	61.27	78.6	75	125	80.21	15.0	20	
Zinc	56.8	0.813	40.63	23.92	80.8	75	125	49.14	14.4	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** 55743

Sample ID: <b>MB-55743</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137439</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55743</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448824</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50.0 50.0

Sample ID: <b>LCS-55743</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137439</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55743</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448825</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,240 50.0 5,000 0 105 75 125

Sample ID: <b>LCSD-55743</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137439</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55743</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448826</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 5,230 50.0 5,000 0 105 75 125 5,240 0.203 20

Sample ID: <b>24071270-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137439</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55743</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448830</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 6,290 48.8 4,878 1,584 96.4 75 125

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55743

Sample ID: <b>24071270-002AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/1/2024</b>	RunNo: <b>137439</b>						
Client ID: <b>CD-18 (6-8)</b>	Batch ID: <b>55743</b>	TestNo: <b>LDNR 29-B</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448831</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	6,610	49.3	4,926	1,584	102	75	125	6,286	5.06	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** 55770

Sample ID: <b>24071252-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>8/1/2024</b>	RunNo: <b>137494</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55770</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3450355</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	6.31	0.10						6.60	4.49	20	
Soluble Calcium	7.13	0.02						7.60	6.38	20	
Soluble Magnesium	3.62	0.05						3.85	6.16	20	
Soluble Sodium	14.6	0.25						15.79	7.63	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** R137306

Sample ID: <b>24071270-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>137306</b>						
Client ID: <b>CD-18 (0-4)</b>	Batch ID: <b>R137306</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/26/2024</b>	SeqNo: <b>3444436</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	16.8	1.00						16.10	4.26	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** R137363

Sample ID: <b>MB-R137363</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137363</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137363</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446557</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity < 0.10 0.10

Sample ID: <b>LCS1-R137363</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137363</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137363</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446558</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 0.48 0.10 0.50 0 95.4 90 110

Sample ID: <b>LCS2-R137363</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137363</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137363</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446559</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 51.1 0.10 53.00 0 96.4 90 110

Sample ID: <b>24071252-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137363</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137363</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>7/31/2024</b>	SeqNo: <b>3446569</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity 2.35 0.10 2.34 0.81 20

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** R137430

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137430</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137430</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448585</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride < 0.250 0.250

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137430</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R137430</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448586</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.2 0.250 10.00 0 102 80 120

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137430</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137430</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448587</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 10.1 0.250 10.00 0 101 80 120 10.18 0.461 15

Sample ID: <b>24071418-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137430</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137430</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448590</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride 39.1 1.25 25.00 13.49 102 80 120

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** R137430

Sample ID: <b>24071418-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137430</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137430</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>8/1/2024</b>	SeqNo: <b>3448591</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	38.2	1.25	25.00	13.49	98.8	80	120	39.07	2.29	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex/9403-016-0100

**BatchID:** R137559

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137559</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137559</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451916</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137559</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137559</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451917</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.90	0.250	10.00	0	99.0	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137559</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137559</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451918</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120	9.897	2.32	15	

Sample ID: <b>24071008-026ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137559</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137559</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451925</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,220	12.5	250.0	1,039	73.3	80	120				S

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24071270  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex/9403-016-0100

**BatchID:** R137559

Sample ID: <b>24071008-026amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137559</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137559</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451926</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,230	12.5	250.0	1,039	76.6	80	120	1,222	0.673	15	S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24071270**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>7/26/2024 12:05:00 PM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>7/26/2024 12:47:43 PM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Buffy Bryant</b>	<b>8/28/2024 9:16:10 AM</b>	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
Not required  
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
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# Chain of Custody

Laboratory Number: **24071270**

<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page <b>1</b> of <b>1</b>
Company Name: <b>ICON Env.</b>		Billing Information: <b>SAME</b>		Quote Number:	<b>Castex</b>	<b>Matrix Code</b>
Contact Name:				Required QC Level:	<b>9403-016-0100</b>	DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
Address:				Bill Monthly	Sampler's Signature: <i>Matthew Miller</i>	
City, State Zip:				<input type="checkbox"/> Yes <input type="checkbox"/> No	Shipping Method:	
Phone Number:		Ext:			UPS / FedEx / NOW	
Fax Number:					DHL / Element / Hand / Mail	
E-mail Address:						

Which Regulations Apply:		Turn Time		(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests						Comments
<input type="checkbox"/> RCRA	<input type="checkbox"/> Drinking Water	<input type="checkbox"/> Standard RUSH	<input type="checkbox"/> 1 Day		Quantity	Type P=Plastic, G=Glass, V=Vial		HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	ELC	% moisture	Soluble Cl <sup>-</sup>	CEC/ESP/SAR	29 B metals	
<input type="checkbox"/> POTW	<input type="checkbox"/> Distribution	<input type="checkbox"/> 2 Day	<input type="checkbox"/> Other											As, Ba, TTBa, Cd, Cr, Pb, Sr, Zn, Hg
<input type="checkbox"/> NPDES	<input type="checkbox"/> Special													
<input type="checkbox"/> USDA/FDA	<input type="checkbox"/> State													
<input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Other													
Sample ID/Description	Date	Time	Grab / Composite	Matrix										
CD-18 0-4	7.23.24	0815	G	So	1	P	-	X	X	X	X	X		
CD-18 6-8	7.23.24	0825	G	So	1	P	-	X	X	X	X	X		
CD-18 10-12	7.23.24	0835	G	So	1	P	-	X	X	X	X	X		
CD-18 14-16	7.23.24	0845	G	So	1	P	-	X	X	X		X		
CD-18 26-28	7.23.24	0910	G	So	1	P	-	X	X	X				
CD-18 56-58	7.23.24	1025	G	So	1	P	-	X	X	X		X		

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>Matthew Miller</i>	7.26.24/1205	<i>Martin Liu</i>	7/26/24 12:05	<i>JS 7/26/24</i>
2					Received at lab on ice?
3					<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Temp:

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
Columbus, IN  
47201 USA  
P 812-375-0531  
F 812-375-0731

328 Ley Road, Suite 100  
Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-269-6569

3371 Cleveland Road, Suite 100A  
Columbus, IN  
46628 USA  
P 574-277-0707  
F 574-273-5699

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70508 USA  
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Castex-ICON Report-001143



Element Materials Technology Lafayette  
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September 13, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex 9403-016-0100

Order No.: 24080171

Dear Greg Miller:

Element Materials Technology Lafayette received 11 sample(s) on 8/2/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads 'Buffy Bryant'.

Buffy Bryant  
Customer Service Supervisor



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## Case Narrative

WO#: 24080171

Date: 9/13/2024

---

**CLIENT:** ICON Environmental Services

**Project:** Castex 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Note: The chloride leachate value for client ID: CD-19 (0-4')(Element ID: 24080171-001) could not be reported. The volume submitted for testing did not allow for confirmatory reanalysis.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/29/2024 11:25:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-001

**Matrix:** SOIL

**Client Sample ID** CD-19 (0-4')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Cation Exchange Capacity	32.2	0.100		meq/100g	1	8/9/2024	
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.49	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Exchangeable Sodium %	3.43	0.10		%	1	8/9/2024	
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Sodium Adsorption Ratio	5.46	0.10			1	8/12/2024	
Soluble Calcium	0.68	0.02		meq/L	1	8/12/2024	
Soluble Magnesium	0.44	0.05		meq/L	1	8/12/2024	
Soluble Sodium	4.09	0.25		meq/L	1	8/12/2024	
<b>29B METALS</b>							
<b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b>	Analyst: <b>SAR</b>
Mercury	< 0.0993	0.0993		mg/Kg-dry	1	8/9/2024 1:20:25 PM	
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>							
					<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	42.2	1.33		mg/Kg-dry	10	8/12/2024 2:48:32 PM	
<b>29B METALS</b>							
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b>	Analyst: <b>IO</b>
Arsenic	4.74	1.83		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Barium	212	0.916		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Cadmium	< 0.458	0.458		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Chromium	11.6	0.916		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Lead	14.7	0.916		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Strontium	13.1	0.916		mg/Kg-dry	1	8/9/2024 8:28:00 PM	
Zinc	63.8	0.916		mg/Kg-dry	1	8/9/2024 8:28:00 PM	

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
SDL	Sample detection limit
W	Sample container temperature is out of limit as specified at testcode

E	Value above quantitation range
M	Matrix Interference
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/29/2024 11:25:00 AM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-001 **Matrix:** SOIL  
**Client Sample ID** CD-19 (0-4')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	3.82	1.47		mg/Kg	1	8/9/2024 8:28:00 PM
Barium	171	1.47		mg/Kg	1	8/9/2024 8:28:00 PM
Cadmium	< 0.369	0.369		mg/Kg	1	8/9/2024 8:28:00 PM
Chromium	9.33	0.737		mg/Kg	1	8/9/2024 8:28:00 PM
Lead	11.8	0.737		mg/Kg	1	8/9/2024 8:28:00 PM
Strontium	10.5	0.737		mg/Kg	1	8/9/2024 8:28:00 PM
Zinc	51.3	0.737		mg/Kg	1	8/9/2024 8:28:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	243	47.8		mg/Kg-dry	1	8/9/2024 10:11:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	19.5	1.00		wt%	1	8/5/2024 2:40:00 PM

<b>Qualifiers:</b>	*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/29/2024 11:35:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-002

**Matrix:** SOIL

**Client Sample ID** CD-19 (6-8')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>							
Cation Exchange Capacity	39.2	0.100		meq/100g	1	8/9/2024	
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>							
Electrical Conductivity	0.33	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM	
					<b>LDNR 29-B</b>	Analyst: <b>BB</b>	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>							
Exchangeable Sodium %	14.5	0.10		%	1	8/9/2024	
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>							
Sodium Adsorption Ratio	4.29	0.10			1	8/12/2024	
Soluble Calcium	0.43	0.02		meq/L	1	8/12/2024	
Soluble Magnesium	0.55	0.05		meq/L	1	8/12/2024	
Soluble Sodium	2.99	0.25		meq/L	1	8/12/2024	
<b>29B METALS</b>							
<b>MERCURY IN SOIL OR SLUDGE</b>							
Mercury	< 0.101	0.101		mg/Kg-dry	1	8/9/2024 1:01:04 PM	
					<b>29B/SW7471A</b>	<b>SW7471A</b>	Analyst: <b>SAR</b>
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>							
					<b>SW9056A</b>	Analyst: <b>BXB</b>	
Chloride	59.7	1.07		mg/Kg-dry	5	8/12/2024 3:02:20 PM	
<b>29B METALS</b>							
<b>METALS IN SOIL OR SLUDGE BY ICP</b>							
Arsenic	3.77	1.97		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Barium	298	0.986		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Cadmium	< 0.493	0.493		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Chromium	14.4	0.986		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Lead	14.2	0.986		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Strontium	29.2	0.986		mg/Kg-dry	1	8/9/2024 8:42:00 PM	
Zinc	33.7	0.986		mg/Kg-dry	1	8/9/2024 8:42:00 PM	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/29/2024 11:35:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-002

**Matrix:** SOIL

**Client Sample ID** CD-19 (6-8')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	3.21	1.68		mg/Kg	1	8/9/2024 8:42:00 PM
Barium	254	1.68		mg/Kg	1	8/9/2024 8:42:00 PM
Cadmium	< 0.421	0.421		mg/Kg	1	8/9/2024 8:42:00 PM
Chromium	12.3	0.841		mg/Kg	1	8/9/2024 8:42:00 PM
Lead	12.1	0.841		mg/Kg	1	8/9/2024 8:42:00 PM
Strontium	24.9	0.841		mg/Kg	1	8/9/2024 8:42:00 PM
Zinc	28.8	0.841		mg/Kg	1	8/9/2024 8:42:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	377	48.0		mg/Kg-dry	1	8/9/2024 10:14:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	16.9	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/29/2024 11:40:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-003

**Matrix:** SOIL

**Client Sample ID** CD-19 (8-10')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>							
Cation Exchange Capacity	30.6	0.100		meq/100g	1	8/9/2024	
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>							
Electrical Conductivity	0.52	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM	
					<b>LDNR 29-B</b>	Analyst: <b>BB</b>	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>							
Exchangeable Sodium %	11.2	0.10		%	1	8/9/2024	
					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>							
Sodium Adsorption Ratio	5.94	0.10			1	8/30/2024	
Soluble Calcium	0.67	0.02		meq/L	1	8/30/2024	
Soluble Magnesium	0.56	0.05		meq/L	1	8/30/2024	
Soluble Sodium	4.64	0.25		meq/L	1	8/30/2024	
<b>29B METALS</b>							
<b>MERCURY IN SOIL OR SLUDGE</b>							
Mercury	< 0.102	0.102		mg/Kg-dry	1	8/9/2024 1:24:07 PM	
					<b>29B/SW7471A</b>	<b>SW7471A</b>	Analyst: <b>SAR</b>
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>							
					<b>SW9056A</b>	Analyst: <b>BXB</b>	
Chloride	41.5	1.23		mg/Kg-dry	10	8/12/2024 3:43:42 PM	
<b>29B METALS</b>							
<b>METALS IN SOIL OR SLUDGE BY ICP</b>							
Arsenic	< 1.97	1.97		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Barium	203	0.986		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Cadmium	< 0.493	0.493		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Chromium	11.7	0.986		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Lead	7.46	0.986		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Strontium	26.5	0.986		mg/Kg-dry	1	8/9/2024 8:45:00 PM	
Zinc	29.9	0.986		mg/Kg-dry	1	8/9/2024 8:45:00 PM	

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/29/2024 11:40:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-003

**Matrix:** SOIL

**Client Sample ID** CD-19 (8-10')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: <b>IO</b>
Arsenic	< 1.64	1.64		mg/Kg	1	8/9/2024 8:45:00 PM
Barium	169	1.64		mg/Kg	1	8/9/2024 8:45:00 PM
Cadmium	< 0.410	0.410		mg/Kg	1	8/9/2024 8:45:00 PM
Chromium	9.72	0.821		mg/Kg	1	8/9/2024 8:45:00 PM
Lead	6.21	0.821		mg/Kg	1	8/9/2024 8:45:00 PM
Strontium	22.1	0.821		mg/Kg	1	8/9/2024 8:45:00 PM
Zinc	24.8	0.821		mg/Kg	1	8/9/2024 8:45:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: <b>IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	192	47.9		mg/Kg-dry	1	8/9/2024 10:17:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	16.8	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/29/2024 12:15:00 PM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-004 **Matrix:** SOIL  
**Client Sample ID** CD-19 (22-24')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	1.13	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	186	2.89		mg/Kg-dry	20	8/12/2024 3:57:29 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	20.1	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/29/2024 12:35:00 PM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-005 **Matrix:** SOIL  
**Client Sample ID** CD-19 (30-32')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>						
					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	0.84	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	49.2	1.25		mg/L	5	8/15/2024 10:17:48 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	115	2.44		mg/Kg-dry	20	8/12/2024 4:11:16 PM
<b>PERCENT MOISTURE</b>						
					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	23.7	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/29/2024 1:15:00 PM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-006 **Matrix:** SOIL  
**Client Sample ID** CD-19 (46-48')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	0.49	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	25.5	1.25		mg/L	5	8/15/2024 10:59:10 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	28.9	0.980		mg/Kg-dry	10	8/12/2024 4:25:03 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	30.2	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/29/2024 2:05:00 PM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-007 **Matrix:** SOIL  
**Client Sample ID** CD-19 (66-68')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>				<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	0.66	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>				<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	30.6	1.57		mg/Kg-dry	10	8/12/2024 4:38:51 PM
<b>PERCENT MOISTURE</b>				<b>LDNR 29-B</b>		Analyst: <b>HXW</b>
Percent Moisture	27.4	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/30/2024 8:00:00 AM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080171-008 **Matrix:** SOIL  
**Client Sample ID** CD-19 (78-80')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	0.47	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>INORGANIC ANIONS IN LEACHATE BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	6.63	1.25		mg/L	5	8/15/2024 11:12:57 AM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	15.2	1.46		mg/Kg-dry	10	8/12/2024 4:52:38 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: <b>HXW</b>
Percent Moisture	24.0	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:10:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-009

**Matrix:** SOIL

**Client Sample ID** HA-10 (0-2')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B SALTS</b>						
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>IO</b>
Cation Exchange Capacity	37.4	0.100		meq/100g	1	8/9/2024
<b>29B SALTS</b>						
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>	Analyst: <b>BB</b>
Electrical Conductivity	0.51	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM
<b>29B SALTS</b>						
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>IO</b>
Exchangeable Sodium %	7.26	0.10		%	1	8/9/2024
<b>29B SALTS</b>						
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b> Analyst: <b>IO</b>
Sodium Adsorption Ratio	7.47	0.10			1	8/30/2024
Soluble Calcium	0.51	0.02		meq/L	1	8/30/2024
Soluble Magnesium	0.39	0.05		meq/L	1	8/30/2024
Soluble Sodium	5.01	0.25		meq/L	1	8/30/2024
<b>TPH-D/O IN SOIL BY SW8015</b>						
<b>TPH DRO/ORO IN SOIL BY SW8015C</b>					<b>SW8015C</b>	<b>SW3546</b> Analyst: <b>BXW</b>
TPH (Diesel Range)	< 20.0	20.0		mg/Kg	1	8/14/2024 5:38:00 PM
TPH (Oil Range)	< 20.0	20.0		mg/Kg	1	8/14/2024 5:38:00 PM
Surr: 4-Terphenyl-d14	36.8	33 - 152		%Rec	1	8/14/2024 5:38:00 PM
<b>29B METALS</b>						
<b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b> Analyst: <b>SAR</b>
Mercury	< 0.0979	0.0979		mg/Kg-dry	1	8/9/2024 1:35:29 PM
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>						
					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	75.4	1.68		mg/Kg-dry	10	8/12/2024 5:06:25 PM
<b>29B METALS</b>						
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b> Analyst: <b>IO</b>

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
SDL	Sample detection limit
W	Sample container temperature is out of limit as specified at testcode

E	Value above quantitation range
M	Matrix Interference
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:10:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-009

**Matrix:** SOIL

**Client Sample ID** HA-10 (0-2')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	3.67	1.97		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Barium	1,050	0.984		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Cadmium	< 0.492	0.492		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Chromium	13.9	0.984		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Lead	11.2	0.984		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Strontium	31.4	0.984		mg/Kg-dry	1	8/9/2024 8:48:00 PM
Zinc	19.6	0.984		mg/Kg-dry	1	8/9/2024 8:48:00 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	3.03	1.63		mg/Kg	1	8/9/2024 8:48:00 PM
Barium	866	1.63		mg/Kg	1	8/9/2024 8:48:00 PM
Cadmium	< 0.406	0.406		mg/Kg	1	8/9/2024 8:48:00 PM
Chromium	11.5	0.813		mg/Kg	1	8/9/2024 8:48:00 PM
Lead	9.26	0.813		mg/Kg	1	8/9/2024 8:48:00 PM
Strontium	25.9	0.813		mg/Kg	1	8/9/2024 8:48:00 PM
Zinc	16.2	0.813		mg/Kg	1	8/9/2024 8:48:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: IO
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	1,760	48.4		mg/Kg-dry	1	8/9/2024 10:26:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: HXW
Percent Moisture	17.4	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



Element Materials Technology Lafayette  
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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:15:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-010

**Matrix:** SOIL

**Client Sample ID** HA-10 (2-4')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Cation Exchange Capacity	25.8	0.100		meq/100g	1	8/9/2024	
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	1.36	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Exchangeable Sodium %	23.9	0.10	*	%	1	8/9/2024	
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Sodium Adsorption Ratio	15.2	0.10	*		1	8/30/2024	
Soluble Calcium	0.75	0.02		meq/L	1	8/30/2024	
Soluble Magnesium	0.89	0.05		meq/L	1	8/30/2024	
Soluble Sodium	13.7	0.25		meq/L	1	8/30/2024	
<b>TPH-D/O IN SOIL BY SW8015</b>							
<b>TPH DRO/ORO IN SOIL BY SW8015C</b>					<b>SW8015C</b>	<b>SW3546</b>	Analyst: <b>BXW</b>
TPH (Diesel Range)	< 20.0	20.0		mg/Kg	1	8/14/2024 1:58:00 PM	
TPH (Oil Range)	< 20.0	20.0		mg/Kg	1	8/14/2024 1:58:00 PM	
Surr: 4-Terphenyl-d14	53.9	33 - 152		%Rec	1	8/14/2024 1:58:00 PM	
<b>29B METALS</b>							
<b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b>	Analyst: <b>SAR</b>
Mercury	< 0.107	0.107		mg/Kg-dry	1	8/9/2024 1:39:10 PM	
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>							
					<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	256	3.78		mg/Kg-dry	20	8/12/2024 5:20:12 PM	
<b>29B METALS</b>							
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b>	Analyst: <b>IO</b>

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits
SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode		



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:15:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-010

**Matrix:** SOIL

**Client Sample ID** HA-10 (2-4')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						<b>Analyst: IO</b>
Arsenic	3.52	1.95		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Barium	248	0.976		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Cadmium	< 0.488	0.488		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Chromium	12.7	0.976		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Lead	10.5	0.976		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Strontium	21.8	0.976		mg/Kg-dry	1	8/9/2024 8:51:00 PM
Zinc	20.9	0.976		mg/Kg-dry	1	8/9/2024 8:51:00 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						<b>Analyst: IO</b>
Arsenic	2.97	1.65		mg/Kg	1	8/9/2024 8:51:00 PM
Barium	209	1.65		mg/Kg	1	8/9/2024 8:51:00 PM
Cadmium	< 0.411	0.411		mg/Kg	1	8/9/2024 8:51:00 PM
Chromium	10.7	0.823		mg/Kg	1	8/9/2024 8:51:00 PM
Lead	8.87	0.823		mg/Kg	1	8/9/2024 8:51:00 PM
Strontium	18.3	0.823		mg/Kg	1	8/9/2024 8:51:00 PM
Zinc	17.6	0.823		mg/Kg	1	8/9/2024 8:51:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	<b>Analyst: IO</b>
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	421	47.2		mg/Kg-dry	1	8/9/2024 10:28:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	<b>Analyst: HXW</b>
Percent Moisture	15.7	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- |   |   |
|---|---|
| * Value exceeds Maximum Contaminant Level.                              | E Value above quantitation range                  |
| H Holding times for preparation or analysis exceeded                    | M Matrix Interference                             |
| ND Not Detected at the Reporting Limit                                  | R RPD outside accepted recovery limits            |
| RL Reporting Limit  | S Spike Recovery outside accepted recovery limits |
| SDL Sample detection limit  | U Analyte not detected                            |
| W Sample container temperature is out of limit as specified at testcode |   |



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:20:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-011

**Matrix:** SOIL

**Client Sample ID** HA-10 (4-6')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	
<b>29B SALTS</b>							
<b>CATION EXCHANGE CAPACITY</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Cation Exchange Capacity	30.1	0.100		meq/100g	1	8/9/2024	
<b>29B SALTS</b>							
<b>ELECTRICAL CONDUCTIVITY @ SATURATION</b>					<b>LDNR 29-B</b>		Analyst: <b>BB</b>
Electrical Conductivity	1.08	0.10		mmhos/cm	1	8/9/2024 2:08:00 PM	
<b>29B SALTS</b>							
<b>EXCHANGEABLE SODIUM PERCENTAGE</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Exchangeable Sodium %	23.4	0.10	*	%	1	8/9/2024	
<b>29B SALTS</b>							
<b>SODIUM ADSORPTION RATIO</b>					<b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analyst: <b>IO</b>
Sodium Adsorption Ratio	12.0	0.10			1	8/30/2024	
Soluble Calcium	0.69	0.02		meq/L	1	8/30/2024	
Soluble Magnesium	0.64	0.05		meq/L	1	8/30/2024	
Soluble Sodium	9.77	0.25		meq/L	1	8/30/2024	
<b>TPH-D/O IN SOIL BY SW8015</b>							
<b>TPH DRO/ORO IN SOIL BY SW8015C</b>					<b>SW8015C</b>	<b>SW3546</b>	Analyst: <b>BXW</b>
TPH (Diesel Range)	< 19.9	19.9		mg/Kg	1	8/14/2024 2:53:00 PM	
TPH (Oil Range)	< 19.9	19.9		mg/Kg	1	8/14/2024 2:53:00 PM	
Surr: 4-Terphenyl-d14	80.8	33 - 152		%Rec	1	8/14/2024 2:53:00 PM	
<b>29B METALS</b>							
<b>MERCURY IN SOIL OR SLUDGE</b>					<b>29B/SW7471A</b>	<b>SW7471A</b>	Analyst: <b>SAR</b>
Mercury	< 0.0952	0.0952		mg/Kg-dry	1	8/9/2024 1:42:51 PM	
<b>SOLUBLE INORGANIC ANIONS IN SOIL BY IC</b>							
					<b>SW9056A</b>		Analyst: <b>BXB</b>
Chloride	251	4.03		mg/Kg-dry	20	8/12/2024 5:33:59 PM	
<b>29B METALS</b>							
<b>METALS IN SOIL OR SLUDGE BY ICP</b>					<b>SW6010B</b>	<b>SW3050B</b>	Analyst: <b>IO</b>

**Qualifiers:**

*	Value exceeds Maximum Contaminant Level.
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
SDL	Sample detection limit
W	Sample container temperature is out of limit as specified at testcode

E	Value above quantitation range
M	Matrix Interference
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte not detected



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# Analytical Report

(consolidated)

WO#: 24080171

Date Reported 9/13/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/2/2024 8:20:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080171-011

**Matrix:** SOIL

**Client Sample ID** HA-10 (4-6')

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	2.94	1.95		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Barium	268	0.977		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Cadmium	< 0.488	0.488		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Chromium	12.5	0.977		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Lead	10.7	0.977		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Strontium	21.9	0.977		mg/Kg-dry	1	8/9/2024 8:54:00 PM
Zinc	20.5	0.977		mg/Kg-dry	1	8/9/2024 8:54:00 PM
<b>29B METALS</b>					<b>SW6010B</b>	<b>SW3050B</b>
<b>METALS IN SOIL OR SLUDGE BY ICP</b>						Analyst: IO
Arsenic	2.53	1.68		mg/Kg	1	8/9/2024 8:54:00 PM
Barium	230	1.68		mg/Kg	1	8/9/2024 8:54:00 PM
Cadmium	< 0.420	0.420		mg/Kg	1	8/9/2024 8:54:00 PM
Chromium	10.7	0.839		mg/Kg	1	8/9/2024 8:54:00 PM
Lead	9.17	0.839		mg/Kg	1	8/9/2024 8:54:00 PM
Strontium	18.8	0.839		mg/Kg	1	8/9/2024 8:54:00 PM
Zinc	17.6	0.839		mg/Kg	1	8/9/2024 8:54:00 PM
<b>29B METALS</b>					<b>LDNR 29-B</b>	Analyst: IO
<b>TRUE TOTAL BARIUM</b>						
True Total Barium	351	47.9		mg/Kg-dry	1	8/9/2024 10:31:00 PM
<b>PERCENT MOISTURE</b>					<b>LDNR 29-B</b>	Analyst: HXW
Percent Moisture	14.1	1.00		wt%	1	8/5/2024 2:40:00 PM

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Limit
- SDL Sample detection limit
- W Sample container temperature is out of limit as specified at testcode

- E Value above quantitation range
- M Matrix Interference
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- U Analyte not detected



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55876

Sample ID: <b>24080171-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ESP_S</b>	Units: %	Prep Date: <b>8/8/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>CD-19 (6-8')</b>	Batch ID: <b>55876</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3460167</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Exchangeable Sodium %	14.0	0.10						14.48	3.51	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55877

Sample ID: <b>24080171-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>CD-19 (6-8')</b>	Batch ID: <b>55877</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3458407</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	42.9	0.100						39.15	9.23	20	

Sample ID: <b>LCS-55877</b>	SampType: <b>LCS</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55877</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3458412</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	3.92	0.100	4.350	0	90.1	76	124				

Sample ID: <b>LCSD-55877</b>	SampType: <b>LCSD</b>	TestCode: <b>CEC</b>	Units: <b>meq/100g</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137731</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55877</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3458413</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cation Exchange Capacity	4.30	0.100	4.350	0	98.9	76	124	3.920	9.25	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55878

Sample ID: <b>MB-55878</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137723</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55878</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457939</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 1.00	1.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-55878</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137723</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55878</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457940</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.8	2.00	50.00	0	87.6	80	120				
Barium	46.1	1.00	50.00	0	92.2	80	120				
Cadmium	44.1	0.500	50.00	0	88.2	80	120				
Chromium	46.2	1.00	50.00	0	92.4	80	120				
Lead	45.6	1.00	50.00	0	91.2	80	120				
Strontium	44.9	1.00	50.00	0	89.9	80	120				
Zinc	43.5	1.00	50.00	0	86.9	80	120				

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55878

Sample ID: <b>LCSD-55878</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137723</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55878</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457941</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.7	2.00	50.00	0	89.4	80	120	43.80	2.01	20	
Barium	46.8	1.00	50.00	0	93.6	80	120	46.09	1.57	20	
Cadmium	44.8	0.500	50.00	0	89.7	80	120	44.08	1.70	20	
Chromium	47.1	1.00	50.00	0	94.1	80	120	46.18	1.91	20	
Lead	46.4	1.00	50.00	0	92.8	80	120	45.62	1.64	20	
Strontium	46.0	1.00	50.00	0	92.0	80	120	44.94	2.30	20	
Zinc	44.3	1.00	50.00	0	88.6	80	120	43.46	1.89	20	

Sample ID: <b>24080171-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137723</b>						
Client ID: <b>CD-19 (0-4')</b>	Batch ID: <b>55878</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457945</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	41.1	1.97	49.35	4.741	73.7	75	125				S
Barium	250	0.987	49.35	212.4	77.1	75	125				
Cadmium	37.5	0.494	49.35	0.1768	75.7	75	125				
Chromium	53.6	0.987	49.35	11.59	85.1	75	125				
Lead	51.5	0.987	49.35	14.67	74.6	75	125				S
Strontium	52.5	0.987	49.35	13.05	79.9	75	125				
Zinc	104	0.987	49.35	63.78	81.8	75	125				

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



Element Materials Technology Lafayette  
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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55878

Sample ID: <b>24080171-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137723</b>						
Client ID: <b>CD-19 (0-4')</b>	Batch ID: <b>55878</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457946</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	41.1	1.94	48.49	4.741	75.0	75	125	41.12	0.0593	20	S
Barium	261	0.970	48.49	212.4	101	75	125	250.4	4.18	20	
Cadmium	37.2	0.485	48.49	0.1768	76.4	75	125	37.53	0.785	20	
Chromium	52.8	0.970	48.49	11.59	85.1	75	125	53.61	1.43	20	
Lead	53.0	0.970	48.49	14.67	78.9	75	125	51.48	2.82	20	
Strontium	52.6	0.970	48.49	13.05	81.5	75	125	52.46	0.238	20	
Zinc	105	0.970	48.49	63.78	85.6	75	125	104.1	1.09	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55879

Sample ID: <b>MB-55879</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137724</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55879</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457963</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 2.00	2.00									
Barium	< 2.00	2.00									
Cadmium	< 0.500	0.500									
Chromium	< 1.00	1.00									
Lead	< 1.00	1.00									
Strontium	< 1.00	1.00									
Zinc	< 1.00	1.00									

Sample ID: <b>LCS-55879</b>	SampType: <b>LCS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137724</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55879</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457964</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	43.8	2.00	50.00	0	87.6	80	120				
Barium	46.1	2.00	50.00	0	92.2	80	120				
Cadmium	44.1	0.500	50.00	0	88.2	80	120				
Chromium	46.2	1.00	50.00	0	92.4	80	120				
Lead	45.6	1.00	50.00	0	91.2	80	120				
Strontium	44.9	1.00	50.00	0	89.9	80	120				
Zinc	43.5	1.00	50.00	0	86.9	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55879

Sample ID: <b>LCSD-55879</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137724</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55879</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457965</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	44.7	2.00	50.00	0	89.4	80	120	43.80	2.01	20	
Barium	46.8	2.00	50.00	0	93.6	80	120	46.09	1.57	20	
Cadmium	44.8	0.500	50.00	0	89.7	80	120	44.08	1.70	20	
Chromium	47.1	1.00	50.00	0	94.1	80	120	46.18	1.91	20	
Lead	46.4	1.00	50.00	0	92.8	80	120	45.62	1.64	20	
Strontium	46.0	1.00	50.00	0	92.0	80	120	44.94	2.30	20	
Zinc	44.3	1.00	50.00	0	88.6	80	120	43.46	1.89	20	

Sample ID: <b>24080171-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137724</b>						
Client ID: <b>CD-19 (0-4')</b>	Batch ID: <b>55879</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457965</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	33.1	1.59	39.73	3.816	73.7	75	125				S
Barium	202	1.59	39.73	171.0	77.1	75	125				
Cadmium	30.2	0.397	39.73	0.1423	75.7	75	125				
Chromium	43.2	0.795	39.73	9.334	85.1	75	125				
Lead	41.4	0.795	39.73	11.81	74.6	75	125				S
Strontium	42.2	0.795	39.73	10.51	79.9	75	125				
Zinc	83.8	0.795	39.73	51.34	81.8	75	125				

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55879

Sample ID: <b>24080171-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_S_WET</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>137724</b>						
Client ID: <b>CD-19 (0-4')</b>	Batch ID: <b>55879</b>	TestNo: <b>SW6010B</b>	<b>SW3050B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457970</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	33.1	1.56	39.04	3.816	75.0	75	125	33.10	0.0593	20	S
Barium	210	1.56	39.04	171.0	101	75	125	201.6	4.18	20	
Cadmium	30.0	0.390	39.04	0.1423	76.4	75	125	30.21	0.785	20	
Chromium	42.5	0.781	39.04	9.334	85.1	75	125	43.16	1.43	20	
Lead	42.6	0.781	39.04	11.81	78.9	75	125	41.44	2.82	20	
Strontium	42.3	0.781	39.04	10.51	81.5	75	125	42.23	0.238	20	
Zinc	84.8	0.781	39.04	51.34	85.6	75	125	83.84	1.09	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55882

Sample ID: <b>24080171-010bmsm</b>	SampType: <b>ms</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>HA-10 (2-4')</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462656</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	269	20.0	299.7	0	89.7	63.9	120				
Surr: 4-Terphenyl-d14	9.49		9.990		95.0	33	152				

Sample ID: <b>24080430-001bmsd</b>	SampType: <b>ms</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462659</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	235	20.0	299.4	10.37	74.9	63.4	109				
Surr: 4-Terphenyl-d14	9.39		9.980		94.0	33	152				

Sample ID: <b>24080171-010BMSD</b>	SampType: <b>msd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>HA-10 (2-4')</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462671</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	267	19.9	297.9	0	89.8	63.9	120	268.8	0.481	48.8	
Surr: 4-Terphenyl-d14	9.47		9.930		95.4	33	152		0	40	

Sample ID: <b>24080430-001BMSD</b>	SampType: <b>msd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462672</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	263	20.0	299.7	10.37	84.3	63.4	109	234.8	11.3	35.6	
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<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55882

Sample ID: <b>24080430-001BMSD</b>	SampType: <b>msd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462672</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14	8.08		9.990		80.9	33	152		0	40	
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Sample ID: <b>LCSD-D55882</b>	SampType: <b>lcsd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462673</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	171	19.9	298.8	0	57.3	63.4	109	202.3	16.7	21.9	S
Surr: 4-Terphenyl-d14	7.12		9.960		71.5	33	152		0	40	

Sample ID: <b>LCS-D55882</b>	SampType: <b>lcs</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462674</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	202	19.9	298.8	0	67.7	63.4	109				
Surr: 4-Terphenyl-d14	7.83		9.960		78.6	33	152				

Sample ID: <b>lcsd-m55882</b>	SampType: <b>lcsd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462675</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	266	19.9	298.2	0	89.1	63.9	120	189.7	33.3	20.7	R
Surr: 4-Terphenyl-d14	11.0		9.940		110	33	152		0	40	

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55882

Sample ID: <b>lcsd-m55882</b>	SampType: <b>lcsd</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462675</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>lcs-m55882</b>	SampType: <b>lcs</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462676</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	190	20.0	300.0	0	63.2	63.9	120				S
Surr: 4-Terphenyl-d14	7.83		10.00		78.3	33	152				

Sample ID: <b>mb-55882</b>	SampType: <b>mblk</b>	TestCode: <b>8015C_DO_S</b>	Units: <b>mg/Kg</b>	Prep Date: <b>8/8/2024</b>	RunNo: <b>138842</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55882</b>	TestNo: <b>SW8015C</b>	<b>SW3546</b>	Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462677</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 19.9	19.9									
TPH (Oil Range)	< 19.9	19.9									
Surr: 4-Terphenyl-d14	7.36		9.970		73.9	33	152				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55899

Sample ID: <b>MB-55899</b>	SampType: <b>MBLK</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137721</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55899</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457891</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium < 50.0 50.0

Sample ID: <b>LCS-55899</b>	SampType: <b>LCS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137721</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55899</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457892</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,770 50.0 5,000 0 95.5 75 125

Sample ID: <b>LCSD-55899</b>	SampType: <b>LCSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137721</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55899</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457897</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 4,740 50.0 5,000 0 94.9 75 125 4,774 0.635 20

Sample ID: <b>24080105-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137721</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55899</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457899</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

True Total Barium 50,600 48.9 4,892 43,950 136 75 125 S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55899

Sample ID: <b>24080105-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>TTBA</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137721</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55899</b>	TestNo: <b>LDNR 29-B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3457900</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
True Total Barium	46,700	46.7	4,669	43,950	58.1	75	125	50,610	8.11	20	S

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55901

Sample ID: <b>24080171-002AMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137695</b>						
Client ID: <b>CD-19 (6-8')</b>	Batch ID: <b>55901</b>	TestNo: <b>29B/SW7471</b>	<b>SW7471A</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456869</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.704	0.0993	0.8272	0	85.1	75	125				
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Sample ID: <b>24080171-002AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137695</b>						
Client ID: <b>CD-19 (6-8')</b>	Batch ID: <b>55901</b>	TestNo: <b>29B/SW7471</b>	<b>SW7471A</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456870</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.712	0.0963	0.8024	0	88.8	75	125	0.7037	1.20	20	
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Sample ID: <b>MB-55901</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137695</b>						
Client ID: <b>PBS</b>	Batch ID: <b>55901</b>	TestNo: <b>29B/SW7471</b>	<b>SW7471A</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456896</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	< 0.100	0.100									
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Sample ID: <b>LCS-55901</b>	SampType: <b>LCS</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137695</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>55901</b>	TestNo: <b>29B/SW7471</b>	<b>SW7471A</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456897</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Mercury	0.744	0.100	0.8330	0	89.3	80	120				
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<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
	M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
	RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55901

Sample ID: <b>LCSD-55901</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_S_29B</b>	Units: <b>mg/Kg-dry</b>	Prep Date: <b>8/9/2024</b>	RunNo: <b>137695</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55901</b>	TestNo: <b>29B/SW7471 SW7471A</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456898</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.800	0.100	0.8330	0	96.0	80	120	0.7443	7.15	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55943

Sample ID: <b>24080103-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>8/12/2024</b>	RunNo: <b>137794</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55943</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3460226</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	1.80	0.10						1.52	16.9	20	
Soluble Calcium	0.14	0.02						0.17	19.4	20	
Soluble Magnesium	0.15	0.05						0.21	33.3	20	R
Soluble Sodium	0.69	0.25						0.66	4.44	20	

**NOTES:**

R - (Mg) High RPD due to low analyte concentration. In this range, high RPD's may be expected.

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55944

Sample ID: <b>24080171-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>SAR_S</b>	Units:	Prep Date: <b>8/12/2024</b>	RunNo: <b>140353</b>						
Client ID: <b>CD-19 (8-10')</b>	Batch ID: <b>55944</b>	TestNo: <b>LDNR 29-B</b>	<b>LDNR 29-B</b>	Analysis Date: <b>8/30/2024</b>	SeqNo: <b>3476523</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium Adsorption Ratio	5.97	0.10						5.94	0.50	20	
Soluble Calcium	0.68	0.02						0.67	1.48	20	
Soluble Magnesium	0.55	0.05						0.56	1.80	20	
Soluble Sodium	4.68	0.25						4.64	0.86	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137635

Sample ID: <b>24080171-002ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>PMOIST_29B</b>	Units: <b>wt%</b>	Prep Date:	RunNo: <b>137635</b>						
Client ID: <b>CD-19 (6-8')</b>	Batch ID: <b>R137635</b>	TestNo: <b>LDNR 29-B</b>	Analysis Date: <b>8/5/2024</b>	SeqNo: <b>3455110</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	14.7	1.00						16.90	13.9	20	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137694

Sample ID: <b>MB-R137694</b>	SampType: <b>MBLK</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137694</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137694</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456902</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	< 0.10	0.10									
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Sample ID: <b>LCS1-R137694</b>	SampType: <b>LCS1</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137694</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137694</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456903</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	0.47	0.10	0.50	0	92.2	90	110				
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Sample ID: <b>LCS2-R137694</b>	SampType: <b>LCS2</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137694</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137694</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456904</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	50.4	0.10	53.00	0	95.1	90	110				
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Sample ID: <b>24080171-003ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>EC_S</b>	Units: <b>mmhos/cm</b>	Prep Date:	RunNo: <b>137694</b>						
Client ID: <b>CD-19 (8-10')</b>	Batch ID: <b>R137694</b>	TestNo: <b>LDNR 29-B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456908</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Electrical Conductivity	0.53	0.10						0.52	1.16	20	
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<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137754

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137754</b>						
Client ID: <b>PBS</b>	Batch ID: <b>R137754</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459101</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137754</b>						
Client ID: <b>LCSS</b>	Batch ID: <b>R137754</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459102</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137754</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137754</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459103</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120	10.23	1.26	15	

Sample ID: <b>24080103-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137754</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137754</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459105</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2,570	48.0	959.0	1,453	117	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137754

Sample ID: <b>24080103-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_S</b>	Units: <b>mg/Kg-dry</b>	Prep Date:	RunNo: <b>137754</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137754</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459106</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2,430	48.0	959.0	1,453	102	80	120	2,572	5.70	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R138897

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138897</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R138897</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464197</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138897</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R138897</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464198</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.2	0.250	10.00	0	102	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138897</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R138897</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464199</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.4	0.250	10.00	0	104	80	120	10.19	2.43	15	

Sample ID: <b>24080171-005ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138897</b>						
Client ID: <b>CD-19 (30-32')</b>	Batch ID: <b>R138897</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464201</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	73.8	1.25	25.00	49.23	98.1	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R138897

Sample ID: 24080171-005amsd	SampType: MSD	TestCode: 9056_LEACH	Units: mg/L	Prep Date:	RunNo: 138897						
Client ID: CD-19 (30-32')	Batch ID: R138897	TestNo: SW9056A	Analysis Date: 8/15/2024	SeqNo: 3464202							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	73.8	1.25	25.00	49.23	98.1	80	120	73.76	0.00210	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R140327

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>140327</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R140327</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/29/2024</b>	SeqNo: <b>3476000</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>140327</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R140327</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/29/2024</b>	SeqNo: <b>3476001</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.0	0.250	10.00	0	100	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>140327</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R140327</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/29/2024</b>	SeqNo: <b>3476002</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.86	0.250	10.00	0	98.6	80	120	10.04	1.86	15	

Sample ID: <b>24081413-002hms</b>	SampType: <b>MS</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>140327</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R140327</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/29/2024</b>	SeqNo: <b>3476005</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	145	5.00	100.0	50.33	94.5	80	120				

**Qualifiers:**

* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode	



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# QC SUMMARY REPORT

WO#: 24080171  
 13-Sep-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R140327

Sample ID: <b>24081413-002hmsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_LEACH</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>140327</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R140327</b>	TestNo: <b>SW9056A</b>	Analysis Date: <b>8/29/2024</b>	SeqNo: <b>3476006</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	145	5.00	100.0	50.33	95.0	80	120	144.9	0.304	15	

<b>Qualifiers:</b>	* Value exceeds Maximum Contaminant Level.	E Value above quantitation range	H Holding times for preparation or analysis exceed
M Matrix Interference	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	
RL Reporting Limit	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	
U Analyte not detected	W Sample container temperature is out of limit as specified at testcode		



## Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24080171**

RcptNo: **1**

Logged by:	<b>Martin Lee</b>	<b>8/2/2024 4:10:00 PM</b>	<i>Martin Lee</i>
Completed By:	<b>Martin Lee</b>	<b>8/2/2024 4:48:17 PM</b>	<i>Martin Lee</i>
Reviewed By:	<b>Buffy Bryant</b>	<b>8/30/2024 3:23:46 PM</b>	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Improper error correction(s) made by client

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Not Present			



# Chain of Custody

Laboratory Number: **24080171**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b>	<b>Billing Information:</b>	PO Number:	Project Name/Number:	Page 1 of 2 <b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
	ICON	SAME	Quote Number:	Castex	
			Required QC Level	9403-016-0100	
			Bill Monthly	Sampler's Signature <i>Jeffrey Miller</i>	
			<input type="checkbox"/> Yes <input type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / <u>Hand</u> / Mail	

Which Regulations Apply:		Turn Time		(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests						Comments
<input type="checkbox"/> RCRA	<input type="checkbox"/> Drinking Water	<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> RUSH		Quantity	Type	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	F.C.	% moisture	Soluble Cl <sup>-</sup>	CEC/ESP/SAC	29B metals	Leachate Cl <sup>-</sup>	
<input type="checkbox"/> POTW	<input type="checkbox"/> Distribution	<input type="checkbox"/> 1 Day	<input type="checkbox"/> 2 Day		P=Plastic, G=Glass, V=Vial									
<input type="checkbox"/> NPDES	<input type="checkbox"/> Special	<input type="checkbox"/> Other												
<input type="checkbox"/> USDA/FDA	<input type="checkbox"/> State													
<input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Other													
Sample ID/Description		Date	Time	Grab / Composite	Matrix									
CD-19	0-4	7.29.24	1125	G	SO	1	P	-	X	X	X	X	X	AB, BA, TTBA, Cd, Cr, Pb, Sr, Zn, Hg
CD-19	6-8		1135					-	X	X	X	X	X	
CD-19	8-10		1140					-	X	X	X	X	X	
CD-19	22-24		1215					-	X	X	X			
CD-19	30-32		1235					-	X	X	X	X		
CD-19	46-48		1315					-	X	X	X		X	
CD-19	66-68		1405					-	X	X	X			
<del>CD-19</del>	<del>72-74</del>	<del>7.29.24</del>	<del>1420</del>	<del>G</del>	<del>SO</del>	<del>1</del>	<del>P</del>	<del>-</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	<del>X</del>	
CD-19	78-80	7.30.24	0800	G	SO	1	P	-	X	X	X		X	

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>Jeffrey Miller</i>	8-2-24 / 1040	<i>[Signature]</i>	8-2-24 / 1040	Received at lab on ice? <input checked="" type="checkbox"/> IR 4048 <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.9°
2	<i>[Signature]</i>	8-2-24 / 1610	<i>Martin Lee</i>	8/2/24 1600	
3					

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

8800 North US 31  
Columbus, IN  
47201 USA  
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F 812-375-0731

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46825 USA  
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F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-269-6569

3371 Cleveland Road, Suite 100A  
Columbus, IN  
46628 USA  
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F 574-273-5699

2417 W. Pinhook Rd  
Lafayette, LA  
70508 USA  
P 337-235-0483  
F 337-233-6540

Castex-ICON Report-001189



element™

### Chain of Custody

Laboratory Number: 24080171

<b>Client Information:</b>		<b>Billing Information:</b>		PO Number:	Project Name/Number:	Page <u>2</u> of <u>2</u>	
Company Name:	<u>ICON</u>	<u>SAME</u>		Quote Number:	<u>Castex</u>	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid	
Contact Name:				Required QC Level	<u>9403-016-0100</u>		
Address:				Bill Monthly	Sampler's Signature: <u>[Signature]</u>		
City, State Zip:				<input type="checkbox"/> Yes <input type="checkbox"/> No	Shipping Method: UPS / FedEx / NOW DHL / Element / <u>Hand</u> / Mail		
Phone Number:	Ext:	Ext:					
Fax Number:							
E-mail Address:							

Which Regulations Apply:		Turn Time		(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests						Comments	
<input type="checkbox"/> RCRA	<input type="checkbox"/> Drinking Water	<input checked="" type="checkbox"/> Standard	<input type="checkbox"/> RUSH		Quantity	Type P=Plastic, G=Glass, V=Vial	HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>								
<input type="checkbox"/> POTW	<input type="checkbox"/> Distribution	<input type="checkbox"/> 1 Day	<input type="checkbox"/> 2 Day												
<input type="checkbox"/> NPDES	<input type="checkbox"/> Special	<input type="checkbox"/> Other													
<input type="checkbox"/> USDA/FDA	<input type="checkbox"/> State														
<input type="checkbox"/> RECAP/RISC	<input type="checkbox"/> Other														
Sample ID/Description		Collection Information			Matrix	Quantity	Type	Pres.	% Moisture	E.C.	Soluble Cl <sup>-</sup>	29B Metals	CEC/ESP/SAR	TPH DTC	
Date	Time	Grab / Composite													
<u>HA-10</u>	<u>0-2</u>	<u>8.2.24</u>	<u>0810</u>	<u>G</u>	<u>SO</u>	<u>2</u>	<u>PG</u>	<u>-</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>HA-10</u>	<u>2-4</u>	<u>8.2.24</u>	<u>0815</u>	<u>G</u>	<u>SO</u>	<u>2</u>	<u>PG</u>	<u>-</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	
<u>HA-10</u>	<u>4-6</u>	<u>8.2.24</u>	<u>0820</u>	<u>G</u>	<u>SO</u>	<u>2</u>	<u>PG</u>	<u>-</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>X</u>	

See page 1

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
<u>1</u>	<u>[Signature]</u>	<u>8-2-24 / 1040</u>	<u>[Signature]</u>	<u>8-2-24 / 1040</u>	
<u>2</u>	<u>[Signature]</u>	<u>8-2-24 / 1610</u>	<u>[Signature]</u>	<u>8/2/24 1610</u>	Received at lab on ice? <u>IRONG</u>
<u>3</u>					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: <u>2.7°</u>

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Page 4 of 4  
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Castex-ICON Report-001190



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2417 W. Pinhook Road  
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Website: www.element.com

August 22, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex 9403-016-0100

Order No.: 24080170

Dear Greg Miller:

Element Materials Technology Lafayette received 1 sample(s) on 8/2/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads "Buffy Bryant".

Buffy Bryant  
Customer Service Supervisor



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 24080170

Date: 8/22/2024

---

**CLIENT:** ICON Environmental Services

**Project:** Castex 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).

Prep Comments for 3511\_D, Sample 24080170-001B: Prep Method hold time was exceeded by 1.04 day(s)



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24080170

Date Reported 8/22/2024

**CLIENT:** ICON Environmental Services **Collection Date:** 7/30/2024 12:30:00 PM  
**Project:** Castex 9403-016-0100  
**Lab ID:** 24080170-001 **Matrix:** GROUNDWATER  
**Client Sample ID** CD-19 D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>BXW</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.131	0.131		mg/L	1	8/6/2024 10:02:00 PM
TPH (Oil Range)	< 0.131	0.131		mg/L	1	8/6/2024 10:02:00 PM
Surr: 4-Terphenyl-d14	30.8	51.4 - 146	S	%Rec	1	8/6/2024 10:02:00 PM
<b>NOTES:</b>						
S: Surrogate outside of control limits. Re-extraction was not possible due to insufficient sample or holding time constraints.						
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/2/2024 5:11:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	106	70 - 130		%Rec	1	8/2/2024 5:11:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/2/2024 5:11:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/2/2024 5:11:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/2/2024 5:11:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/2/2024 5:11:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	105	70 - 130		%Rec	1	8/2/2024 5:11:00 PM
<b>MERCURY IN GROUND WATER, DISSOLVED</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/6/2024 2:21:35 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	64.4	2.50		mg/L	10	8/6/2024 11:34:24 AM
Sulfate	0.379	0.250		mg/L	1	8/7/2024 5:08:59 AM
<b>METALS IN WATER BY ICP, DISSOLVED</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.349	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 7:42:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24080170

Date Reported 8/22/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 7/30/2024 12:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080170-001

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19 D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, DISSOLVED**

**SW6010B**

Analyst: IO

Calcium	64.0	0.500		mg/L	1	8/13/2024 7:42:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Iron	0.247	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Magnesium	17.5	0.500		mg/L	1	8/13/2024 7:42:00 PM
Manganese	0.223	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Potassium	< 5.00	5.00		mg/L	1	8/13/2024 7:42:00 PM
Sodium	90.0	10.0		mg/L	1	8/13/2024 7:42:00 PM
Strontium	0.367	0.0100		mg/L	1	8/13/2024 7:42:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/13/2024 7:42:00 PM

**METALS IN WATER BY ICP-MS, DISSOLVED**

**SW6020A**

Analyst: MRB

Arsenic	< 0.0100	0.0100		mg/L	40	8/21/2024 9:23:45 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: AD

Alkalinity, Bicarbonate (As CaCO3)	315	20.0		mgCaCO3/L	1	8/6/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/6/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	315	20.0		mgCaCO3/L	1	8/6/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: NV

Total Dissolved Solids (Residue, Filterable)	347	10.0		mg/L	1	8/6/2024 11:02:00 AM
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Qualifiers:	
E	Value above quantitation range
M	Matrix Interference
R	RPD outside accepted recovery limits
S	Spike Recovery outside accepted recovery limits
U	Analyte not detected
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Limit
SDL	Sample detection limit
W	Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55808

Sample ID: <b>ics-d55808</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452181</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.23	0.137	1.801	0	124	70	130				
Surr: 4-Terphenyl-d14	0.0676		0.06004		113	51.4	146				

Sample ID: <b>icsd-d55808</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452182</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.49	0.138	1.814	0	137	70	130	2.231	10.8	14.1	S
Surr: 4-Terphenyl-d14	0.0750		0.06047		124	51.4	146		0	40	

**NOTES:**

S - High recovery(ies) indicate high bias. Data deemed acceptable as the specific target analyte(s) were not observed in the field sample(s).

Sample ID: <b>icsd-m55808</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452183</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Oil Range)	2.25	0.136	1.799	0	125	70	130	2.184	2.96	23.2	
Surr: 4-Terphenyl-d14	0.0741		0.05995		124	51.4	146		0	40	

Sample ID: <b>ics-m55808</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452184</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55808

Sample ID: <b>ics-m55808</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452184</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.18	0.137	1.800	0	121	70	130				
Surr: 4-Terphenyl-d14	0.0758		0.06000		126	51.4	146				

Sample ID: <b>mb-55808</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/5/2024</b>	RunNo: <b>137564</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55808</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452185</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	< 0.137	0.137									
TPH (Oil Range)	< 0.137	0.137									
Surr: 4-Terphenyl-d14	0.0534		0.06035		88.6	51.4	146				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55822

Sample ID: <b>MB-55822</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2024</b>	RunNo: <b>137536</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55822</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451626</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-55822</b>	SampType: <b>LCS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2024</b>	RunNo: <b>137536</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55822</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451627</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0104	0.000200	0.01000	0	104	80	120				

Sample ID: <b>LCSD-55822</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2024</b>	RunNo: <b>137536</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55822</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451628</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0108	0.000200	0.01000	0	108	80	120	0.01040	3.81	20	

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/6/2024</b>	RunNo: <b>137536</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55822</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451631</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0109	0.000200	0.01000	0	109	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55822

Sample ID: 24080170-001DMSD	SampType: MSD	TestCode: HG_D_7470A	Units: mg/L	Prep Date: 8/6/2024	RunNo: 137536						
Client ID: CD-19 D	Batch ID: 55822	TestNo: SW7470A		Analysis Date: 8/6/2024	SeqNo: 3451632						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0108	0.000200	0.01000	0	108	75	125	0.01086	0.314	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55859

Sample ID: <b>ics-d55859</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>%Rec</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459156</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0751      0.05979      126      51.4      146

Sample ID: <b>icsd-d55859</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>%Rec</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459158</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0925      0.05984      155      51.4      146      0      40      S

Sample ID: <b>mb-55859</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>%Rec</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459164</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Surr: 4-Terphenyl-d14      0.0640      0.06037      106      51.4      146

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468286</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic < 0.000250 0.000250

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468287</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 0.0201 0.000250 0.0200 0 101 80 120

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468288</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 0.0203 0.000250 0.0200 0 101 80 120 0.0201 0.818 20

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>139033</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468291</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Arsenic 0.816 0.0100 0.800 0.00345 102 75 125

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: 24080170-001DMSD	SampType: MSD	TestCode: 6020A_D	Units: mg/L	Prep Date: 8/13/2024	RunNo: 139033						
Client ID: CD-19 D	Batch ID: 55961	TestNo: SW6020A		Analysis Date: 8/21/2024	SeqNo: 3468292						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.818	0.0100	0.800	0.00345	102	75	125	0.816	0.179	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464033</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464034</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0205	0.000250	0.0200	0	103	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464035</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0203	0.000250	0.0200	0	101	80	120	0.0205	1.29	20	

Sample ID: <b>24080452-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464043</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.805	0.0100	0.800	0.0161	98.7	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: 24080452-003DMSD	SampType: MSD	TestCode: 6020A_D	Units: mg/L	Prep Date:	RunNo: 138884						
Client ID: ZZZZZZ	Batch ID: 55961	TestNo: SW6020A	Analysis Date: 8/15/2024	SeqNo: 3464044							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.819	0.0100	0.800	0.0161	100	75	125	0.805	1.65	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB-55961</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460760</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55961</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460761</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.499	0.0100	0.5000	0	99.8	80	120				
Cadmium	0.482	0.00500	0.5000	0	96.3	80	120				
Calcium	50.0	0.500	50.00	0	100	80	120				
Chromium	0.493	0.0100	0.5000	0	98.5	80	120				
Iron	0.519	0.0100	0.5000	0	104	80	120				
Lead	0.495	0.0100	0.5000	0	99.1	80	120				
Magnesium	49.6	0.500	50.00	0	99.1	80	120				
Manganese	0.494	0.0100	0.5000	0	98.8	80	120				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>LCS-55961</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460761</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49.9	5.00	50.00	0	99.7	80	120				
Sodium	49.4	10.0	50.00	0	98.9	80	120				
Strontium	0.492	0.0100	0.5000	0	98.3	80	120				
Zinc	0.495	0.0100	0.5000	0	99.0	80	120				

Sample ID: <b>LCSD-55961</b>	SampType: <b>LCSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460762</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.500	0.0100	0.5000	0	100	80	120	0.4988	0.252	20	
Cadmium	0.482	0.00500	0.5000	0	96.3	80	120	0.4816	0.0208	20	
Calcium	50.1	0.500	50.00	0	100	80	120	50.04	0.202	20	
Chromium	0.495	0.0100	0.5000	0	99.0	80	120	0.4927	0.413	20	
Iron	0.510	0.0100	0.5000	0	102	80	120	0.5186	1.72	20	
Lead	0.495	0.0100	0.5000	0	99.1	80	120	0.4955	0.0323	20	
Magnesium	49.7	0.500	50.00	0	99.3	80	120	49.56	0.193	20	
Manganese	0.493	0.0100	0.5000	0	98.6	80	120	0.4938	0.195	20	
Potassium	50.0	5.00	50.00	0	99.9	80	120	49.87	0.201	20	
Sodium	50.1	10.0	50.00	0	100	80	120	49.44	1.30	20	
Strontium	0.495	0.0100	0.5000	0	99.0	80	120	0.4915	0.738	20	
Zinc	0.496	0.0100	0.5000	0	99.3	80	120	0.4951	0.254	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460773</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.919	0.0100	0.5000	0.3494	114	75	125				
Cadmium	0.637	0.00500	0.5000	0	127	75	125				S
Calcium	118	0.500	50.00	64.04	107	75	125				
Chromium	0.625	0.0100	0.5000	0	125	75	125				S
Iron	0.874	0.0100	0.5000	0.2468	125	75	125				S
Lead	0.625	0.0100	0.5000	0	125	75	125				
Magnesium	77.8	0.500	50.00	17.54	120	75	125				
Manganese	0.808	0.0100	0.5000	0.2235	117	75	125				
Potassium	66.8	5.00	50.00	4.622	124	75	125				
Sodium	141	10.0	50.00	89.99	103	75	125				
Strontium	0.935	0.0100	0.5000	0.3672	114	75	125				
Zinc	0.663	0.0100	0.5000	0	133	75	125				S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

Sample ID: <b>24080170-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460774</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.913	0.0100	0.5000	0.3494	113	75	125	0.9193	0.643	20	
Cadmium	0.633	0.00500	0.5000	0	127	75	125	0.6370	0.601	20	S
Calcium	117	0.500	50.00	64.04	106	75	125	117.5	0.313	20	
Chromium	0.621	0.0100	0.5000	0	124	75	125	0.6252	0.647	20	
Iron	0.862	0.0100	0.5000	0.2468	123	75	125	0.8739	1.41	20	
Lead	0.620	0.0100	0.5000	0	124	75	125	0.6249	0.847	20	
Magnesium	77.3	0.500	50.00	17.54	120	75	125	77.79	0.576	20	

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080170-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460774</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.803	0.0100	0.5000	0.2235	116	75	125	0.8075	0.577	20	
Potassium	66.6	5.00	50.00	4.622	124	75	125	66.85	0.411	20	
Sodium	140	10.0	50.00	89.99	99.1	75	125	141.3	1.25	20	
Strontium	0.928	0.0100	0.5000	0.3672	112	75	125	0.9352	0.760	20	
Zinc	0.659	0.0100	0.5000	0	132	75	125	0.6633	0.700	20	S

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>200.7-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137827</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460995</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Copper	0.628	0.00500	0.5000	0.006240	124	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137442

Sample ID: <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448902</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range)	13.1	0.150	12.50	0	105	80	130				
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Sample ID: <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448903</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range)	12.7	0.150	12.50	0	101	80	130	13.07	3.09	20	
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Sample ID: <b>24071451-001AMS</b>	SampType: <b>MS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448949</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range)	113	0.750	62.50	25.98	140	70	130				SM
Surr: alpha, alpha, alpha-Trifluorotoluene	0.310		0.2500		124	70	130				

Sample ID: <b>24071451-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448950</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range)	126	0.750	62.50	25.98	160	70	130	113.4	10.4	20	SM
Surr: alpha, alpha, alpha-Trifluorotoluene	0.328		0.2500		131	70	130		0	20	SM

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137442

Sample ID: <b>24071451-001AMSD</b>	SampType: <b>MSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448950</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137442</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137442</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3448951</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0487		0.05000		97.4	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137468

Sample ID: <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137468</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137468</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3449494</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0480	0.00500	0.05000	0	96.0	72.6	120				
Ethylbenzene	0.0466	0.00500	0.05000	0	93.2	71.8	120				
Toluene	0.0479	0.0100	0.05000	0	95.8	72.8	120				
Xylenes, Total	0.141	0.0500	0.1500	0	93.8	73.4	120				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0494		0.05000		98.8	76	116				

Sample ID: <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137468</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137468</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3449495</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0470	0.00500	0.05000	0	94.0	72.6	120	0.04800	2.11	20	
Ethylbenzene	0.0461	0.00500	0.05000	0	92.2	71.8	120	0.04660	1.08	20	
Toluene	0.0467	0.0100	0.05000	0	93.4	72.8	120	0.04790	2.54	20	
Xylenes, Total	0.139	0.0500	0.1500	0	92.5	73.4	120	0.1407	1.43	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0491		0.05000		98.2	76	116		0	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137468</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137468</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3449496</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137468

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137468</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137468</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/2/2024</b>	SeqNo: <b>3449496</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0493		0.05000		98.6	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137508

Sample ID: <b>MB-R137508</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455070</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0									

Sample ID: <b>LCS-R137508</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455071</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	992	10.0	1,000	0	99.2	85	115				

Sample ID: <b>LCSD-R137508</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455072</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	1,000	10.0	1,000	0	100	85	115	992.0	1.00	10	

Sample ID: <b>24080170-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455077</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	343	10.0						347.0	1.16	10	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137508

Sample ID: <b>24080170-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>CD-19 D</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455077</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>24080272-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137508</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137508</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3455084</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable)	820	50.0						745.0	9.58	10	
--	-----	------	--	--	--	--	--	-------	------	----	--

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137516

Sample ID: <b>MB-R137516</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>137516</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137516</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451807</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0									
Alkalinity, Total (As CaCO3)	< 20.0	20.0									

Sample ID: <b>LCS-R137516</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>137516</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137516</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451808</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	53.0	20.0	50.00	0	106	80	120				
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Sample ID: <b>24071361-001DDUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>137516</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137516</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3451815</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	802	20.0						810.0	0.930	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	802	20.0						810.0	0.930	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137558

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452130</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452131</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	9.90	0.250	10.00	0	99.0	80	120				
Sulfate	9.77	0.250	10.00	0	97.7	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452132</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	10.1	0.250	10.00	0	101	80	120	9.897	2.32	15	
Sulfate	10.3	0.250	10.00	0	103	80	120	9.772	4.85	15	

Sample ID: <b>24071008-026ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452139</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1,220	12.5	250.0	1,039	73.3	80	120				S

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080170  
 22-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137558

Sample ID: <b>24071008-026ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452139</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	222	12.5	250.0	0	88.6	80	120				
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Sample ID: <b>24071008-026amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137558</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137558</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/6/2024</b>	SeqNo: <b>3452140</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	1,230	12.5	250.0	1,039	76.6	80	120	1,222	0.673	15	S
Sulfate	214	12.5	250.0	0	85.7	80	120	221.6	3.38	15	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24080170**

RcptNo: **1**

Logged by:	<b>Martin Lee</b>	<b>8/2/2024 4:10:00 PM</b>	<i>Martin Lee</i>
Completed By:	<b>Martin Lee</b>	<b>8/2/2024 4:34:44 PM</b>	<i>Martin Lee</i>
Reviewed By:	<b>Buffy Bryant</b>	<b>8/19/2024 1:22:53 PM</b>	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good	Not Present			



# Chain of Custody

Laboratory Number: **24080170**

Company Name: Contact Name: Address: City, State Zip: Phone Number: Fax Number: E-mail Address:	<b>Client Information:</b>	<b>Billing Information:</b>	PO Number:	Project Name/Number:	Page <b>1</b> of <b>1</b>
	<b>ICON</b>	<b>SAME</b>		<b>Castex</b>	
			Quote Number:	<b>9403-016-0100</b>	<b>Matrix Code</b> DW = Drinking Water WW = Waste Water GW = Ground Water AQ = Aqueous OT = Other SL = Sludge SOL = Solid O = Oil SO = Soil F = Food SW = Swab NG = Natural Gas NGL = Natural Gas Liquid PW = Produced Water CF = Completion Fluid
			Required QC Level	Sampler's Signature: <i>Jeffrey Miller</i>	
			Bill Monthly	Shipping Method:	
		Ext:	Ext:	<input type="checkbox"/> Yes	UPS / FedEx / NOW
			<input type="checkbox"/> No	DHL / Element / <u>Hand</u> / Mail	

Which Regulations Apply:	Turn Time	(Rush turn times will incur a surcharge and must be pre-approved by lab.)	Container		Pres.	Requested Tests							Comments		
			Quantity	Type P=Plastic, G=Glass, V=Vial		HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub>	TDS	Chlorides	BTEX	TPH-G	TPH-D+O	Cations/Anions		Dissolved Metals	
<input type="checkbox"/> RCRA <input type="checkbox"/> Drinking Water <input type="checkbox"/> POTW <input type="checkbox"/> Distribution <input type="checkbox"/> NPDES <input type="checkbox"/> Special <input type="checkbox"/> USDA/FDA <input type="checkbox"/> State <input type="checkbox"/> RECAP/RISC <input type="checkbox"/> Other	<input checked="" type="checkbox"/> Standard <input type="checkbox"/> RUSH <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> Other														
Sample ID/Description	Collection Information			Matrix	Quantity	Type	Pres.	TDS	Chlorides	BTEX	TPH-G	TPH-D+O	Cations/Anions	Dissolved Metals	Comments
<b>CD-19D</b>	Date	Time	Grab / Composite		<b>8</b>	<b>P, V</b>	<b>HCl, HNO<sub>3</sub></b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>As, Ba, Cd, Cr, Fe, Mn, Pb, Sr, Zn, Hg</b>  <b>Ca, K, Na, Mg</b>  <b>Sulfate</b> <b>Alk carbonate</b> <b>Alk bicarbonate</b>

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	<i>Jeffrey Miller</i>	8-2-24 / 1040	<i>[Signature]</i>	8-2-24 / 1040	
2	<i>[Signature]</i>	8-2-24 / 1610	<i>Martin Lee</i>	8/2/24 1610	Received at lab on ice? <input checked="" type="checkbox"/> IRON
3					<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Temp: 2.9°

All samples submitted to Element Materials Technology for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples. Element Materials Technology reserves the right to return unused sample portions.

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P 812-375-0531  
F 812-375-0731

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Fort Wayne, IN  
46825 USA  
P 260-471-7000  
F 260-471-7777

909 Executive Dr  
Warsaw, IN  
46580 USA  
P 574-267-3305  
F 574-269-6569

3371 Cleveland Road, Suite 100A  
Columbus, IN  
46628 USA  
P 574-277-0707  
F 574-273-5699

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Lafayette, LA  
70508 USA  
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F 337-233-6540

Castex-ICON Report-001219



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August 28, 2024

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Castex 9403-016-0100

Order No.: 24080452

Dear Greg Miller:

Element Materials Technology Lafayette received 7 sample(s) on 8/8/2024 for the analyses presented in the following report.

In accordance with your instructions, Element Lafayette either conducted or subcontracted these analyses. Subcontracted analyses will be identified in the accompanying case narrative. All relevant sampling information can be found on the attached Chain-of-Custody form. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet the applicable requirements of TNI. Reported results relate only to the items tested.

Where applicable, all soil data, except for 29-B, are reported on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. MNELAP Certification No.: 2414959. LDHH Certification No.: LA023. ISDH Certification No.: C-LA-01. NDELCP Certification No.: R-226. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation. PA registration No.: 68-05967.

Estimated uncertainty is available upon request. This report shall not be reproduced, except in full, without the written approval of the laboratory.

A handwritten signature in cursive script that reads "Buffy Bryant".

Buffy Bryant  
Customer Service Supervisor



Element Materials Technology Lafayette  
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TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 24080452

Date: 8/28/2024

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**CLIENT:** ICON Environmental Services

**Project:** Castex 9403-016-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 1:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-001

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.141	0.141		mg/L	1	8/12/2024 4:31:00 PM
TPH (Oil Range)	< 0.130	0.130		mg/L	1	8/12/2024 4:31:00 PM
Surr: 4-Terphenyl-d14	96.3	51.4 - 146		%Rec	1	8/12/2024 4:31:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/9/2024 3:34:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	8/9/2024 3:34:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/9/2024 3:34:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/9/2024 3:34:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/9/2024 3:34:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/9/2024 3:34:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	93.6	70 - 130		%Rec	1	8/9/2024 3:34:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:19:14 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BBX</b>
Chloride	96.0	5.00		mg/L	20	8/14/2024 5:29:32 PM
Sulfate	15.2	5.00		mg/L	20	8/14/2024 5:29:32 PM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.293	0.0100		mg/L	1	8/13/2024 12:58:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 12:58:00 PM
Calcium	68.7	0.500		mg/L	1	8/13/2024 12:58:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 12:58:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
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WO#: 24080452

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**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-001

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Iron	1.34	0.0100		mg/L	1	8/13/2024 12:58:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 12:58:00 PM
Magnesium	27.3	0.500		mg/L	1	8/13/2024 12:58:00 PM
Manganese	0.729	0.0100		mg/L	1	8/13/2024 12:58:00 PM
Potassium	< 5.00	5.00		mg/L	1	8/13/2024 12:58:00 PM
Sodium	50.9	10.0		mg/L	1	8/13/2024 12:58:00 PM
Strontium	0.505	0.0100		mg/L	1	8/13/2024 12:58:00 PM
Zinc	0.101	0.0100		mg/L	1	8/13/2024 12:58:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
Arsenic	0.0392	0.0100		mg/L	40	8/15/2024 9:29:14 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	315	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	315	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>NV</b>
Total Dissolved Solids (Residue, Filterable)	436	10.0		mg/L	1	8/8/2024 5:22:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 10:50:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-002

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134		mg/L	1	8/18/2024 1:19:00 AM
TPH (Oil Range)	< 0.134	0.134		mg/L	1	8/18/2024 1:19:00 AM
Surr: 4-Terphenyl-d14	68.6	51.4 - 146		%Rec	1	8/18/2024 1:19:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/9/2024 4:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	8/9/2024 4:01:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/9/2024 4:01:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/9/2024 4:01:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/9/2024 4:01:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/9/2024 4:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.4	70 - 130		%Rec	1	8/9/2024 4:01:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:32:43 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	297	5.00		mg/L	20	8/14/2024 5:43:19 PM
Sulfate	16.2	5.00		mg/L	20	8/14/2024 5:43:19 PM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.557	0.0100		mg/L	1	8/12/2024 6:12:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/12/2024 6:12:00 PM
Calcium	91.5	0.500		mg/L	1	8/12/2024 6:12:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/12/2024 6:12:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

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WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 10:50:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-002

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Iron	2.30	0.0100		mg/L	1	8/12/2024 6:12:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/12/2024 6:12:00 PM
Magnesium	32.1	0.500		mg/L	1	8/12/2024 6:12:00 PM
Manganese	0.623	0.0100		mg/L	1	8/12/2024 6:12:00 PM
Potassium	6.92	5.00		mg/L	1	8/12/2024 6:12:00 PM
Sodium	83.1	10.0		mg/L	1	8/12/2024 6:12:00 PM
Strontium	0.657	0.0100		mg/L	1	8/12/2024 6:12:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/12/2024 6:12:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0123	0.0100		mg/L	40	8/15/2024 9:18:03 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	268	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	268	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **NV**

Total Dissolved Solids (Residue, Filterable)	828	10.0		mg/L	1	8/8/2024 5:22:00 PM
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# Analytical Report

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WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 12:50:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-003

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134		mg/L	1	8/18/2024 3:25:00 AM
TPH (Oil Range)	< 0.124	0.124		mg/L	1	8/18/2024 3:25:00 AM
Surr: 4-Terphenyl-d14	109	51.4 - 146		%Rec	1	8/18/2024 3:25:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/9/2024 4:28:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	107	70 - 130		%Rec	1	8/9/2024 4:28:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/9/2024 4:28:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/9/2024 4:28:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/9/2024 4:28:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/9/2024 4:28:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	99.4	70 - 130		%Rec	1	8/9/2024 4:28:00 PM
<b>MERCURY IN GROUND WATER, DISSOLVED</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 3:05:30 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	176	5.00		mg/L	20	8/14/2024 5:57:07 PM
Sulfate	8.44	5.00		mg/L	20	8/14/2024 5:57:07 PM
<b>METALS IN WATER BY ICP, DISSOLVED</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.512	0.0100		mg/L	1	8/13/2024 7:49:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 7:49:00 PM
Calcium	95.2	0.500		mg/L	1	8/13/2024 7:49:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 7:49:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
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	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

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WO#: 24080452

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**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 12:50:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-003

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, DISSOLVED**

**SW6010B**

Analyst: **IO**

Iron	1.80	0.0100		mg/L	1	8/13/2024 7:49:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 7:49:00 PM
Magnesium	28.2	0.500		mg/L	1	8/13/2024 7:49:00 PM
Manganese	0.302	0.0100		mg/L	1	8/13/2024 7:49:00 PM
Potassium	5.14	5.00		mg/L	1	8/13/2024 7:49:00 PM
Sodium	99.9	10.0		mg/L	1	8/13/2024 7:49:00 PM
Strontium	0.586	0.0100		mg/L	1	8/13/2024 7:49:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/13/2024 7:49:00 PM

**METALS IN WATER BY ICP-MS, DISSOLVED**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0161	0.0100		mg/L	40	8/15/2024 10:12:24 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	225	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	225	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **NV**

Total Dissolved Solids (Residue, Filterable)	547	10.0		mg/L	1	8/8/2024 5:22:00 PM
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
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# Analytical Report

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WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 2:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-004

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.139	0.139		mg/L	1	8/12/2024 6:06:00 PM
TPH (Oil Range)	< 0.129	0.129		mg/L	1	8/12/2024 6:06:00 PM
Surr: 4-Terphenyl-d14	78.9	51.4 - 146		%Rec	1	8/12/2024 6:06:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/9/2024 6:43:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	108	70 - 130		%Rec	1	8/9/2024 6:43:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/9/2024 6:43:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/9/2024 6:43:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/9/2024 6:43:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/9/2024 6:43:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	8/9/2024 6:43:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:35:51 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	148	5.00		mg/L	20	8/14/2024 6:10:54 PM
Sulfate	10.7	5.00		mg/L	20	8/14/2024 6:10:54 PM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.360	0.0100		mg/L	1	8/13/2024 1:01:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 1:01:00 PM
Calcium	67.9	0.500		mg/L	1	8/13/2024 1:01:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 1:01:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

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WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/6/2024 2:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-004

**Matrix:** GROUNDWATER

**Client Sample ID** CD-18D

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Iron	2.83	0.0100		mg/L	1	8/13/2024 1:01:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 1:01:00 PM
Magnesium	18.8	0.500		mg/L	1	8/13/2024 1:01:00 PM
Manganese	0.270	0.0100		mg/L	1	8/13/2024 1:01:00 PM
Potassium	< 5.00	5.00		mg/L	1	8/13/2024 1:01:00 PM
Sodium	73.7	10.0		mg/L	1	8/13/2024 1:01:00 PM
Strontium	0.390	0.0100		mg/L	1	8/13/2024 1:01:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/13/2024 1:01:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0211	0.0100		mg/L	40	8/15/2024 9:33:09 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO <sub>3</sub> )	222	20.0		mgCaCO <sub>3</sub> /L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO <sub>3</sub> )	< 20.0	20.0		mgCaCO <sub>3</sub> /L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO <sub>3</sub> )	222	20.0		mgCaCO <sub>3</sub> /L	1	8/20/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **NV**

Total Dissolved Solids (Residue, Filterable)	470	10.0		mg/L	1	8/8/2024 5:22:00 PM
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 8:50:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-005

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.813	0.134		mg/L	1	8/18/2024 3:57:00 AM
TPH (Oil Range)	0.247	0.124		mg/L	1	8/18/2024 3:57:00 AM
Surr: 4-Terphenyl-d14	130	51.4 - 146		%Rec	1	8/18/2024 3:57:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/13/2024 10:34:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	106	70 - 130		%Rec	1	8/13/2024 10:34:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/13/2024 10:34:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/13/2024 10:34:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/13/2024 10:34:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/13/2024 10:34:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	101	70 - 130		%Rec	1	8/13/2024 10:34:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:38:58 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	1,140	25.0		mg/L	100	8/14/2024 6:24:42 PM
Sulfate	4.92	2.50		mg/L	10	8/15/2024 7:53:05 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	2.21	0.0100		mg/L	1	8/13/2024 1:04:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 1:04:00 PM
Calcium	347	0.500		mg/L	1	8/13/2024 1:04:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 1:04:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 8:50:00 AM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-005

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19A

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Iron	1.79	0.0100		mg/L	1	8/13/2024 1:04:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 1:04:00 PM
Magnesium	118	0.500		mg/L	1	8/13/2024 1:04:00 PM
Manganese	0.122	0.0100		mg/L	1	8/13/2024 1:04:00 PM
Potassium	5.75	5.00		mg/L	1	8/13/2024 1:04:00 PM
Sodium	256	10.0		mg/L	1	8/13/2024 1:04:00 PM
Strontium	2.11	0.0100		mg/L	1	8/13/2024 1:04:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/13/2024 1:04:00 PM
<b>METALS IN WATER BY ICP-MS, TOTAL</b>					<b>SW6020A</b>	Analyst: <b>MRB</b>
Arsenic	< 0.0100	0.0100		mg/L	40	8/15/2024 9:35:57 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>					<b>SM2320 B</b>	Analyst: <b>AD</b>
Alkalinity, Bicarbonate (As CaCO3)	340	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	340	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
<b>TOTAL DISSOLVED SOLIDS</b>					<b>SM2540C</b>	Analyst: <b>NV</b>
Total Dissolved Solids (Residue, Filterable)	2,120	100		mg/L	10	8/8/2024 5:22:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 1:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-006

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.202	0.133		mg/L	1	8/18/2024 4:28:00 AM
TPH (Oil Range)	0.151	0.123		mg/L	1	8/18/2024 4:28:00 AM
Surr: 4-Terphenyl-d14	126	51.4 - 146		%Rec	1	8/18/2024 4:28:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/13/2024 11:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	106	70 - 130		%Rec	1	8/13/2024 11:01:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/13/2024 11:01:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/13/2024 11:01:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/13/2024 11:01:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/13/2024 11:01:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	98.0	70 - 130		%Rec	1	8/13/2024 11:01:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:48:51 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	734	12.5		mg/L	50	8/14/2024 6:38:30 PM
Sulfate	9.11	1.25		mg/L	5	8/15/2024 8:06:52 AM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	1.48	0.0100		mg/L	1	8/13/2024 1:07:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 1:07:00 PM
Calcium	248	0.500		mg/L	1	8/13/2024 1:07:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 1:07:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 1:30:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-006

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19B

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Iron	4.44	0.0100		mg/L	1	8/13/2024 1:07:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 1:07:00 PM
Magnesium	74.3	0.500		mg/L	1	8/13/2024 1:07:00 PM
Manganese	1.20	0.0100		mg/L	1	8/13/2024 1:07:00 PM
Potassium	8.38	5.00		mg/L	1	8/13/2024 1:07:00 PM
Sodium	118	10.0		mg/L	1	8/13/2024 1:07:00 PM
Strontium	1.55	0.0100		mg/L	1	8/13/2024 1:07:00 PM
Zinc	< 0.0100	0.0100		mg/L	1	8/13/2024 1:07:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	< 0.0100	0.0100		mg/L	40	8/15/2024 9:47:12 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	258	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	258	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **NV**

Total Dissolved Solids (Residue, Filterable)	1,470	50.0		mg/L	5	8/8/2024 5:22:00 PM
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 3:00:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-007

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AM</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.134	0.134		mg/L	1	8/18/2024 5:00:00 AM
TPH (Oil Range)	< 0.123	0.123		mg/L	1	8/18/2024 5:00:00 AM
Surr: 4-Terphenyl-d14	103	51.4 - 146		%Rec	1	8/18/2024 5:00:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>RST</b>
<b>TPH-GRO IN WATER BY SW8015B</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	8/13/2024 11:29:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	108	70 - 130		%Rec	1	8/13/2024 11:29:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>RST</b>
<b>BTEX IN WATER BY SW8021B</b>						
Benzene	< 0.00500	0.00500		mg/L	1	8/13/2024 11:29:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	8/13/2024 11:29:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	8/13/2024 11:29:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	8/13/2024 11:29:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	100	70 - 130		%Rec	1	8/13/2024 11:29:00 PM
<b>MERCURY IN GROUND WATER, TOTAL</b>					<b>SW7470A</b>	Analyst: <b>SAR</b>
Mercury	< 0.000200	0.000200		mg/L	1	8/20/2024 2:51:58 PM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>BXB</b>
Chloride	168	5.00		mg/L	20	8/14/2024 6:52:18 PM
Sulfate	15.9	5.00		mg/L	20	8/14/2024 6:52:18 PM
<b>METALS IN WATER BY ICP, TOTALS</b>					<b>SW6010B</b>	Analyst: <b>IO</b>
Barium	0.354	0.0100		mg/L	1	8/13/2024 1:10:00 PM
Cadmium	< 0.00500	0.00500		mg/L	1	8/13/2024 1:10:00 PM
Calcium	64.5	0.500		mg/L	1	8/13/2024 1:10:00 PM
Chromium	< 0.0100	0.0100		mg/L	1	8/13/2024 1:10:00 PM

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded
	M Matrix Interference	ND Not Detected at the Reporting Limit
	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit
	U Analyte not detected	W Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 24080452

Date Reported 8/28/2024

**CLIENT:** ICON Environmental Services

**Collection Date:** 8/7/2024 3:00:00 PM

**Project:** Castex 9403-016-0100

**Lab ID:** 24080452-007

**Matrix:** GROUNDWATER

**Client Sample ID** CD-19C

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
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**METALS IN WATER BY ICP, TOTALS**

**SW6010B**

Analyst: **IO**

Iron	2.71	0.0100		mg/L	1	8/13/2024 1:10:00 PM
Lead	< 0.0100	0.0100		mg/L	1	8/13/2024 1:10:00 PM
Magnesium	17.6	0.500		mg/L	1	8/13/2024 1:10:00 PM
Manganese	0.237	0.0100		mg/L	1	8/13/2024 1:10:00 PM
Potassium	< 5.00	5.00		mg/L	1	8/13/2024 1:10:00 PM
Sodium	67.2	10.0		mg/L	1	8/13/2024 1:10:00 PM
Strontium	0.401	0.0100		mg/L	1	8/13/2024 1:10:00 PM
Zinc	0.0119	0.0100		mg/L	1	8/13/2024 1:10:00 PM

**METALS IN WATER BY ICP-MS, TOTAL**

**SW6020A**

Analyst: **MRB**

Arsenic	0.0214	0.0100		mg/L	40	8/15/2024 9:50:01 AM
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**ALKALINITY; TOTAL, CARB, BICARB**

**SM2320 B**

Analyst: **AD**

Alkalinity, Bicarbonate (As CaCO3)	220	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM
Alkalinity, Total (As CaCO3)	220	20.0		mgCaCO3/L	1	8/20/2024 12:11:00 PM

**TOTAL DISSOLVED SOLIDS**

**SM2540C**

Analyst: **NV**

Total Dissolved Solids (Residue, Filterable)	557	10.0		mg/L	1	8/8/2024 5:22:00 PM
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
M	Matrix Interference	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55859

Sample ID: <b>ics-d55859</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459156</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	1.79	0.136	1.794	0	100	70	130				
Surr: 4-Terphenyl-d14	0.0751		0.05979		126	51.4	146				

Sample ID: <b>icsd-d55859</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459158</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	1.97	0.136	1.795	0	110	70	130	1.794	9.47	14.1	
Surr: 4-Terphenyl-d14	0.0925		0.05984		155	51.4	146		0	40	S

Sample ID: <b>mb-55859</b>	SampType: <b>mbik</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459164</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	< 0.137	0.137									
TPH (Oil Range)	< 0.137	0.137									
Surr: 4-Terphenyl-d14	0.0640		0.06037		106	51.4	146				

Sample ID: <b>LCSD-M55859</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/18/2024</b>	SeqNo: <b>3469191</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55859

Sample ID: <b>LCS-D-M55859</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/18/2024</b>	SeqNo: <b>3469191</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	1.05	0.136	1.792	0	58.5	70	130	1.794	52.4	14.1	SR
TPH (Oil Range)	1.70	0.136	1.792	0	95.0	70	130	0.2600	147	23.2	R
Surr: 4-Terphenyl-d14	0.0942		0.05972		158	51.4	146		0	40	S

Sample ID: <b>LCS-M55859</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/7/2024</b>	RunNo: <b>137760</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55859</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/18/2024</b>	SeqNo: <b>3469192</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)	0.809	0.137	1.805	0	44.8	70	130				S
TPH (Oil Range)	1.44	0.137	1.805	0	79.7	70	130				
Surr: 4-Terphenyl-d14	0.0827		0.06017		137	51.4	146				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55924

Sample ID: <b>MB-55924</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139005</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55924</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467069</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-55924</b>	SampType: <b>LCS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139005</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55924</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467070</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0107	0.000200	0.01000	0	107	80	120				

Sample ID: <b>LCSD-55924</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139005</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55924</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467071</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0101	0.000200	0.01000	0	101	80	120	0.01072	5.50	20	

Sample ID: <b>24080452-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139005</b>						
Client ID: <b>CD-18A</b>	Batch ID: <b>55924</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467074</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0104	0.000200	0.01000	0	104	75	125				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55924

Sample ID: <b>24080452-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>HG_W_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139005</b>						
Client ID: <b>CD-18A</b>	Batch ID: <b>55924</b>	TestNo: <b>SW7470A</b>	Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467075</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0102	0.000200	0.01000	0	102	75	125	0.01037	2.04	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55925

Sample ID: <b>MB-55925</b>	SampType: <b>MBLK</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139006</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55925</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467108</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	< 0.000200	0.000200									

Sample ID: <b>LCS-55925</b>	SampType: <b>LCS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139006</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55925</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467109</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0106	0.000200	0.01000	0	106	80	120				

Sample ID: <b>LCSD-55925</b>	SampType: <b>LCSD</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139006</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55925</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467110</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0108	0.000200	0.01000	0	108	80	120	0.01065	1.31	20	

Sample ID: <b>24080452-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>HG_D_7470A</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>139006</b>						
Client ID: <b>CD-18C</b>	Batch ID: <b>55925</b>	TestNo: <b>SW7470A</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467113</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0105	0.000200	0.01000	0	105	75	125				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55925

Sample ID: 24080452-003DMSD	SampType: MSD	TestCode: HG_D_7470A	Units: mg/L	Prep Date: 8/12/2024	RunNo: 139006						
Client ID: CD-18C	Batch ID: 55925	TestNo: SW7470A		Analysis Date: 8/20/2024	SeqNo: 3467114						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury	0.0103	0.000200	0.01000	0	103	75	125	0.01049	2.05	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55926

Sample ID: <b>MB-55926</b>	SampType: <b>MBLK</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458764</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55926</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458767</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.472	0.0100	0.5000	0	94.3	80	120				
Cadmium	0.460	0.00500	0.5000	0	92.1	80	120				
Calcium	47.2	0.500	50.00	0	94.4	80	120				
Chromium	0.469	0.0100	0.5000	0	93.9	80	120				
Iron	0.465	0.0100	0.5000	0	93.0	80	120				
Lead	0.471	0.0100	0.5000	0	94.1	80	120				
Magnesium	46.3	0.500	50.00	0	92.6	80	120				
Manganese	0.474	0.0100	0.5000	0	94.8	80	120				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55926

Sample ID: <b>LCS-55926</b>	SampType: <b>LCS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458767</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	48.3	5.00	50.00	0	96.6	80	120				
Sodium	47.7	10.0	50.00	0	95.5	80	120				
Strontium	0.469	0.0100	0.5000	0	93.8	80	120				
Zinc	0.460	0.0100	0.5000	0	91.9	80	120				

Sample ID: <b>LCSD-55926</b>	SampType: <b>LCSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458768</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.478	0.0100	0.5000	0	95.6	80	120	0.4717	1.35	20	
Cadmium	0.466	0.00500	0.5000	0	93.2	80	120	0.4604	1.24	20	
Calcium	47.8	0.500	50.00	0	95.6	80	120	47.20	1.23	20	
Chromium	0.476	0.0100	0.5000	0	95.2	80	120	0.4694	1.39	20	
Iron	0.472	0.0100	0.5000	0	94.4	80	120	0.4652	1.43	20	
Lead	0.473	0.0100	0.5000	0	94.7	80	120	0.4706	0.572	20	
Magnesium	46.8	0.500	50.00	0	93.6	80	120	46.30	1.10	20	
Manganese	0.481	0.0100	0.5000	0	96.2	80	120	0.4742	1.45	20	
Potassium	48.5	5.00	50.00	0	97.0	80	120	48.31	0.353	20	
Sodium	47.1	10.0	50.00	0	94.2	80	120	47.73	1.38	20	
Strontium	0.476	0.0100	0.5000	0	95.1	80	120	0.4688	1.44	20	
Zinc	0.466	0.0100	0.5000	0	93.3	80	120	0.4596	1.49	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55926

Sample ID: <b>24080452-002DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>CD-18B</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458770</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.724	0.0100	0.5000	0.5569	33.5	75	125				S
Cadmium	0.321	0.00500	0.5000	0	64.1	75	125				S
Calcium	98.0	0.500	50.00	91.46	13.0	75	125				S
Chromium	0.321	0.0100	0.5000	0	64.2	75	125				S
Iron	1.97	0.0100	0.5000	2.303	-65.7	75	125				S
Lead	0.319	0.0100	0.5000	0	63.7	75	125				S
Magnesium	54.5	0.500	50.00	32.08	44.8	75	125				S
Manganese	0.784	0.0100	0.5000	0.6235	32.0	75	125				S
Potassium	36.8	5.00	50.00	6.921	59.9	75	125				S
Sodium	91.7	10.0	50.00	83.12	17.2	75	125				S
Strontium	0.802	0.0100	0.5000	0.6572	29.0	75	125				S
Zinc	0.320	0.0100	0.5000	0	64.0	75	125				S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

Sample ID: <b>24080452-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>CD-18B</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458771</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.822	0.0100	0.5000	0.5569	52.9	75	125	0.7244	12.6	20	S
Cadmium	0.367	0.00500	0.5000	0	73.4	75	125	0.3206	13.4	20	S
Calcium	112	0.500	50.00	91.46	40.2	75	125	97.98	13.0	20	S
Chromium	0.367	0.0100	0.5000	0	73.4	75	125	0.3210	13.4	20	S
Iron	2.23	0.0100	0.5000	2.303	-13.7	75	125	1.974	12.3	20	S
Lead	0.366	0.0100	0.5000	0	73.1	75	125	0.3186	13.8	20	S
Magnesium	62.4	0.500	50.00	32.08	60.7	75	125	54.46	13.6	20	S

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55926

Sample ID: <b>24080452-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137750</b>						
Client ID: <b>CD-18B</b>	Batch ID: <b>55926</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3458771</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.876	0.0100	0.5000	0.6235	50.5	75	125	0.7835	11.1	20	S
Potassium	42.6	5.00	50.00	6.921	71.3	75	125	36.85	14.4	20	S
Sodium	107	10.0	50.00	83.12	47.1	75	125	91.70	15.1	20	S
Strontium	0.913	0.0100	0.5000	0.6572	51.1	75	125	0.8023	12.9	20	S
Zinc	0.365	0.0100	0.5000	0	73.1	75	125	0.3200	13.2	20	S

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55927

Sample ID: <b>MB-55927</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>138880</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55927</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3463847</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS-55927</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>138880</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55927</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3463848</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.00500	0.500	0	103	80	120				

Sample ID: <b>LCSD-55927</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>138880</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55927</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3463849</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.513	0.00500	0.500	0	103	80	120	0.513	0.132	20	

Sample ID: <b>24080452-002DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>138880</b>						
Client ID: <b>CD-18B</b>	Batch ID: <b>55927</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3463852</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.449	0.0125	0.500	0.0123	87.4	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55927

Sample ID: <b>24080452-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_W</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>138880</b>						
Client ID: <b>CD-18B</b>	Batch ID: <b>55927</b>	TestNo: <b>SW6020A</b>	Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3463853</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.525	0.0125	0.500	0.0123	103	75	125	0.449	15.6	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55938

Sample ID: <b>ics-d55938</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459168</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.07	0.135	1.777	0	116	70	130				
Surr: 4-Terphenyl-d14	0.124		0.05922		210	51.4	146				S

Sample ID: <b>icsd-d55938</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459169</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	2.08	0.135	1.787	0	117	70	130	0	0	14.1	
Surr: 4-Terphenyl-d14	0.125		0.05956		210	51.4	146		0	40	S

Sample ID: <b>mb-55938</b>	SampType: <b>mblk</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/12/2024</b>	SeqNo: <b>3459172</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

TPH (Diesel Range)	< 0.136	0.136									
TPH (Oil Range)	< 0.136	0.136									
Surr: 4-Terphenyl-d14	0.111		0.05988		185	51.4	146				S

Sample ID: <b>LCSD-M55938</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/17/2024</b>	SeqNo: <b>3469181</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55938

Sample ID: <b>LCSD-M55938</b>	SampType: <b>icsd</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/17/2024</b>	SeqNo: <b>3469181</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	2.14	0.136	1.788	0	119	70	130	1.859	13.9	23.2	
Surr: 4-Terphenyl-d14	0.182		0.05959		305	51.4	146		0	40	S

Sample ID: <b>LCS-M55938</b>	SampType: <b>ics</b>	TestCode: <b>8015_DO_W_</b>	Units: <b>mg/L</b>	Prep Date: <b>8/12/2024</b>	RunNo: <b>137761</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55938</b>	TestNo: <b>SW8015B</b>	<b>SW3511</b>	Analysis Date: <b>8/17/2024</b>	SeqNo: <b>3469182</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)	1.86	0.134	1.765	0	105	70	130				
Surr: 4-Terphenyl-d14	0.171		0.05882		291	51.4	146				S

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468286</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468287</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0201	0.000250	0.0200	0	101	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>139033</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468288</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0203	0.000250	0.0200	0	101	80	120	0.0201	0.818	20	

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>139033</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/21/2024</b>	SeqNo: <b>3468291</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.816	0.0100	0.800	0.00345	102	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: 24080170-001DMSD	SampType: MSD	TestCode: 6020A_D	Units: mg/L	Prep Date: 8/13/2024	RunNo: 139033						
Client ID: ZZZZZZ	Batch ID: 55961	TestNo: SW6020A	Analysis Date: 8/21/2024	SeqNo: 3468292							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.818	0.0100	0.800	0.00345	102	75	125	0.816	0.179	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464033</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.000250	0.000250									

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464034</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0205	0.000250	0.0200	0	103	80	120				

Sample ID: <b>LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464035</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.0203	0.000250	0.0200	0	101	80	120	0.0205	1.29	20	

Sample ID: <b>24080452-003DMS</b>	SampType: <b>MS</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>CD-18C</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>		Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464043</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.805	0.0100	0.800	0.0161	98.7	75	125				

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080452-003DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6020A_D</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138884</b>						
Client ID: <b>CD-18C</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6020A</b>	Analysis Date: <b>8/15/2024</b>	SeqNo: <b>3464044</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.819	0.0100	0.800	0.0161	100	75	125	0.805	1.65	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>MB-55961</b>	SampType: <b>MBLK</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>PBW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460760</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID: <b>LCS-55961</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460761</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.499	0.0100	0.5000	0	99.8	80	120				
Cadmium	0.482	0.00500	0.5000	0	96.3	80	120				
Calcium	50.0	0.500	50.00	0	100	80	120				
Chromium	0.493	0.0100	0.5000	0	98.5	80	120				
Iron	0.519	0.0100	0.5000	0	104	80	120				
Lead	0.495	0.0100	0.5000	0	99.1	80	120				
Magnesium	49.6	0.500	50.00	0	99.1	80	120				
Manganese	0.494	0.0100	0.5000	0	98.8	80	120				

<b>Qualifiers:</b>	E Value above quantitation range	H Holding times for preparation or analysis exceeded	M Matrix Interference
	ND Not Detected at the Reporting Limit	R RPD outside accepted recovery limits	RL Reporting Limit
	S Spike Recovery outside accepted recovery limits	SDL Sample detection limit	U Analyte not detected
	W Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>LCS-55961</b>	SampType: <b>LCS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460761</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Potassium	49.9	5.00	50.00	0	99.7	80	120				
Sodium	49.4	10.0	50.00	0	98.9	80	120				
Strontium	0.492	0.0100	0.5000	0	98.3	80	120				
Zinc	0.495	0.0100	0.5000	0	99.0	80	120				

Sample ID: <b>LCSD-55961</b>	SampType: <b>LCSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460762</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.500	0.0100	0.5000	0	100	80	120	0.4988	0.252	20	
Cadmium	0.482	0.00500	0.5000	0	96.3	80	120	0.4816	0.0208	20	
Calcium	50.1	0.500	50.00	0	100	80	120	50.04	0.202	20	
Chromium	0.495	0.0100	0.5000	0	99.0	80	120	0.4927	0.413	20	
Iron	0.510	0.0100	0.5000	0	102	80	120	0.5186	1.72	20	
Lead	0.495	0.0100	0.5000	0	99.1	80	120	0.4955	0.0323	20	
Magnesium	49.7	0.500	50.00	0	99.3	80	120	49.56	0.193	20	
Manganese	0.493	0.0100	0.5000	0	98.6	80	120	0.4938	0.195	20	
Potassium	50.0	5.00	50.00	0	99.9	80	120	49.87	0.201	20	
Sodium	50.1	10.0	50.00	0	100	80	120	49.44	1.30	20	
Strontium	0.495	0.0100	0.5000	0	99.0	80	120	0.4915	0.738	20	
Zinc	0.496	0.0100	0.5000	0	99.3	80	120	0.4951	0.254	20	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080170-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460773</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.919	0.0100	0.5000	0.3494	114	75	125				
Cadmium	0.637	0.00500	0.5000	0	127	75	125				S
Calcium	118	0.500	50.00	64.04	107	75	125				
Chromium	0.625	0.0100	0.5000	0	125	75	125				S
Iron	0.874	0.0100	0.5000	0.2468	125	75	125				S
Lead	0.625	0.0100	0.5000	0	125	75	125				
Magnesium	77.8	0.500	50.00	17.54	120	75	125				
Manganese	0.808	0.0100	0.5000	0.2235	117	75	125				
Potassium	66.8	5.00	50.00	4.622	124	75	125				
Sodium	141	10.0	50.00	89.99	103	75	125				
Strontium	0.935	0.0100	0.5000	0.3672	114	75	125				
Zinc	0.663	0.0100	0.5000	0	133	75	125				S

**NOTES:**  
 S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

Sample ID: <b>24080170-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460774</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	0.913	0.0100	0.5000	0.3494	113	75	125	0.9193	0.643	20	
Cadmium	0.633	0.00500	0.5000	0	127	75	125	0.6370	0.601	20	S
Calcium	117	0.500	50.00	64.04	106	75	125	117.5	0.313	20	
Chromium	0.621	0.0100	0.5000	0	124	75	125	0.6252	0.647	20	
Iron	0.862	0.0100	0.5000	0.2468	123	75	125	0.8739	1.41	20	
Lead	0.620	0.0100	0.5000	0	124	75	125	0.6249	0.847	20	
Magnesium	77.3	0.500	50.00	17.54	120	75	125	77.79	0.576	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** 55961

Sample ID: <b>24080170-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010-D</b>	Units: <b>mg/L</b>	Prep Date: <b>8/13/2024</b>	RunNo: <b>137818</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>55961</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460774</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.803	0.0100	0.5000	0.2235	116	75	125	0.8075	0.577	20	
Potassium	66.6	5.00	50.00	4.622	124	75	125	66.85	0.411	20	
Sodium	140	10.0	50.00	89.99	99.1	75	125	141.3	1.25	20	
Strontium	0.928	0.0100	0.5000	0.3672	112	75	125	0.9352	0.760	20	
Zinc	0.659	0.0100	0.5000	0	132	75	125	0.6633	0.700	20	S

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137611

Sample ID: <b>24080298-001GDUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457053</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	4,460	100						4,770	6.72	10	

Sample ID: <b>MB-R137611</b>	SampType: <b>MBLK</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457081</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	< 10.0	10.0									

Sample ID: <b>LCS-R137611</b>	SampType: <b>LCS</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457084</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	992	10.0	1,000	0	99.2	85	115				

Sample ID: <b>LCSD-R137611</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457087</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)	982	10.0	1,000	0	98.2	85	115	992.0	1.01	10	

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137611

Sample ID: <b>LCSD-R137611</b>	SampType: <b>LCSD</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457087</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sample ID: <b>24080447-001CDUP</b>	SampType: <b>DUP</b>	TestCode: <b>TDS_2540C</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137611</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R137611</b>	TestNo: <b>SM2540C</b>		Analysis Date: <b>8/8/2024</b>	SeqNo: <b>3457097</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Total Dissolved Solids (Residue, Filterable)	304	10.0						301.0	0.992	10	
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<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137665

Sample ID: <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137665</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137665</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456130</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0463	0.00500	0.05000	0	92.6	72.6	120				
Ethylbenzene	0.0460	0.00500	0.05000	0	92.0	71.8	120				
Toluene	0.0477	0.0100	0.05000	0	95.4	72.8	120				
Xylenes, Total	0.140	0.0500	0.1500	0	93.0	73.4	120				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0464		0.05000		92.8	76	116				

Sample ID: <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137665</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137665</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456132</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0470	0.00500	0.05000	0	94.0	72.6	120	0.04630	1.50	20	
Ethylbenzene	0.0476	0.00500	0.05000	0	95.2	71.8	120	0.04600	3.42	20	
Toluene	0.0478	0.0100	0.05000	0	95.6	72.8	120	0.04770	0.209	20	
Xylenes, Total	0.143	0.0500	0.1500	0	95.6	73.4	120	0.1395	2.76	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0457		0.05000		91.4	76	116		0	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137665</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137665</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456643</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137665

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137665</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137665</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456643</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0487		0.05000		97.4	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137670

Sample ID: <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137670</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137670</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456238</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.3	0.150	12.50	0	106	80	130				

Sample ID: <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137670</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137670</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456365</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	14.0	0.150	12.50	0	112	80	130	13.30	5.09	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137670</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137670</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/9/2024</b>	SeqNo: <b>3456644</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0525		0.05000		105	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137796

Sample ID: <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137796</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137796</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460253</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0450	0.00500	0.05000	0	90.0	72.6	120				
Ethylbenzene	0.0443	0.00500	0.05000	0	88.6	71.8	120				
Toluene	0.0441	0.0100	0.05000	0	88.2	72.8	120				
Xylenes, Total	0.135	0.0500	0.1500	0	89.9	73.4	120				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0492		0.05000		98.4	76	116				

Sample ID: <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137796</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137796</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460254</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0452	0.00500	0.05000	0	90.4	72.6	120	0.04500	0.443	20	
Ethylbenzene	0.0441	0.00500	0.05000	0	88.2	71.8	120	0.04430	0.452	20	
Toluene	0.0449	0.0100	0.05000	0	89.8	72.8	120	0.04410	1.80	20	
Xylenes, Total	0.134	0.0500	0.1500	0	89.7	73.4	120	0.1348	0.223	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0478		0.05000		95.6	76	116		0	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137796</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137796</b>	TestNo: <b>SW8021B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460260</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



Element Materials Technology Lafayette  
 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services

**Project:** Castex 9403-016-0100

**BatchID:** R137796

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137796</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137796</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460260</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0486		0.05000		97.2	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R137797

Sample ID: <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137797</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R137797</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460256</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.9	0.150	12.50	0	111	80	130				

Sample ID: <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137797</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R137797</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460259</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	13.1	0.150	12.50	0	105	80	130	13.94	6.45	20	

Sample ID: <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>137797</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R137797</b>	TestNo: <b>SW8015B</b>		Analysis Date: <b>8/13/2024</b>	SeqNo: <b>3460292</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0535		0.05000		107	70	130				

<b>Qualifiers:</b>	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
	W	Sample container temperature is out of limit as specified at testcode				



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# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R138848

Sample ID: <b>mblk</b>	SampType: <b>MBLK</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462904</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	< 0.250	0.250									
Sulfate	< 0.250	0.250									

Sample ID: <b>ics</b>	SampType: <b>LCS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462905</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	10.2	0.250	10.00	0	102	80	120				
Sulfate	10.5	0.250	10.00	0	105	80	120				

Sample ID: <b>icsd</b>	SampType: <b>LCSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462906</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	10.2	0.250	10.00	0	102	80	120	10.25	0.533	15	
Sulfate	10.3	0.250	10.00	0	103	80	120	10.50	1.48	15	

Sample ID: <b>24080698-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462918</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	16.0	0.250	5.000	11.26	94.0	80	120				
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**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R138848

Sample ID: <b>24080698-001ams</b>	SampType: <b>MS</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462918</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Sulfate	6.07	0.250	5.000	0.7076	107	80	120				
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Sample ID: <b>24080698-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>9056_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>138848</b>						
Client ID: <b>ZZZZZZ</b>	Batch ID: <b>R138848</b>	TestNo: <b>SW9056A</b>		Analysis Date: <b>8/14/2024</b>	SeqNo: <b>3462919</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Chloride	15.6	0.250	5.000	11.26	87.1	80	120	15.96	2.19	15	
Sulfate	5.84	0.250	5.000	0.7076	103	80	120	6.071	3.84	15	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



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 2417 W. Pinhook Road  
 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# QC SUMMARY REPORT

WO#: 24080452  
 28-Aug-24

**Client:** ICON Environmental Services  
**Project:** Castex 9403-016-0100

**BatchID:** R138985

Sample ID: <b>MB-R138985</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>138985</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R138985</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467312</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 5.00	5.00									
Alkalinity, Carbonate (As CaCO3)	< 5.00	5.00									
Alkalinity, Total (As CaCO3)	< 5.00	5.00									

Sample ID: <b>LCS-R138985</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>138985</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R138985</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467313</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	52.0	5.00	50.00	0	104	80	120				
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Sample ID: <b>24080750-001DDUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>138985</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R138985</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>8/20/2024</b>	SeqNo: <b>3467334</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	662	20.0						650.0	1.90	20	
Alkalinity, Carbonate (As CaCO3)	< 20.0	20.0						0	0	20	
Alkalinity, Total (As CaCO3)	662	20.0						650.0	1.90	20	

**Qualifiers:**

E	Value above quantitation range	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	RL	Reporting Limit
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit	U	Analyte not detected
W	Sample container temperature is out of limit as specified at testcode				



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **24080452**

RcptNo: **1**

Logged by:	<b>Tammy Thibodeaux</b>	<b>8/8/2024 8:15:00 AM</b>	<i>Tammy Thibodeaux</i>
Completed By:	<b>Tammy Thibodeaux</b>	<b>8/8/2024 9:05:12 AM</b>	<i>Tammy Thibodeaux</i>
Reviewed By:	<b>Buffy Bryant</b>	<b>8/28/2024 9:14:39 AM</b>	<i>Buffy Bryant</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0° C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 17434-05-04  
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Added preservative to metals bottles Ok'd by Geoffery. Also note the voc vials were sent as 2preserved and 2 unpreserved. Let Ger know if is ok to still run with the unpreserved.

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Not Present			





Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

August 27, 2024

Mr. Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: Castex / 9403-016-0100  
Pace Project No.: 30708366

Dear Mr. Miller:

Enclosed are the analytical results for sample(s) received by the laboratory on August 12, 2024. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Greensburg

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Carla Cmar  
carla.cmar@pacelabs.com  
(724)850-5600  
Project Manager

Enclosures

cc: Mr. Derek Pourciau, ICON Environmental Services  
Mr. Jason Sills, ICON Environmental Services



### REPORT OF LABORATORY ANALYSIS

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Castex-ICON Report-001271

**BP/Castex-Ltd Adm-Apx I-001272**



**CERTIFICATIONS**

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

**Pace Analytical Services Pennsylvania**

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
 ANAB DOD-ELAP Rad Accreditation #: L2417  
 ANABISO/IEC 17025:2017 Rad Cert#: L24170  
 Alabama Certification #: 41590  
 Arizona Certification #: AZ0734  
 Arkansas Certification  
 California Certification #: 2950  
 Colorado Certification #: PA01547  
 Connecticut Certification #: PH-0694  
 EPA Region 4 DW Rad  
 Florida/TNI Certification #: E87683  
 Georgia Certification #: C040  
 Guam Certification  
 Hawaii Certification  
 Idaho Certification  
 Illinois Certification  
 Indiana Certification  
 Iowa Certification #: 391  
 Kansas Certification #: E-10358  
 Kentucky Certification #: KY90133  
 KY WW Permit #: KY0098221  
 KY WW Permit #: KY0000221  
 Louisiana DHH/TNI Certification #: LA010  
 Louisiana DEQ/TNI Certification #: 04086  
 Maine Certification #: 2023021  
 Maryland Certification #: 308  
 Massachusetts Certification #: M-PA1457  
 Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
 Montana Certification #: Cert0082  
 Nebraska Certification #: NE-OS-29-14  
 Nevada Certification #: PA014572023-03  
 New Hampshire/TNI Certification #: 297622  
 New Jersey/TNI Certification #: PA051  
 New Mexico Certification #: PA01457  
 New York/TNI Certification #: 10888  
 North Carolina Certification #: 42706  
 North Dakota Certification #: R-190  
 Ohio EPA Rad Approval: #41249  
 Oregon/TNI Certification #: PA200002-015  
 Pennsylvania/TNI Certification #: 65-00282  
 Puerto Rico Certification #: PA01457  
 Rhode Island Certification #: 65-00282  
 South Dakota Certification  
 Tennessee Certification #: TN02867  
 Texas/TNI Certification #: T104704188-22-18  
 Utah/TNI Certification #: PA014572223-14  
 USDA Soil Permit #: 525-23-67-77263  
 Vermont Dept. of Health: ID# VT-0282  
 Virgin Island/PADEP Certification  
 Virginia/VELAP Certification #: 460198  
 Washington Certification #: C868  
 West Virginia DEP Certification #: 143  
 West Virginia DHHR Certification #: 9964C  
 Wisconsin Approve List for Rad

**REPORT OF LABORATORY ANALYSIS**

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### SAMPLE SUMMARY

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30708366001	CD-19D	Water	07/30/24 12:30	08/12/24 11:20
30708366002	CD-18A	Water	08/06/24 13:30	08/12/24 11:20
30708366003	CD-18B	Water	08/06/24 10:50	08/12/24 11:20
30708366004	CD-18C	Water	08/06/24 12:50	08/12/24 11:20
30708366005	CD-18D	Water	08/06/24 14:30	08/12/24 11:20
30708366006	CD-19B	Water	08/07/24 13:30	08/12/24 11:20
30708366007	CD-19C	Water	08/07/24 15:00	08/12/24 11:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
30708366001	CD-19D	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366002	CD-18A	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366003	CD-18B	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366004	CD-18C	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366005	CD-18D	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366006	CD-19B	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA
30708366007	CD-19C	EPA 903.1	CLM	1	PASI-PA
		EPA 904.0	VAL	1	PASI-PA

PASI-PA = Pace Analytical Services - Greensburg

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** ICON Environmental Services

**Date:** August 27, 2024

### General Information:

7 samples were analyzed for EPA 903.1 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

### Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

### Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

### Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

### Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

### Additional Comments:

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** ICON Environmental Services

**Date:** August 27, 2024

**General Information:**

7 samples were analyzed for EPA 904.0 by Pace Analytical Services Greensburg. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

**Sample: CD-19D** Lab ID: 30708366001 Collected: 07/30/24 12:30 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.56 ± 0.766 (0.902)</b> C:NA T:91%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>1.72 ± 0.545 (0.669)</b> C:81% T:88%	pCi/L	08/26/24 14:43	15262-20-1	

**Sample: CD-18A** Lab ID: 30708366002 Collected: 08/06/24 13:30 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.0537 ± 0.408 (0.806)</b> C:NA T:96%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.576 ± 0.352 (0.642)</b> C:78% T:90%	pCi/L	08/26/24 14:43	15262-20-1	

**Sample: CD-18B** Lab ID: 30708366003 Collected: 08/06/24 10:50 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.360 ± 0.687 (1.21)</b> C:NA T:94%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.337 ± 0.359 (0.748)</b> C:82% T:87%	pCi/L	08/26/24 14:43	15262-20-1	

**Sample: CD-18C** Lab ID: 30708366004 Collected: 08/06/24 12:50 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.596 ± 0.747 (1.25)</b> C:NA T:97%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.575 ± 0.450 (0.897)</b> C:76% T:88%	pCi/L	08/26/24 14:43	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

**Sample: CD-18D** Lab ID: 30708366005 Collected: 08/06/24 14:30 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>0.479 ± 0.748 (1.28)</b> C:NA T:98%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.336 ± 0.323 (0.659)</b> C:79% T:89%	pCi/L	08/26/24 14:43	15262-20-1	

**Sample: CD-19B** Lab ID: 30708366006 Collected: 08/07/24 13:30 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.10 ± 0.771 (1.14)</b> C:NA T:95%	pCi/L	08/22/24 15:41	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.965 ± 0.435 (0.718)</b> C:80% T:87%	pCi/L	08/26/24 14:43	15262-20-1	

**Sample: CD-19C** Lab ID: 30708366007 Collected: 08/07/24 15:00 Received: 08/12/24 11:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Comments: • The sampler's name and signature were not listed on the COC.

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Pace Analytical Services - Greensburg						
Radium-226	EPA 903.1	<b>1.15 ± 0.586 (0.564)</b> C:NA T:91%	pCi/L	08/22/24 15:56	13982-63-3	
Pace Analytical Services - Greensburg						
Radium-228	EPA 904.0	<b>0.589 ± 0.347 (0.634)</b> C:85% T:90%	pCi/L	08/26/24 14:43	15262-20-1	

### REPORT OF LABORATORY ANALYSIS

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

---

QC Batch: 688932	Analysis Method: EPA 903.1
QC Batch Method: EPA 903.1	Analysis Description: 903.1 Radium-226
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30708366001, 30708366002, 30708366003, 30708366004, 30708366005, 30708366006, 30708366007

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METHOD BLANK: 3354365 Matrix: Water

Associated Lab Samples: 30708366001, 30708366002, 30708366003, 30708366004, 30708366005, 30708366006, 30708366007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.738 ± 0.371 (0.125) C:NA T:93%	pCi/L	08/22/24 15:28	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

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QC Batch: 688933	Analysis Method: EPA 904.0
QC Batch Method: EPA 904.0	Analysis Description: 904.0 Radium 228
	Laboratory: Pace Analytical Services - Greensburg

Associated Lab Samples: 30708366001, 30708366002, 30708366003, 30708366004, 30708366005, 30708366006, 30708366007

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METHOD BLANK: 3354366 Matrix: Water

Associated Lab Samples: 30708366001, 30708366002, 30708366003, 30708366004, 30708366005, 30708366006, 30708366007

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.188 ± 0.428 (0.954) C:78% T:64%	pCi/L	08/26/24 14:40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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## QUALIFIERS

Project: Castex / 9403-016-0100

Pace Project No.: 30708366

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### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: Castex / 9403-016-0100  
Pace Project No.: 30708366

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30708366001	CD-19D	EPA 903.1	688932		
30708366002	CD-18A	EPA 903.1	688932		
30708366003	CD-18B	EPA 903.1	688932		
30708366004	CD-18C	EPA 903.1	688932		
30708366005	CD-18D	EPA 903.1	688932		
30708366006	CD-19B	EPA 903.1	688932		
30708366007	CD-19C	EPA 903.1	688932		
30708366001	CD-19D	EPA 904.0	688933		
30708366002	CD-18A	EPA 904.0	688933		
30708366003	CD-18B	EPA 904.0	688933		
30708366004	CD-18C	EPA 904.0	688933		
30708366005	CD-18D	EPA 904.0	688933		
30708366006	CD-19B	EPA 904.0	688933		
30708366007	CD-19C	EPA 904.0	688933		

### REPORT OF LABORATORY ANALYSIS

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**DC#\_ Title: ENV-FRM-GBUR-0088 v07\_Sample Condition Upon Receipt- Greensburg**  
 Effective Date: 01/04/2024

**WO# : 30708366**  
 PM: CMC Due Date: 09/03/24  
 CLIENT: ICON

Client Name: Icon

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace  Other  
 Tracking Number: 7778 636 2583

Initial / Date

Custody Seal on Cooler/Box Present:  Yes  No    Seals Intact:  Yes  No  
 Thermometer Used:             Type of Ice: Wet Blue None  
 Cooler Temperature: Observed Temp          °C    Correction Factor:          °C    Final Temp:          °C  
 Temp should be above freezing to 6°C

Examined By: JS 8/12/24  
 Labeled By: JS 8/12/24  
 Temped By:         

Comments:	Yes	No	NA	pH paper Lot# <u>10D2931</u>	D.P.D. Residual Chlorine Lot # <u>        </u>
Chain of Custody Present	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1.	
Chain of Custody Filled Out: -Were client corrections present on COC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Chain of Custody Relinquished	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Sampler Name & Signature on COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	4.	
Sample Labels match COC: -Includes date/time/ID Matrix: <u>WT</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
Short Hold Time Analysis (<72hr remaining):	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.	
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	8.	
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
Correct Containers Used: -Pace Containers Used	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10.	
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	11.	
Orthophosphate field filtered:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	12.	
Hex Cr Aqueous samples field filtered:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	13.	
Organic Samples checked for dichlorination	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	14.	
Filtered volume received for dissolved tests:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	15.	
All containers checked for preservation: exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, non-aqueous matrix	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	16.	
All containers meet method preservation requirements:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>JS</u>	Date/Time of Preservation
				Lot# of added Preservative	
8260C/D: Headspace in VOA Vials (> 6mm)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	17.	
624.1: Headspace in VOA Vials (0mm)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	18.	
Radon: Headspace in RAD Vials (0mm)	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	19.	
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trip blank custody seal present? YES or NO	
Rad Samples Screened <.05 mrem/hr.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed <u>PS</u>	Date: <u>8/12/24</u> Survey Meter SN: <u>25014380</u>
Comments:					

Note: For NC compliance samples with discrepancies, a copy of this form must be sent to the DEHNR Certification office.  
 PM Review is documented electronically in LIMS through the SRF Review schedule in the Workorder Edit Screen.  
 Qualtrax ID: 55680



Element Materials Technology Lafayette  
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Website: www.element.com

July 31, 2019

Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767  
TEL: (225) 344-8490  
FAX (225) 344-6654

RE: Nezpique Farms 9403-009-0100

Order No.: 19070724

Dear Greg Miller:

Element Materials Technology Lafayette received 4 sample(s) on 7/17/2019 for the analyses presented in the following report.

In accordance with your instructions Element Lafayette conducted the analysis shown on the following pages on samples submitted by your company. The results related only to the items tested. Unless otherwise noted, all analyses were conducted using EPA approved methodologies and all test results meet all requirements of TNI. All relevant sampling information is on the attached Chain-of-Custody form.

All soil data, except for 29-B, are on a wet-weight basis unless otherwise indicated in the units field as –dry.

LELAP Certification No.: 01997. TCEQ Certification No.: T104704261. LDHH Certification No.: LA180028. ISDH Certification No.: C-LA-01. A scope of accredited parameters is available upon request. A "#" by the test method or analyte indicates this parameter is outside the scope of accreditation.

Estimated uncertainty is available upon request. This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions regarding these test results, please feel free to call.

A handwritten signature in blue ink that reads 'Cristina Thibeaux'.

Cristina Thibeaux  
Customer Service Supervisor  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344



Element Materials Technology Lafayette  
2417 W. Pinhook Road  
Lafayette, LA 70508-3344  
TEL: (337) 235-0483 FAX: (337) 233-6540  
Website: www.element.com

## Case Narrative

WO#: 19070724

Date: 7/31/2019

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**CLIENT:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

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Unless specified by the client, a duplicate or MS/MSD, wherever applicable, is randomly selected and analyzed from each analytical batch provided sample volume is sufficient. The sample chosen for duplicate or MS/MSD may or may not be a sample submitted in this workorder. A method blank and/or a lab control sample (LCS)/lab control sample duplicate (LCSD), wherever applicable, are processed as a quality control check for each analytical batch. When the matrix QC data is not available due to insufficient sample volume or when the results indicate possible matrix effect, the validity of the batch is determined by the method blank and LCS/LCSD.

The results of the laboratory internal quality control data are provided in the QC Summary Report section of the report for your review. Laboratory-related QC exceptions that may impact the validity of data are discussed in the case narrative. Sample-related QC exceptions are flagged either in the results page(s) or in the QC report page(s). End users should consider QC exceptions when evaluating sample data against data quality objectives.

Any other exceptions associated with this report will be footnoted in the results page(s) or the QC summary page(s).



Element Materials Technology Lafayette  
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 Lafayette, LA 70508-3344  
 TEL: (337) 235-0483 FAX: (337) 233-6540  
 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 19070724

Date Reported: 7/31/2019

**CLIENT:** ICON Environmental Services **Collection Date:** 7/16/2019 2:30:00 PM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-001 **Matrix:** AQUEOUS  
**Client Sample ID** DW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	7/20/2019 11:19:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	7/20/2019 11:19:00 PM
Surr: 4-Terphenyl-d14	135	51.4 - 146		%Rec	1	7/20/2019 11:19:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH-GRO IN WATER BY SW8015</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	7/19/2019 12:22:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	7/19/2019 12:22:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>AB</b>
<b>BTEX IN WATER BY SW8021</b>						
Benzene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:22:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:22:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	7/19/2019 12:22:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:22:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	7/19/2019 12:22:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	7/19/2019 12:22:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.2	70 - 130		%Rec	1	7/19/2019 12:22:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BBX</b>
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	7/23/2019 10:48:00 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	134	5.00		mg/L	20	7/24/2019 12:58:15 PM
Sulfate	< 0.250	0.250		mg/L	1	7/24/2019 5:46:34 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Arsenic	< 0.0100	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Barium	0.0793	0.0100		mg/L	1	7/24/2019 12:49:38 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 19070724

Date Reported: 7/31/2019

**CLIENT:** ICON Environmental Services **Collection Date:** 7/16/2019 2:30:00 PM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-001 **Matrix:** AQUEOUS  
**Client Sample ID** DW-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>STS</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Cadmium	< 0.00500	0.00500		mg/L	1	7/24/2019 12:49:38 AM
Calcium	11.0	0.500		mg/L	1	7/24/2019 12:49:38 AM
Chromium	< 0.0100	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Iron	0.0717	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Lead	< 0.0100	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Magnesium	3.19	0.500		mg/L	1	7/24/2019 12:49:38 AM
Manganese	0.0241	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Potassium	< 5.00	5.00		mg/L	1	7/24/2019 12:49:38 AM
Sodium	138	5.00		mg/L	1	7/24/2019 12:49:38 AM
Strontium	0.0509	0.0100		mg/L	1	7/24/2019 12:49:38 AM
Zinc	0.0234	0.0100		mg/L	1	7/24/2019 12:49:38 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	182	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Total (As CaCO3)	182	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	429	20.0		mg/L	1	7/18/2019 7:30:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: 19070724

Date Reported: 7/31/2019

**CLIENT:** ICON Environmental Services **Collection Date:** 7/16/2019 3:00:00 PM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-002 **Matrix:** AQUEOUS  
**Client Sample ID** DW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	< 0.130	0.130		mg/L	1	7/20/2019 11:54:00 PM
TPH (Oil Range)	< 0.120	0.120		mg/L	1	7/20/2019 11:54:00 PM
Surr: 4-Terphenyl-d14	123	51.4 - 146		%Rec	1	7/20/2019 11:54:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH-GRO IN WATER BY SW8015</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	7/19/2019 12:50:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	102	70 - 130		%Rec	1	7/19/2019 12:50:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>AB</b>
<b>BTEX IN WATER BY SW8021</b>						
Benzene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:50:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:50:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	7/19/2019 12:50:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	7/19/2019 12:50:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	7/19/2019 12:50:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	7/19/2019 12:50:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	95.4	70 - 130		%Rec	1	7/19/2019 12:50:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BXB</b>
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	7/23/2019 10:56:02 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	142	5.00		mg/L	20	7/24/2019 1:11:58 PM
Sulfate	< 0.250	0.250		mg/L	1	7/24/2019 6:00:18 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Arsenic	< 0.0100	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Barium	0.0750	0.0100		mg/L	1	7/24/2019 12:54:04 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



Element Materials Technology Lafayette  
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 Website: www.element.com

# Analytical Report

(consolidated)

WO#: **19070724**

Date Reported: **7/31/2019**

**CLIENT:** ICON Environmental Services **Collection Date:** 7/16/2019 3:00:00 PM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-002 **Matrix:** AQUEOUS  
**Client Sample ID** DW-2

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>STS</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Cadmium	< 0.00500	0.00500		mg/L	1	7/24/2019 12:54:04 AM
Calcium	10.2	0.500		mg/L	1	7/24/2019 12:54:04 AM
Chromium	< 0.0100	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Iron	< 0.0100	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Lead	< 0.0100	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Magnesium	3.02	0.500		mg/L	1	7/24/2019 12:54:04 AM
Manganese	< 0.0100	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Potassium	< 5.00	5.00		mg/L	1	7/24/2019 12:54:04 AM
Sodium	125	5.00		mg/L	1	7/24/2019 12:54:04 AM
Strontium	0.0474	0.0100		mg/L	1	7/24/2019 12:54:04 AM
Zinc	0.0123	0.0100		mg/L	1	7/24/2019 12:54:04 AM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	175	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Total (As CaCO3)	175	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	445	20.0		mg/L	1	7/18/2019 7:30:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
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	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 19070724

Date Reported: 7/31/2019

**CLIENT:** ICON Environmental Services **Collection Date:** 7/17/2019 9:30:00 AM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-003 **Matrix:** AQUEOUS  
**Client Sample ID** N-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>TPH-D/O IN WATER BY SW8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH DRO/ORO IN WATER BY SW8015</b>					<b>SW3511</b>	
TPH (Diesel Range)	0.299	0.130		mg/L	1	7/21/2019 12:28:00 AM
TPH (Oil Range)	0.185	0.120		mg/L	1	7/21/2019 12:28:00 AM
Surr: 4-Terphenyl-d14	119	51.4 - 146		%Rec	1	7/21/2019 12:28:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8015B</b>	Analyst: <b>AB</b>
<b>TPH-GRO IN WATER BY SW8015</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	7/19/2019 1:17:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	102	70 - 130		%Rec	1	7/19/2019 1:17:00 AM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>					<b>SW8021B</b>	Analyst: <b>AB</b>
<b>BTEX IN WATER BY SW8021</b>						
Benzene	< 0.00500	0.00500		mg/L	1	7/19/2019 1:17:00 AM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	7/19/2019 1:17:00 AM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	7/19/2019 1:17:00 AM
o-Xylene	< 0.00500	0.00500		mg/L	1	7/19/2019 1:17:00 AM
Toluene	< 0.0100	0.0100		mg/L	1	7/19/2019 1:17:00 AM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	7/19/2019 1:17:00 AM
Surr: alpha, alpha, alpha-Trifluorotoluene	96.2	70 - 130		%Rec	1	7/19/2019 1:17:00 AM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW7470A</b>	Analyst: <b>BBX</b>
<b>MERCURY IN GROUND WATER, TOTAL</b>						
Mercury	< 0.000200	0.000200		mg/L	1	7/23/2019 11:03:54 AM
<b>INORGANIC ANIONS IN WATER BY IC</b>					<b>SW9056A</b>	Analyst: <b>SGP</b>
Chloride	192	12.5		mg/L	50	7/24/2019 1:25:42 PM
Sulfate	20.8	0.250		mg/L	1	7/24/2019 6:14:02 PM
<b>RCRA METALS - SW6010/7470A</b>					<b>SW6010B</b>	Analyst: <b>STS</b>
<b>METALS IN WATER BY ICP, TOTALS</b>						
Barium	0.900	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Cadmium	< 0.00500	0.00500		mg/L	1	7/24/2019 12:58:31 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: 19070724

Date Reported: 7/31/2019

**CLIENT:** ICON Environmental Services **Collection Date:** 7/17/2019 9:30:00 AM  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-003 **Matrix:** AQUEOUS  
**Client Sample ID** N-1

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6010B</b>	Analyst: <b>STS</b>	
<b>METALS IN WATER BY ICP, TOTALS</b>						
Calcium	101	0.500		mg/L	1	7/24/2019 12:58:31 AM
Chromium	< 0.0100	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Iron	1.36	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Lead	< 0.0100	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Magnesium	28.7	0.500		mg/L	1	7/24/2019 12:58:31 AM
Manganese	0.520	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Potassium	< 5.00	5.00		mg/L	1	7/24/2019 12:58:31 AM
Sodium	83.3	5.00		mg/L	1	7/24/2019 12:58:31 AM
Strontium	0.620	0.0100		mg/L	1	7/24/2019 12:58:31 AM
Zinc	< 0.0100	0.0100		mg/L	1	7/24/2019 12:58:31 AM
<b>RCRA METALS - SW6010/7470A</b>				<b>SW6020A</b>	Analyst: <b>MRM</b>	
<b>METALS IN WATER BY ICP-MS</b>						
Arsenic	< 0.00500	0.00500		mg/L	20	7/29/2019 1:08:43 PM
<b>ALKALINITY; TOTAL, CARB, BICARB</b>				<b>SM2320 B</b>	Analyst: <b>BXB</b>	
Alkalinity, Bicarbonate (As CaCO3)	385	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Phenolphthalein	< 10.0	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
Alkalinity, Total (As CaCO3)	385	10.0		mgCaCO3/L	1	7/19/2019 7:21:00 AM
<b>TOTAL DISSOLVED SOLIDS</b>				<b>SM2540C</b>	Analyst: <b>GMS</b>	
Total Dissolved Solids (Residue, Filterable)	705	100		mg/L	5	7/18/2019 7:30:00 AM

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode



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# Analytical Report

(consolidated)

WO#: **19070724**

Date Reported: **7/31/2019**

**CLIENT:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100  
**Lab ID:** 19070724-004  
**Client Sample ID** Trip Blank

**Collection Date:** 7/16/2019

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8015B</b>	Analyst: <b>AB</b>	
<b>TPH-GRO IN WATER BY SW8015</b>						
TPH (Gasoline Range)	< 0.150	0.150		mg/L	1	7/18/2019 11:55:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	104	70 - 130		%Rec	1	7/18/2019 11:55:00 PM
<b>BTEX/TPH-G IN WATER BY SW8021/8015</b>				<b>SW8021B</b>	Analyst: <b>AB</b>	
<b>BTEX IN WATER BY SW8021</b>						
Benzene	< 0.00500	0.00500		mg/L	1	7/18/2019 11:55:00 PM
Ethylbenzene	< 0.00500	0.00500		mg/L	1	7/18/2019 11:55:00 PM
m,p-Xylene	< 0.0100	0.0100		mg/L	1	7/18/2019 11:55:00 PM
o-Xylene	< 0.00500	0.00500		mg/L	1	7/18/2019 11:55:00 PM
Toluene	< 0.0100	0.0100		mg/L	1	7/18/2019 11:55:00 PM
Xylenes, Total	< 0.0500	0.0500		mg/L	1	7/18/2019 11:55:00 PM
Surr: alpha, alpha, alpha-Trifluorotoluene	97.6	70 - 130		%Rec	1	7/18/2019 11:55:00 PM

Qualifiers:					
H	Holding times for preparation or analysis exceeded	M	Matrix Interference		
ND	Not Detected at the Reporting Limit	RL	Reporting Limit		
S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit		
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30872

Sample ID	<b>LCSD-D30872</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/17/2019</b>	RunNo:	<b>80407</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>30872</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/20/2019</b>	SeqNo:	<b>2015595</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		1.78		0.130	1.714	0		104	70	130	1.703	4.47	14.1	
Surr: 4-Terphenyl-d14		0.0646			0.05714			113	51.4	146		0	40	

Sample ID	<b>LCSD-M30872</b>	SampType:	<b>LCSD</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/17/2019</b>	RunNo:	<b>80407</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>30872</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/20/2019</b>	SeqNo:	<b>2015596</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.83		0.120	1.714	0		107	70	130	1.873	2.21	23.2	
Surr: 4-Terphenyl-d14		0.0746			0.05714			131	51.4	146		0	40	

Sample ID	<b>LCS-M30872</b>	SampType:	<b>LCS</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/17/2019</b>	RunNo:	<b>80407</b>			
Client ID:	<b>LCSSW</b>	Batch ID:	<b>30872</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/20/2019</b>	SeqNo:	<b>2015597</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Oil Range)		1.87		0.120	1.714	0		109	70	130				
Surr: 4-Terphenyl-d14		0.0761			0.05714			133	51.4	146				

Sample ID	<b>MB-30872</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/17/2019</b>	RunNo:	<b>80407</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>30872</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/20/2019</b>	SeqNo:	<b>2015598</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Diesel Range)		< 0.130		0.130										

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30872

Sample ID	<b>MB-30872</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8015_DO_W_</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/17/2019</b>	RunNo:	<b>80407</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>30872</b>	TestNo:	<b>SW8015B</b>	<b>SW3511</b>		Analysis Date:	<b>7/20/2019</b>	SeqNo:	<b>2015598</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
TPH (Oil Range)		< 0.120		0.120							
Surr: 4-Terphenyl-d14		0.0666			0.05714		117	51.4	146		

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30941

Sample ID	<b>MB-30941</b>	SampType:	<b>MBLK</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016778</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		< 0.000200		0.000200										

Sample ID	<b>LCS-30941</b>	SampType:	<b>LCS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016779</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0104		0.000200	0.01000	0		104	80	120				

Sample ID	<b>LCSD-30941</b>	SampType:	<b>LCSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016780</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0101		0.000200	0.01000	0		101	80	120	0.01036	2.54	20	

Sample ID	<b>19070724-001CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>DW-1</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016784</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0101		0.000200	0.01000	0		101	75	125				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30941

Sample ID	<b>19070724-001CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>DW-1</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016785</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.00984		0.000200	0.01000	0		98.4	75	125	0.01009	2.48	20	

Sample ID	<b>19070724-002CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>DW-2</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016787</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0101		0.000200	0.01000	0		101	75	125				

Sample ID	<b>19070724-002CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>HG_W_7470</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/22/2019</b>	RunNo:	<b>80471</b>			
Client ID:	<b>DW-2</b>	Batch ID:	<b>30941</b>	TestNo:	<b>SW7470A</b>			Analysis Date:	<b>7/23/2019</b>	SeqNo:	<b>2016788</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Mercury		0.0101		0.000200	0.01000	0		101	75	125	0.01010	0.0704	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	<b>MB-30946</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018413</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	< 0.0100	0.0100									
Barium	< 0.0100	0.0100									
Cadmium	< 0.00500	0.00500									
Calcium	< 0.500	0.500									
Chromium	< 0.0100	0.0100									
Iron	< 0.0100	0.0100									
Lead	< 0.0100	0.0100									
Magnesium	< 0.500	0.500									
Manganese	< 0.0100	0.0100									
Potassium	< 5.00	5.00									
Sodium	< 10.0	10.0									
Strontium	< 0.0100	0.0100									
Zinc	< 0.0100	0.0100									

Sample ID	<b>LCS-30946</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018414</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.498	0.0100	0.5000	0	99.6	80	120				
Barium	0.491	0.0100	0.5000	0	98.2	80	120				
Cadmium	0.493	0.00500	0.5000	0	98.6	80	120				
Calcium	46.5	0.500	50.00	0	93.0	80	120				
Chromium	0.488	0.0100	0.5000	0	97.6	80	120				
Iron	0.479	0.0100	0.5000	0	95.8	80	120				
Lead	0.487	0.0100	0.5000	0	97.4	80	120				

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	<b>LCS-30946</b>	SampType:	<b>LCS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>LCSW</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018414</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	47.0	0.500	50.00	0	94.0	80	120				
Manganese	0.487	0.0100	0.5000	0	97.4	80	120				
Potassium	48.2	5.00	50.00	0	96.4	80	120				
Sodium	49.0	10.0	50.00	0	98.1	80	120				
Strontium	0.490	0.0100	0.5000	0	97.9	80	120				
Zinc	0.531	0.0100	0.5000	0	106	80	120				

Sample ID	<b>LCSD-30946</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>LCSS02</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018419</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.489	0.0100	0.5000	0	97.8	80	120	0.4979	1.82	20	
Barium	0.496	0.0100	0.5000	0	99.2	80	120	0.4910	0.973	20	
Cadmium	0.493	0.00500	0.5000	0	98.5	80	120	0.4932	0.122	20	
Calcium	46.9	0.500	50.00	0	93.9	80	120	46.49	0.963	20	
Chromium	0.491	0.0100	0.5000	0	98.3	80	120	0.4880	0.694	20	
Iron	0.502	0.0100	0.5000	0	100	80	120	0.4789	4.75	20	
Lead	0.487	0.0100	0.5000	0	97.4	80	120	0.4872	0.0205	20	
Magnesium	47.3	0.500	50.00	0	94.6	80	120	46.98	0.700	20	
Manganese	0.491	0.0100	0.5000	0	98.2	80	120	0.4870	0.818	20	
Potassium	48.3	5.00	50.00	0	96.6	80	120	48.20	0.187	20	
Sodium	48.6	10.0	50.00	0	97.2	80	120	49.03	0.901	20	
Strontium	0.492	0.0100	0.5000	0	98.4	80	120	0.4895	0.530	20	
Zinc	0.538	0.0100	0.5000	0	108	80	120	0.5307	1.35	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	19070853-001CMS	SampType:	MS	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/23/2019	RunNo:	80509
Client ID:	ZZZZZZ	Batch ID:	30946	TestNo:	SW6010B	Analysis Date:	7/24/2019	SeqNo:	2018424		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.448	0.0100	0.5000	0.01810	85.9	75	125				
Barium	0.968	0.0100	0.5000	0.5219	89.2	75	125				
Cadmium	0.431	0.00500	0.5000	0	86.3	75	125				
Calcium	143	0.500	50.00	98.83	88.5	75	125				
Chromium	0.436	0.0100	0.5000	0.003100	86.7	75	125				
Iron	8.23	0.0100	0.5000	7.721	101	75	125				
Lead	0.420	0.0100	0.5000	0	83.9	75	125				
Magnesium	67.4	0.500	50.00	24.14	86.5	75	125				
Manganese	0.694	0.0100	0.5000	0.2556	87.7	75	125				
Potassium	50.4	5.00	50.00	5.716	89.3	75	125				
Sodium	112	10.0	50.00	65.17	94.5	75	125				
Strontium	1.42	0.0100	0.5000	0.9740	88.6	75	125				
Zinc	0.436	0.0100	0.5000	0	87.2	75	125				

Sample ID	19070853-001CMSD	SampType:	MSD	TestCode:	6010_W	Units:	mg/L	Prep Date:	7/23/2019	RunNo:	80509
Client ID:	ZZZZZZ	Batch ID:	30946	TestNo:	SW6010B	Analysis Date:	7/24/2019	SeqNo:	2018425		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.467	0.0100	0.5000	0.01810	89.8	75	125	0.4478	4.24	20	
Barium	0.966	0.0100	0.5000	0.5219	88.8	75	125	0.9677	0.165	20	
Cadmium	0.428	0.00500	0.5000	0	85.6	75	125	0.4314	0.768	20	
Calcium	145	0.500	50.00	98.83	91.5	75	125	143.1	1.04	20	
Chromium	0.430	0.0100	0.5000	0.003100	85.4	75	125	0.4364	1.45	20	
Iron	8.32	0.0100	0.5000	7.721	120	75	125	8.227	1.14	20	
Lead	0.416	0.0100	0.5000	0	83.1	75	125	0.4197	0.982	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	<b>19070853-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/23/2019</b>	RunNo: <b>80509</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>30946</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>7/24/2019</b>	SeqNo: <b>2018425</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	68.0	0.500	50.00	24.14	87.8	75	125	67.38	0.960	20	
Manganese	0.690	0.0100	0.5000	0.2556	86.8	75	125	0.6943	0.650	20	
Potassium	50.2	5.00	50.00	5.716	89.0	75	125	50.37	0.338	20	
Sodium	113	10.0	50.00	65.17	96.1	75	125	112.4	0.709	20	
Strontium	1.43	0.0100	0.5000	0.9740	91.0	75	125	1.417	0.843	20	
Zinc	0.431	0.0100	0.5000	0	86.1	75	125	0.4360	1.25	20	

Sample ID	<b>19070853-002CMS</b>	SampType: <b>MS</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/23/2019</b>	RunNo: <b>80509</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>30946</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>7/24/2019</b>	SeqNo: <b>2018432</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.451	0.0100	0.5000	0	90.1	75	125				
Cadmium	0.431	0.00500	0.5000	0.001100	86.0	75	125				
Chromium	0.393	0.0100	0.5000	0	78.6	75	125				
Lead	0.372	0.0100	0.5000	0	74.4	75	125				S
Potassium	72.2	5.00	50.00	23.90	96.7	75	125				
Zinc	0.446	0.0100	0.5000	0.01810	85.5	75	125				

Sample ID	<b>19070853-002CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>6010_W</b>	Units: <b>mg/L</b>	Prep Date: <b>7/23/2019</b>	RunNo: <b>80509</b>					
Client ID:	<b>ZZZZZZ</b>	Batch ID: <b>30946</b>	TestNo: <b>SW6010B</b>	Analysis Date: <b>7/24/2019</b>	SeqNo: <b>2018433</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.463	0.0100	0.5000	0	92.6	75	125	0.4506	2.76	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	<b>19070853-002CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018433</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Cadmium	0.430	0.00500	0.5000	0.001100	85.7	75	125	0.4309	0.279	20	
Chromium	0.391	0.0100	0.5000	0	78.2	75	125	0.3929	0.536	20	
Lead	0.373	0.0100	0.5000	0	74.6	75	125	0.3722	0.268	20	S
Potassium	73.3	5.00	50.00	23.90	98.8	75	125	72.25	1.44	20	
Zinc	0.441	0.0100	0.5000	0.01810	84.5	75	125	0.4456	1.11	20	

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

Sample ID	<b>19070853-002CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018435</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	8.84	0.100	0.5000	8.125	143	75	125				S
Calcium	630	5.00	50.00	562.7	134	75	125				S
Iron	65.4	0.100	0.5000	62.60	564	75	125				S
Magnesium	178	5.00	50.00	129.5	96.8	75	125				
Manganese	2.33	0.100	0.5000	1.855	94.2	75	125				
Sodium	6,560	100	50.00	6,224	664	75	125				S
Strontium	19.5	0.100	0.5000	18.36	226	75	125				S

Sample ID	<b>19070853-002CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018436</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30946

Sample ID	<b>19070853-002CMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>6010_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80509</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>30946</b>	TestNo:	<b>SW6010B</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2018436</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	8.58	0.100	0.5000	8.125	90.4	75	125	8.842	3.04	20	
Calcium	607	5.00	50.00	562.7	88.2	75	125	629.9	3.74	20	
Iron	62.8	0.100	0.5000	62.60	44.0	75	125	65.42	4.05	20	S
Magnesium	173	5.00	50.00	129.5	86.8	75	125	177.9	2.85	20	
Manganese	2.27	0.100	0.5000	1.855	82.4	75	125	2.326	2.57	20	
Sodium	6,290	100	50.00	6,224	136	75	125	6,556	4.11	20	S
Strontium	18.7	0.100	0.5000	18.36	68.0	75	125	19.49	4.14	20	S

**NOTES:**

S - Spike recovery indicates matrix interference. The method is in control as indicated by the Lab Control Sample.

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30947

Sample ID	<b>MB-30947</b>	SampType:	<b>MBLK</b>	TestCode:	<b>6020A_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80660</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>30947</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>7/29/2019</b>	SeqNo:	<b>2021985</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		< 0.000250		0.000250										

Sample ID	<b>LCS-30947</b>	SampType:	<b>LCS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80660</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>30947</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>7/29/2019</b>	SeqNo:	<b>2021986</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.489		0.00500	0.500	0		97.8	80	120				

Sample ID	<b>LCSD-30947</b>	SampType:	<b>LCSD</b>	TestCode:	<b>6020A_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80660</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>30947</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>7/29/2019</b>	SeqNo:	<b>2021987</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.478		0.00500	0.500	0		95.7	80	120	0.489	2.19	20	

Sample ID	<b>19070853-001CMS</b>	SampType:	<b>MS</b>	TestCode:	<b>6020A_W</b>	Units:	<b>mg/L</b>	Prep Date:	<b>7/23/2019</b>	RunNo:	<b>80660</b>			
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>30947</b>	TestNo:	<b>SW6020A</b>			Analysis Date:	<b>7/29/2019</b>	SeqNo:	<b>2021996</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.499		0.00500	0.500	0.0133		97.1	75	125				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
 RL Reporting Limit S Spike Recovery outside accepted recovery limits SDL Sample detection limit  
 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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 Website: www.element.com

# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** 30947

Sample ID	19070853-001CMSD	SampType:	MSD	TestCode:	6020A_W	Units:	mg/L	Prep Date:	7/23/2019	RunNo:	80660			
Client ID:	ZZZZZZ	Batch ID:	30947	TestNo:	SW6020A			Analysis Date:	7/29/2019	SeqNo:	2021997			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.492		0.00500	0.500	0.0133		95.7	75	125	0.499	1.39	20	

Sample ID	19070853-002CMS	SampType:	MS	TestCode:	6020A_W	Units:	mg/L	Prep Date:	7/23/2019	RunNo:	80660			
Client ID:	ZZZZZZ	Batch ID:	30947	TestNo:	SW6020A			Analysis Date:	7/29/2019	SeqNo:	2022000			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.478		0.00500	0.500	0.00989		93.5	75	125				

Sample ID	19070853-002CMSD	SampType:	MSD	TestCode:	6020A_W	Units:	mg/L	Prep Date:	7/23/2019	RunNo:	80660			
Client ID:	ZZZZZZ	Batch ID:	30947	TestNo:	SW6020A			Analysis Date:	7/29/2019	SeqNo:	2022001			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic		0.481		0.00500	0.500	0.00989		94.2	75	125	0.478	0.706	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80316

Sample ID	<b>MB-R80316</b>	SampType:	<b>MBLK</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015189</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		< 20.0		20.0										

Sample ID	<b>LCS-R80316</b>	SampType:	<b>LCS</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015190</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		986		20.0	1,000	0		98.6	85	115				

Sample ID	<b>LCSD-R80316</b>	SampType:	<b>LCSD</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015191</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		981		20.0	1,000	0		98.1	85	115	986.0	0.508	10	

Sample ID	<b>19070724-003DDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>			
Client ID:	<b>N-1</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015207</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filterable)		745		100							705.0	5.52	10	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80316

Sample ID	<b>19070724-003DDUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>
Client ID:	<b>N-1</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015207</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual

Sample ID	<b>19070765-001ADUP</b>	SampType:	<b>DUP</b>	TestCode:	<b>TDS_2540C</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80316</b>
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R80316</b>	TestNo:	<b>SM2540C</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2015208</b>
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD RPDLimit Qual
Total Dissolved Solids (Residue, Filterable)		669		20.0						686.0	2.51 10

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80359

Sample ID <b>MB-R80359</b>	SampType: <b>MBLK</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>80359</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R80359</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/19/2019</b>	SeqNo: <b>2015091</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	< 10.0	10.0									
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0									
Alkalinity, Phenolphthalein	< 10.0	10.0									
Alkalinity, Total (As CaCO3)	< 10.0	10.0									

Sample ID <b>LCS-R80359</b>	SampType: <b>LCS</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>80359</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R80359</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/19/2019</b>	SeqNo: <b>2015092</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Total (As CaCO3)	46.5	10.0	50.00	0	93.0	80	120				
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Sample ID <b>19070513-001ADUP</b>	SampType: <b>DUP</b>	TestCode: <b>ALK</b>	Units: <b>mgCaCO3/L</b>	Prep Date:	RunNo: <b>80359</b>						
Client ID: <b>ZZZZZ</b>	Batch ID: <b>R80359</b>	TestNo: <b>SM2320 B</b>		Analysis Date: <b>7/19/2019</b>	SeqNo: <b>2015094</b>						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Alkalinity, Bicarbonate (As CaCO3)	148	10.0						152.5	3.33	20	
Alkalinity, Carbonate (As CaCO3)	< 10.0	10.0						0	0	20	
Alkalinity, Phenolphthalein	< 10.0	10.0						0	0	20	
Alkalinity, Total (As CaCO3)	148	10.0						152.5	3.33	20	

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
	U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80375

Sample ID <b>GAS LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>80375</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R80375</b>	TestNo: <b>SW8015B</b>	Analysis Date: <b>7/18/2019</b>	SeqNo: <b>2014814</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	11.4	0.150	12.50	0	91.1	80	130				

Sample ID <b>GAS LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>80375</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R80375</b>	TestNo: <b>SW8015B</b>	Analysis Date: <b>7/18/2019</b>	SeqNo: <b>2014815</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	11.6	0.150	12.50	0	93.0	80	130	11.39	2.09	20	

Sample ID <b>MBLK</b>	SampType: <b>MBLK</b>	TestCode: <b>8015_G_W</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>80375</b>						
Client ID: <b>PBW</b>	Batch ID: <b>R80375</b>	TestNo: <b>SW8015B</b>	Analysis Date: <b>7/18/2019</b>	SeqNo: <b>2014816</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
TPH (Gasoline Range)	< 0.150	0.150									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0520		0.05000		104	70	130				

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80379

Sample ID <b>BTEX LCS</b>	SampType: <b>LCS</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>80379</b>						
Client ID: <b>LCSW</b>	Batch ID: <b>R80379</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>7/18/2019</b>	SeqNo: <b>2014909</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0451	0.00500	0.05000	0	90.2	72	120				
Ethylbenzene	0.0477	0.00500	0.05000	0	95.4	76	129				
m,p-Xylene	0.0948	0.0100	0.1000	0	94.8	75	125				
o-Xylene	0.0477	0.00500	0.05000	0	95.4	75	125				
Toluene	0.0464	0.0100	0.05000	0	92.8	78	120				
Xylenes, Total	0.142	0.0500	0.1500	0	95.0	75	125				
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0503		0.05000		101	70	130				

Sample ID <b>BTEX LCSD</b>	SampType: <b>LCSD</b>	TestCode: <b>8021_BTEX_</b>	Units: <b>mg/L</b>	Prep Date:	RunNo: <b>80379</b>						
Client ID: <b>LCSS02</b>	Batch ID: <b>R80379</b>	TestNo: <b>SW8021B</b>	Analysis Date: <b>7/18/2019</b>	SeqNo: <b>2014910</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	0.0459	0.00500	0.05000	0	91.8	72	120	0.04510	1.76	20	
Ethylbenzene	0.0496	0.00500	0.05000	0	99.2	76	129	0.04770	3.91	20	
m,p-Xylene	0.0970	0.0100	0.1000	0	97.0	75	125	0.09480	2.29	20	
o-Xylene	0.0488	0.00500	0.05000	0	97.6	75	125	0.04770	2.28	20	
Toluene	0.0473	0.0100	0.05000	0	94.6	78	120	0.04640	1.92	20	
Xylenes, Total	0.146	0.0500	0.1500	0	97.3	75	125	0.1425	2.36	20	
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0502		0.05000		100	70	130		0	20	

**Qualifiers:** H Holding times for preparation or analysis exceeded M Matrix Interference ND Not Detected at the Reporting Limit  
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 U Analyte not detected W Sample container temperature is out of limit as specified at testcode



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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80379

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>8021_BTEX_</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80379</b>
Client ID:	<b>PBW</b>	Batch ID:	<b>R80379</b>	TestNo:	<b>SW8021B</b>			Analysis Date:	<b>7/18/2019</b>	SeqNo:	<b>2014911</b>
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Benzene	< 0.00500	0.00500									
Ethylbenzene	< 0.00500	0.00500									
m,p-Xylene	< 0.0100	0.0100									
o-Xylene	< 0.00500	0.00500									
Toluene	< 0.0100	0.0100									
Xylenes, Total	< 0.0500	0.0500									
Surr: alpha, alpha, alpha-Trifluorotoluene	0.0496		0.05000		99.2	70	130				

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
	RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80531

Sample ID	<b>MBLK</b>	SampType:	<b>MBLK</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>			
Client ID:	<b>PBW</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019529</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		< 0.250		0.250										
Sulfate		< 0.250		0.250										

Sample ID	<b>LCS</b>	SampType:	<b>LCS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>			
Client ID:	<b>LCSW</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019530</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		9.97		0.250	10.00	0		99.7	80	120				
Sulfate		9.66		0.250	10.00	0		96.6	80	120				

Sample ID	<b>LCSD</b>	SampType:	<b>LCSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>			
Client ID:	<b>LCSS02</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019531</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		10.0		0.250	10.00	0		100	80	120	9.968	0.453	15	
Sulfate		10.1		0.250	10.00	0		101	80	120	9.663	4.13	15	

Sample ID	<b>19071006-001BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>			
Client ID:	<b>ZZZZZ</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019549</b>			
Analyte		Result		PQL	SPK value	SPK Ref Val		%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		811		12.5	250.0	568.4		97.1	80	120				

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# QC SUMMARY REPORT

WO#: 19070724  
 01-Aug-19

**Client:** ICON Environmental Services  
**Project:** Nezpique Farms 9403-009-0100

**BatchID:** R80531

Sample ID	<b>19071006-001BMS</b>	SampType:	<b>MS</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019549</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate		1,170		12.5	250.0	970.6	81.0	80	120				

Sample ID	<b>19071006-001BMSD</b>	SampType:	<b>MSD</b>	TestCode:	<b>9056_W</b>	Units:	<b>mg/L</b>	Prep Date:		RunNo:	<b>80531</b>		
Client ID:	<b>ZZZZZZ</b>	Batch ID:	<b>R80531</b>	TestNo:	<b>SW9056A</b>			Analysis Date:	<b>7/24/2019</b>	SeqNo:	<b>2019550</b>		
Analyte		Result		PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride		809		12.5	250.0	568.4	96.3	80	120	811.2	0.248	15	
Sulfate		1,180		12.5	250.0	970.6	81.9	80	120	1,173	0.206	15	

**Qualifiers:**

H	Holding times for preparation or analysis exceeded	M	Matrix Interference	ND	Not Detected at the Reporting Limit
RL	Reporting Limit	S	Spike Recovery outside accepted recovery limits	SDL	Sample detection limit
U	Analyte not detected	W	Sample container temperature is out of limit as specified at testcode		



# Sample Log-In Check List

Client Name: **ICON\_ENV**

Work Order Number: **19070724**

RcptNo: **1**

Logged by:	<b>Danielle Hollier</b>	<b>7/17/2019 11:25:00 AM</b>	<i>Danielle Hollier</i>
Completed By:	<b>Danielle Hollier</b>	<b>7/17/2019 11:35:19 AM</b>	<i>Danielle Hollier</i>
Reviewed By:	<b>Caitlin Duplantis</b>	<b>7/31/2019 4:39:56 PM</b>	<i>Caitlin Duplantis</i>

**Chain of Custody**

1. Is Chain of Custody complete? Yes  No  Not Present   
 2. How was the sample delivered? Client

**Log In**

3. Coolers are present? Yes  No  NA   
 4. Shipping container/cooler in good condition? Yes  No   
 Custody seals intact on shipping container/cooler? Yes  No  Not Present   
 No. Seal Date: Signed By:  
 5. Was an attempt made to cool the samples? Yes  No  NA   
 6. Were all samples received at a temperature of >0° C to 6.0°C Yes  No  NA   
 7. Sample(s) in proper container(s)? Yes  No   
 8. Sufficient sample volume for indicated test(s)? Yes  No   
 9. Are samples (except VOA and ONG) properly preserved? Yes  No   
 10. Was preservative added to bottles? Yes  No  NA   
 11. Is the headspace in the VOA vials less than 1/4 inch or 6 mm? Yes  No  No VOA Vials   
 12. Were any sample containers received broken? Yes  No   
 13. Does paperwork match bottle labels? Yes  No   
 (Note discrepancies on chain of custody)  
 14. Are matrices correctly identified on Chain of Custody? Yes  No   
 15. Is it clear what analyses were requested? Yes  No   
 16. Were all holding times able to be met? Yes  No   
 (If no, notify customer for authorization.)

**Special Handling (if applicable)**

17. Was client notified of all discrepancies with this order? Yes  No  NA

Person Notified:	<input type="text"/>	Date:	<input type="text"/>
By Whom:	<input type="text"/>	Via:	<input type="checkbox"/> eMail <input type="checkbox"/> Phone <input type="checkbox"/> Fax <input type="checkbox"/> In Person
Regarding:	<input type="text"/>		
Client Instructions:	<input type="text"/>		

18. Additional remarks:  
 Added the trip blank to the COC as per samples received.

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			





Pace Analytical Services, LLC  
1638 Roseytown Road - Suites 2,3,4  
Greensburg, PA 15601  
(724)850-5600

August 19, 2019

Mr. Greg Miller  
ICON Environmental Services  
2049 Commercial Drive  
Port Allen, LA 70767

RE: Project: 9403-009-0100  
Pace Project No.: 30317153

Dear Mr. Miller:

Enclosed are the analytical results for sample(s) received by the laboratory on July 31, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Jacquelyn Collins  
jacquelyn.collins@pacelabs.com  
(724)850-5612  
Project Manager

Enclosures

cc: Mr. Derek Pourciau



## REPORT OF LABORATORY ANALYSIS

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Castex-ICON Report-001316

**BP/Castex-Ltd Adm-Apx I-001317**



### CERTIFICATIONS

Project: 9403-009-0100

Pace Project No.: 30317153

#### Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4, Greensburg, PA 15601  
ANAB DOD-ELAP Rad Accreditation #: L2417  
Alabama Certification #: 41590  
Arizona Certification #: AZ0734  
Arkansas Certification  
California Certification #: 04222CA  
Colorado Certification #: PA01547  
Connecticut Certification #: PH-0694  
Delaware Certification  
EPA Region 4 DW Rad  
Florida/TNI Certification #: E87683  
Georgia Certification #: C040  
Florida: Cert E871149 SEKS WET  
Guam Certification  
Hawaii Certification  
Idaho Certification  
Illinois Certification  
Indiana Certification  
Iowa Certification #: 391  
Kansas/TNI Certification #: E-10358  
Kentucky Certification #: KY90133  
KY WW Permit #: KY0098221  
KY WW Permit #: KY0000221  
Louisiana DHH/TNI Certification #: LA180012  
Louisiana DEQ/TNI Certification #: 4086  
Maine Certification #: 2017020  
Maryland Certification #: 308  
Massachusetts Certification #: M-PA1457  
Michigan/PADEP Certification #: 9991

Missouri Certification #: 235  
Montana Certification #: Cert0082  
Nebraska Certification #: NE-OS-29-14  
Nevada Certification #: PA014572018-1  
New Hampshire/TNI Certification #: 297617  
New Jersey/TNI Certification #: PA051  
New Mexico Certification #: PA01457  
New York/TNI Certification #: 10888  
North Carolina Certification #: 42706  
North Dakota Certification #: R-190  
Ohio EPA Rad Approval: #41249  
Oregon/TNI Certification #: PA200002-010  
Pennsylvania/TNI Certification #: 65-00282  
Puerto Rico Certification #: PA01457  
Rhode Island Certification #: 65-00282  
South Dakota Certification  
Tennessee Certification #: 02867  
Texas/TNI Certification #: T104704188-17-3  
Utah/TNI Certification #: PA014572017-9  
USDA Soil Permit #: P330-17-00091  
Vermont Dept. of Health: ID# VT-0282  
Virgin Island/PADEP Certification  
Virginia/VELAP Certification #: 9526  
Washington Certification #: C868  
West Virginia DEP Certification #: 143  
West Virginia DHHR Certification #: 9964C  
Wisconsin Approve List for Rad  
Wyoming Certification #: 8TMS-L

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE SUMMARY

Project: 9403-009-0100  
Pace Project No.: 30317153

Lab ID	Sample ID	Matrix	Date Collected	Date Received
30317153001	DW-1	Water	07/16/19 14:30	07/31/19 09:20
30317153002	DW-2	Water	07/16/19 15:00	07/31/19 09:20
30317153003	N-1	Water	07/17/19 09:30	07/31/19 09:20

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 9403-009-0100  
Pace Project No.: 30317153

Lab ID	Sample ID	Method	Analysts	Analytes Reported
30317153001	DW-1	EPA 903.1	MK1	1
		EPA 904.0	JLW	1
30317153002	DW-2	EPA 903.1	MK1	1
		EPA 904.0	JLW	1
30317153003	N-1	EPA 903.1	MK1	1
		EPA 904.0	JLW	1

### REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 9403-009-0100

Pace Project No.: 30317153

---

**Method:** EPA 903.1

**Description:** 903.1 Radium 226

**Client:** ICON Environmental Services

**Date:** August 19, 2019

**General Information:**

3 samples were analyzed for EPA 903.1. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

## REPORT OF LABORATORY ANALYSIS

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## PROJECT NARRATIVE

Project: 9403-009-0100

Pace Project No.: 30317153

---

**Method:** EPA 904.0

**Description:** 904.0 Radium 228

**Client:** ICON Environmental Services

**Date:** August 19, 2019

**General Information:**

3 samples were analyzed for EPA 904.0. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

**Hold Time:**

The samples were analyzed within the method required hold times with any exceptions noted below.

**Method Blank:**

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

**Laboratory Control Spike:**

All laboratory control spike compounds were within QC limits with any exceptions noted below.

**Matrix Spikes:**

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

**Additional Comments:**

This data package has been reviewed for quality and completeness and is approved for release.

## REPORT OF LABORATORY ANALYSIS

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**ANALYTICAL RESULTS - RADIOCHEMISTRY**

Project: 9403-009-0100  
 Pace Project No.: 30317153

**Sample: DW-1** Lab ID: 30317153001 Collected: 07/16/19 14:30 Received: 07/31/19 09:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.0581 ± 0.378 (0.762)</b> C:NA T:90%	pCi/L	08/13/19 13:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.296 ± 0.317 (0.661)</b> C:81% T:93%	pCi/L	08/09/19 11:34	15262-20-1	

**Sample: DW-2** Lab ID: 30317153002 Collected: 07/16/19 15:00 Received: 07/31/19 09:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>0.243 ± 0.446 (0.795)</b> C:NA T:92%	pCi/L	08/13/19 13:40	13982-63-3	
Radium-228	EPA 904.0	<b>0.695 ± 0.394 (0.726)</b> C:80% T:86%	pCi/L	08/09/19 11:34	15262-20-1	

**Sample: N-1** Lab ID: 30317153003 Collected: 07/17/19 09:30 Received: 07/31/19 09:20 Matrix: Water  
 PWS: Site ID: Sample Type:

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 903.1	<b>1.04 ± 0.606 (0.646)</b> C:NA T:79%	pCi/L	08/13/19 13:40	13982-63-3	
Radium-228	EPA 904.0	<b>1.64 ± 0.576 (0.832)</b> C:79% T:74%	pCi/L	08/09/19 11:35	15262-20-1	

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: 9403-009-0100  
 Pace Project No.: 30317153

---

QC Batch: 354857 Analysis Method: EPA 904.0  
 QC Batch Method: EPA 904.0 Analysis Description: 904.0 Radium 228  
 Associated Lab Samples: 30317153001, 30317153002, 30317153003

---

METHOD BLANK: 1723812 Matrix: Water  
 Associated Lab Samples: 30317153001, 30317153002, 30317153003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-228	0.443 ± 0.379 (0.762) C:75% T:84%	pCi/L	08/09/19 11:34	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

**REPORT OF LABORATORY ANALYSIS**

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**QUALITY CONTROL - RADIOCHEMISTRY**

Project: 9403-009-0100  
 Pace Project No.: 30317153

---

QC Batch: 354858 Analysis Method: EPA 903.1  
 QC Batch Method: EPA 903.1 Analysis Description: 903.1 Radium-226  
 Associated Lab Samples: 30317153001, 30317153002, 30317153003

---

METHOD BLANK: 1723813 Matrix: Water  
 Associated Lab Samples: 30317153001, 30317153002, 30317153003

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.127 ± 0.221 (0.394) C:NA T:95%	pCi/L	08/13/19 13:40	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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## QUALIFIERS

Project: 9403-009-0100

Pace Project No.: 30317153

### DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Act - Activity

Unc - Uncertainty: For Safe Drinking Water Act (SDWA) analyses, the reported Unc. is the calculated Count Uncertainty (95% confidence interval) using a coverage factor of 1.96. For all other matrices (non-SDWA), the reported Unc. is the calculated Expanded Uncertainty (aka Combined Standard Uncertainty, CSU), reported at the 95% confidence interval using a coverage factor of 1.96.

Gamma Spec: The Unc. reported for all gamma-spectroscopy analyses (EPA 901.1), is the calculated Expanded Uncertainty (CSU) at the 95.4% confidence interval, using a coverage factor of 2.0.

(MDC) - Minimum Detectable Concentration

Trac - Tracer Recovery (%)

Carr - Carrier Recovery (%)

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

## REPORT OF LABORATORY ANALYSIS

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Pittsburgh Lab Sample Condition Upon Receipt

# 30317153



Client Name: ICON

Project # \_\_\_\_\_

Courier:  Fed Ex  UPS  USPS  Client  Commercial  Pace Other \_\_\_\_\_

Tracking #: 7758 4226 9758

Label	<i>[Signature]</i>
LIMS Login	<i>[Signature]</i>

Custody Seal on Cooler/Box Present:  yes  no    Seals intact:  yes  no

Thermometer Used NA    Type of Ice: Wet Blue None

Cooler Temperature \_\_\_\_\_ Observed Temp \_\_\_\_\_ °C    Correction Factor: \_\_\_\_\_ °C    Final Temp: \_\_\_\_\_ °C

Temp should be above freezing to 6°C

Comments:	Yes	No	N/A	pH paper Lot# <u>1054287</u>	Date and Initials of person examining contents: <u>MG 7/31/19</u>	
Chain of Custody Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Chain of Custody Filled Out:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Chain of Custody Relinquished:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Sampler Name & Signature on COC:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Sample Labels match COC:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-Includes date/time/ID      Matrix: <u>NA</u>						
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Short Hold Time Analysis (<72hr remaining):	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Rush Turn Around Time Requested:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Sufficient Volume:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Correct Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
-Pace Containers Used:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Containers Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
Orthophosphate field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Hex Cr Aqueous sample field filtered	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Organic Samples checked for dechlorination:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Filtered volume received for Dissolved tests	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
All containers have been checked for preservation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>			
exceptions: VOA, coliform, TOC, O&G, Phenolics, Radon, Non-aqueous matrix						
All containers meet method preservation requirements.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MG</u>	Date/time of preservation: _____	
				Lot # of added preservative		
Headspace in VOA Vials (>6mm):	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Trip Blank Present:	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Trip Blank Custody Seals Present	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Rad Samples Screened < 0.5 mrem/hr	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Initial when completed: <u>MG</u>	Date: <u>7/31/19</u>	

Client Notification/ Resolution:

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_ Contacted By: \_\_\_\_\_

Comments/ Resolution: \_\_\_\_\_

A check in this box indicates that additional information has been stored in ereports.

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

\*PM review is documented electronically in LIMS. When the Project Manager closes the SRF Review schedule in LIMS. The review is in the Status section of the Workorder Edit Screen.



Lab #: 829077 Job #: 51065 IS-102498 Co. Job#:   
 Sample Name: CD-6c Co. Lab#:   
 Company: ICON Environmental Services, Inc.   
 API/Well:   
 Container: IsoBag   
 Field/Site Name: Castex Development   
 Location: Mermentau, LA   
 Formation:   
 Sampling Point:   
 Date Sampled: 5/13/2022 8:00 Date Received: 5/20/2022 Date Reported: 6/16/2022

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.190			
Oxygen -----	3.66			
Nitrogen -----	14.77			
Carbon Dioxide -----	0.40	-17.01		
Methane -----	75.56	-45.32	-177.7	
Ethane -----	3.05			
Ethylene -----	nd			
Propane -----	1.33			
Propylene -----	nd			
Iso-butane -----	0.467			
N-butane -----	0.284			
Iso-pentane -----	0.147			
N-pentane -----	0.0602			
Hexanes + -----	0.0862			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 891   
 Specific gravity, calculated: 0.685

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 829078      Job #: 51065      IS-102498      Co. Job#:  
 Sample Name: CD-5b      Co. Lab#:  
 Company: ICON Environmental Services, Inc.  
 API/Well:  
 Container: IsoBag  
 Field/Site Name: Castex Development  
 Location: Mermentau, LA  
 Formation:  
 Sampling Point:  
 Date Sampled: 5/13/2022 8:45      Date Received: 5/20/2022      Date Reported: 6/16/2022

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.623			
Oxygen -----	1.59			
Nitrogen -----	44.44			
Carbon Dioxide -----	2.70	-17.13		
Methane -----	50.60	-52.50	-263.7	
Ethane -----	0.0134			
Ethylene -----	nd			
Propane -----	0.0092			
Propylene -----	nd			
Iso-butane -----	0.0108			
N-butane -----	0.0036			
Iso-pentane -----	0.0048			
N-pentane -----	0.0007			
Hexanes + -----	0.0031			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 514  
 Specific gravity, calculated: 0.778

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.



Lab #: 829079      Job #: 51065      IS-102498      Co. Job#:  
 Sample Name: CD-2a      Co. Lab#:  
 Company: ICON Environmental Services, Inc.  
 API/Well:  
 Container: IsoBag  
 Field/Site Name: Castex Development  
 Location: Mermentau, LA  
 Formation:  
 Sampling Point:  
 Date Sampled: 5/13/2022 9:20      Date Received: 5/20/2022      Date Reported: 6/16/2022

Component	Chemical mol. %	$\delta^{13}\text{C}$ ‰	$\delta\text{D}$ ‰	$\delta^{15}\text{N}$ ‰
Carbon Monoxide -----	nd			
Helium -----	nd			
Hydrogen -----	nd			
Argon -----	0.710			
Oxygen -----	13.20			
Nitrogen -----	56.34			
Carbon Dioxide -----	1.52	-17.38		
Methane -----	26.29	-42.95	-176.1	
Ethane -----	1.03			
Ethylene -----	0.0002			
Propane -----	0.458			
Propylene -----	nd			
Iso-butane -----	0.210			
N-butane -----	0.103			
Iso-pentane -----	0.0656			
N-pentane -----	0.0300			
Hexanes + -----	0.0401			

Total BTU/cu.ft. dry @ 60deg F & 14.73psia, calculated: 312  
 Specific gravity, calculated: 0.897

nd = not detected. na = not analyzed. Isotopic composition of hydrogen is relative to VSMOW. Isotopic composition of carbon is relative to VPDB. All gas component carbon isotope values are reported on a scale defined by a two point calibration of LSVEC and NBS 19. Calculations for BTU and specific gravity per ASTM D3588. Chemical compositions are normalized to 100%. Mol. % is approximately equal to vol. %.

**APPENDIX D**

**RESUMES AND TESTIMONY EXPERIENCE**



**Gregory W. Miller, P.G.**  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, Louisiana 70767

### **Qualifications Summary**

Geologist and project manager with over twenty years of professional experience in the Gulf Coast and northeastern United States area. Extensive experience in all aspects of groundwater sciences, including project planning, field methods, data evaluation, report preparation, modeling, predictive analysis, fate and transport analysis, regulatory liaison, and project management. Routinely involved with evaluations of hydrology and geochemical interaction of vadose zone, surface water, and groundwater regimes; frequently perform surface and borehole geophysical investigations. Commonly develop and implement innovative field characterization methods.

### **Professional Experience**

- (5/94 - Present) ICON Environmental Services; Baton Rouge, LA  
*Sr. Geologist/Principal Hydrogeologist; Corporate President*
- (8/91 - 5/94) Environmental Consulting & Technology, Inc.; Baton Rouge, LA  
*Sr. Staff Geologist/Hydrogeology Department Manager*
- (6/90 - 2/91) Woodward-Clyde Consultants; Baton Rouge, LA; *Staff Geologist*
- (12/86 - 6/90) The Johnson Company, Inc.; Montpelier, VT; *Project Geologist*
- (6/86 – 12/86) Industrial and Environmental Analysts; Essex Junction, VT; *Scientist*
- (5/83 - 2/86) Core Laboratories, Inc.; Lafayette, LA; *Log and Core Analyst*

### **Selected Relevant Project Experience**

#### **INNOVATIVE TECHNOLOGY**

**Project Manager, Principal Hydrogeologist; Subsurface Assessment Using Innovative Technology; US NAVY, Jacksonville, LA** – Developed innovative procedure for subsurface assessment utilizing direct push methods. Lithology is determined through sealed casing using borehole geophysics. A small diameter permanent well is installed through the sealed casing, and includes proper grout to surface. Two sites were characterized using the new technology, and using conventional technology. The results of the two methods were compared, and results were presented to the FDEP and EPA, and were used to fulfill contaminant investigation requirements as per the site HSWA permit.

**“Missing Link Technology”** – Utilize direct push tooling to allow sampling of groundwater, natural gamma logging of soils for lithological characterization, and pressure grouting for permeability reduction. The technology, patented by ICON personnel, relies on hammering a screen or tool port ahead of the primary string to allow sampling or grouting in the permeable zone of interest, while maintaining a hydraulic seal around the primary string due to lithological compaction.

#### **CONTAMINATION ASSESSMENT, REMEDIATION, RISK ASSESSMENT**

**Project Manger and Principal Investigator; RECAP Risk Assessment, Shreveport Atlas Refinery** – Project involved review of historical aerial photos to identify former process locations. All historical environmental data ever generated at the subject refinery were used to develop a site-specific fate and transport model, to which resulting constituent concentrations at the point of exposure were evaluated using the Louisiana RECAP protocol. Conducted soil and groundwater

delineation assessment to characterize 18 areas of concern, including parameters for natural attenuation modeling.

**Project Manager; Hydrogeological Assessments; Boeing Petroleum Services, Inc.**--Six Department of Energy Strategic Petroleum Reserve sites in Louisiana and Texas were screened for groundwater contamination using a limited soil boring program, soil gas surveys, and electromagnetic terrain conductivity surveys. Data were evaluated and presented with pertinent historical site specific information in a report with recommendations for verification sampling.

**Project Manager; Groundwater Contamination Delineation and Corrective Action; Exxon Company, USA**--Delineated the extent of a brine plume at a former gas plant including the rapid-assessment technique of drive-point sampling, and vertical discrete groundwater sampling. Conducted a pumping test of an existing well, predictive groundwater modeling, and designed and installed a groundwater recovery system.

**Project Manager; Groundwater Assessment and Remediation, Tensas Parish Police Jury**--Delineated the extent of subsurface impact from petroleum fuels at a maintenance facility; assessment included installation of borings and monitor wells, and the rapid-assessment technique of drive-point sampling and a soil gas survey. Conducted a limited risk assessment with remedial action plan selection. Implemented excavation of 7000 yards<sup>3</sup> of soil and onsite treatment using biodegradation/volatilization, and groundwater extraction and treatment using air stripping; utilized client's machinery and labor as available to minimize total project costs.

**Principal Investigator; Oil Industry Subsurface Assessments, Exxon Company, U.S.A., Vastar Resources, Inc., and Others**- Evaluated historical aerial photographs to document past field development and impacts. Conducted comprehensive evaluation of subsurface soils and groundwater for impacts from past oil and gas activities including impacts by petroleum hydrocarbons, heavy metals, and brine at gas plants, bulk storage tank sites, and shorebase facilities. Conducted a Risk Based Corrective Evaluation for closure and/or remedial goals.

**Project Geologist/Field Coordinator; Exxon Chemical Company**--Completed a detailed soil and groundwater assessment at three areas within a tank farm. Successfully conducted field investigations under a very restricted schedule by coordinating four simultaneously operating field crews. Compiled a report including data assessment, hydrogeological conditions, and corrective action design, and presented the results to regulatory authorities.

**Project Manager; Hydrogeologic and Contaminant Assessment, Calumet Refining Company, Cotton Valley, LA**; Delineated the lateral extent of a petroleum hydrocarbon plume at a specialties (solvent, thinners) refinery; conducted risk assessment and developed a corrective action plan.

**Project Manager; Underground Storage Tank Assessment Sites in Louisiana; Various Clients**--Manage assessment and remedial activities at numerous underground storage tank sites. Activities include UST removal, preliminary assessment, contaminant assessment, remedial alternatives analysis, and corrective action planning and implementation.

**Staff Geologist; Local Contamination Assessment, Confidential Client, Various Locations--** Completed soil and groundwater investigations for PCB contamination at petroleum pipeline compressor stations throughout Mississippi.

**GROUNDWATER CHARACTERIZATION AND MONITORING SYSTEM DESIGN**

**Project Manager; Hydrogeologic Evaluation, Tensas Parish Municipal Landfill, St. Joseph, LA-** Conducted comprehensive hydrogeological evaluation in compliance with US EPA Subtitle D Regulations, including the installation of shallow and deep exploratory borings and monitoring wells, borehole geophysical wireline logging, and several years of monitoring well sampling and data evaluation.

**Project Geologist; Freeport McMoran, Inc.--**Designed vadose zone monitoring program to determine the suitability of using phosphogypsum as a roadbase material. The program included the installation of 33 lysimeters, and six groundwater monitoring wells, sampled over a six year period.

**Principal Investigator; Pennzoil Products Company, Atlas Refinery, Shreveport, LA –** Conducted site-wide subsurface characterization using conventional boring data, CPT data, borehole geophysical data, and hydraulic head data from existing wells. Designed perimeter groundwater monitoring system.

**Hydrogeologist; Sabine Parish Landfill, La –** Completed site-wide hydrogeologic evaluation and monitoring well network design using conventional and borehole geophysical data.

**Project Geologist; Arrowhead Cogeneration Corporation--**Determined site suitability for subsurface wastewater disposal, by performing soil and groundwater investigations, wastewater renovation studies (laboratory models), and pilot loading tests. Utilized computer models to predict effects of hydraulic loading. Acquired permits and designed compliance monitoring program.

**DEEP GROUNDWATER ASSESSMENT AND REMEDIATION**

**Project Geologist; Groundwater Assessment and Remediation, Haas-Hirsch #1 Assessment and Remediation, Basile Field, Evangeline Parish, LA, Dynamic Exploration, Inc.** A failed radioactive tracer survey (RTS) in a salt water disposal well occurred in October 2003 and showed a casing leak at a depth of 1730 feet. The base of the Underground Source of Drinking Water (USDW) occurred at a depth of 2290 feet. The assessment involved the installation of conventional monitoring wells in the Chicot Aquifer at depths of 120 to 450 feet; and 3-1/2" carbon steel casing to depths of 2365 feet (background location) and 2150 feet (Assessment well #1 and #2) in the Evangeline Aquifer. The carbon steel wells were perforated in multiple zones using a 10-foot long gun with four shots per foot – 360 phase for groundwater sampling using a submersible pump. Sampling indicated groundwater contamination of the 7<sup>th</sup> sand of the Evangeline Aquifer at depths of 1660 to 1700 feet, with exceedances of chlorides, TDS, arsenic, barium, chromium, lead, strontium, TPH-Diesel, TPH-Oil and benzene above background concentrations and above RECAP standards for a GW1 drinking water aquifer. Chloride concentrations were 18,500 mg/L (above 60 mg/L background), and benzene concentrations were 776 ug/L (above background and MCL of 5 ug/L). The injection well was recompleted into a recovery well by installing a cast iron bridge plug at 3400 feet, perforating from 1677 to 1720 feet, installing tubing with 60 feet of 2-3/8" slotted and wrapped screen with packer at 1668 feet, and pumped with a submersible pump hung at a depth 480

feet. Recovered groundwater was blended with produced water at 1% to 6% by volume to make compatible with the injection zone, and was injected into SWD #2. Over two million gallons were pumped.

**Project Geologist; Groundwater Assessment, Zachary 98 #1 Well (sn219945), Comite Field, East Baton Rouge Parish, LA, Chesapeake Energy Corporation** The Office of Conservation approved annular injection of reserve pit fluids at a depth of 3800 feet in the 9-5/8 and 13-3/8 casing annulus. Injection occurred from 01Feb1997 to 06Feb1997, and breached at ground surface ~350 feet from the wellhead. Conventional monitoring wells were installed to depths of 29 feet, 95 feet, 156 feet and 194 feet. A deep assessment well was installed to 3100 feet using 4-1/2" carbon steel casing in a 8-1/2" borehole; this well was perforated in nine zones using a 10-foot long gun at 2 spf. A 2-inch stainless steel screen was utilized inside the casing in Zones 1 through 7. Groundwater quality in all zones resulted in a no further action determination.

**Project Geologist; Groundwater Assessments of Annular Injection Breaches.** Deep assessment projects were designed and completed in a manner consistent with the Zachary 98 #1 well at other locations in Louisiana, including:

- **Abshire #1 (sn227851), Leroy Field, Vermilion Parish, LA, Zinke & Trumbo, Inc.** Total depth of assessment was 1265 feet using 2-7/8" casing, perforating using 10-foot long gun at 2 spf, at four zones ranging in depth from 1046 feet to 634 feet. Groundwater quality resulted in no further action.
- **Abshire #2 (sn228227), Andrew Field, Vermilion Parish, La, Zinke & Trumbo, Inc.** Total depth of assessment was 1244 feet using 2-7/8" casing to 1265 feet, perforated using 10-ft long gun at 2 spf, at four zones ranging in depth from 450 to 1088 feet. Groundwater quality resulted in no further action.
- **Hoffpauir et al #1 (sn226891), Perry Point Field, Lafayette Parish, LA, Pure Resources.** Total depth of assessment was 1350 feet using 3-1/2" casing, perforating using 10-foot long gun at 1 spf to 4 spf, at six zones ranging in depth from 190 feet to 1170 feet. Groundwater quality resulted in no further action.

LITIGATION SUPPORT AND EXPERT WITNESS TESTIMONY

**Hydrogeology Expert; Long Point Partners, L.P.** – Evaluated and modeled the potential for caprock dissolution and the potential for subsequent subsidence at a solid waste landfill site. Provided an expert report, provided deposition and trial testimony at an adjudicatory in Austin, Texas. Was accepted as an expert in the field of Hydrogeology.

**Geology, Hydrogeology and Site Assessment Expert - Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds: Pearl River, Bayou Bonfouca, Southern Wood Piedmont Site, Jennison Wright Facility, Baystreet Site, and Oneida Site Sites.** – Provided comprehensive hydrogeological evaluation and review of historical aerial photography and contamination distribution at each site, rendered expert reports, provided deposition testimony and trial testimony in a four-year long litigation (1998-2002) involving numerous sites previously operated by Norfolk Southern Corp. who was attempting to recover costs for historical remediation at each site. Was recognized as an expert in Geology, Hydrogeology and Site Assessment during five separate trials in the 19<sup>th</sup> Judicial District Court, Baton Rouge, LA.

**Geology, Hydrogeology and Site Assessment Expert - Davison Transport, Inc. and Melamine Decorative Laminate v United Technologies Automotive, Inc., the City of Ruston, and Essex Group.** Designed and managed a subsurface assessment, developed a corrective action plan, provided deposition testimony and trial testimony as an expert in the fields of Hydrogeology and Site Assessment and Remediation at the 3<sup>rd</sup> Judicial District Court, Lincoln Parish, 1999 to 2000.

**Geology, Hydrogeology and Site Assessment Expert, Project Manager and Principal Investigator – Numerous Oil and Gas Field Assessments in Louisiana.** Performed comprehensive site assessments of over 100 oil field sites for various plaintiffs using surface geophysics (electromagnetic surveys), historical aerial photograph interpretation, borehole screening tools (conductivity probing and borehole geophysical surveys), installation of groundwater monitoring wells, collection and evaluation of soil and groundwater samples, sediment sampling, sludge sampling, aquifer testing, and review of historical records. Provided expert reports and deposition and trial testimony for various District Court and Federal Court venues. Successfully defended methodology and qualifications at numerous Daubert hearings and was recognized by the court as an expert in the fields of Geology, Hydrogeology, Site Assessment, Regulatory Liaison, and Implementation of the Louisiana Department of Environmental Quality's "Risk Evaluation and Corrective Action Program" (RECAP). Evaluated data in accordance with standards in Louisiana Department of Natural Resources regulations, Act 312 procedures and the LDEQ RECAP document; and performed predictive groundwater modeling to design groundwater remediation systems.

**Geology, Hydrogeology and Site Assessment Expert - Firemen's Charitable & Benevolent Association of New Orleans v Orkin, Inc.** Performed a site assessment at a former pesticide management facility in New Orleans. The assessment included soil and groundwater sampling. Provided deposition and trial testimony in United States District Court, Section S (2005-2006). Was recognized by the court as an expert in the areas of geology, hydrogeology and site assessment.

**SITE ASSESSMENT AND RISK MINIMIZATION EVALUATION AND PLANNING****Project Manager; Environmental Audit, Exxon Company, U.S.A., Production Department--**

Managed and performed inspections of 40 non-hazardous waste disposal/treatment sites in five states. The project involved assessment of compliance with regulation, potential/degree of environmental impact, and conformance to good management practices.

**Principal Author; OPA and SPCC Plans, Exxon Company, Jordon Oil Company, Lemoine Distributors, S&W Services. Etc.** --Designed and compiled vessel and facility response plans for the northern Gulf of Mexico region and inland waters in accordance with the Oil Pollution Act of 1990 (OPA '90) regulations. The plans were interactive, designed for ease of site-specific modification and use in the event of a spill. SPCC plans were designed as per 40 CFR, Part 112, for aboveground storage tanks in excess of 1,320 gallons.

**Phase I and II Transaction Site Assessments – Numerous clients in Louisiana and Mississippi**  
-- Performed assessment for real estate and oil production property transaction using site specific methods, ASTM guidelines, and Nations Bank protocol. Routinely utilize document review, historical aerial photographs, and process knowledge to preliminarily identify areas of concern.

**Project Manager; Phase I and II Environmental Site Assessment; Confidential Client--**  
Conducted surface and sub-surface assessment at an oilfield pipe reconditioning yard in Lafayette, Louisiana, for contamination by hydrocarbons, heavy metals, and naturally occurring radioactive material (NORM).

**LAND PLANNING AND PERMITTING**

**Project Manager; Cabot Cooperative Creamery--**Developed a land application-nutrient recovery program for a dairy manufacturing facility with a wastewater load of 100,000 gallons per day. Performed site evaluations, wastewater fate analysis, receiving stream impact analysis, report preparation, permit acquisition, and groundwater monitoring. The project involved field identification of soils at 150 agricultural sites, with emphasis on predicting seasonal saturation. The entire project proceeded under close scrutiny of organized area residents.

**Project Geologist; Rainbow Trust, Inc.--**Performed evaluation of 450 acres to assess potential for residential development. Evaluations included water supply development (involving geophysical surveys, aerial photography and fracture trace analysis), subsurface sanitary wastewater disposal, groundwater modeling using *Modflow*, soils identification for wetlands delineation, and land planning (access, roads, etc.).

**Project Manager; Wastewater Discharge Permitting, Kraft Foods, Inc, Various Truck Washing and Barge Rehab Facilities --**Acquired surface discharge permit for disposal of non-contact cooling water, industrial water, residual contents, and stormwater. Utilized water quality sampling, stream and effluent discharge measurements, and a dye study to perform a thermal assimilation study.

**Principal Permit Writer and Geologist; Waste Management of Louisiana LLC dba Woodside Environmental Solutions –** Prepared comprehensive permit application for a new Class I

Commercial Non-Hazardous Waste Injection Well in Livingston Parish, Louisiana. The permit required extensive correlations of oil well logs to define the dip and fault plane of the active Denham Springs Fault, and to design a deep sentinel pressure monitoring well to ensure that fluid migration does not reach the fault plane.

**Education**

B.S.	Geology	University of Southwestern Louisiana	1982
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*(Studies included: petroleum geology internship; field study of structure, stratigraphy, and geomorphology; aerial photo interpretation; micropaleontology; geophysics).*

Post Graduate Credits	Geology	University of Southwestern Louisiana	1983
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*(Focus on stratigraphy and carbonate sciences).*

Post Graduate Credits	Hydrogeology	Wright State University	1985
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*(Hydrogeology, hydrology, geochemistry, geophysics, aerial photo interpretation, drilling methods)*

40 Hour OSHA Health and Safety Training, updated annually.  
Hazardous Waste Site Supervisor Training, 1990

**Associations**

National Ground Water Association  
American Institute of Professional Geologists

**Registrations**

Louisiana Board of Professional Geoscientists License #939

Registered Professional Geologist  
State of Arkansas #2029

AIPG Member MEM-0506

**Gregory W. Miller, P.G.**

**LIST OF LITIGATION TESTIMONY**

*Anne Anderson et al v Cryovac a Division of W.R. Grace & Co. et al, US District Court District of Massachusetts, Civil Action No. 82-1672-S* (1984-1985) Assisted in preparation of defense for Unifirst Corporation, Woburn, Massachusetts for litigation in the contamination of two water supply wells, Wells G & H.

*Lorio v Western Waste Industries. Pointe Coupee Parish.* (Judge Jack Marrioneaux). Fact witness. Provided deposition and preparation for trial. Case Settled ~ 1997.

*Ostheimer v VenVirotek of Louisiana. Lafourche Parish..* Provided expert opinion (written report), and deposition testimony. Case Settled ~1998.

*Wayne Simoneaux et.al. v Amoco, 23<sup>rd</sup> Judicial District Court, Assumption Parish, Division D. 1998-2000, Assumption Parish, Louisiana.* Performed hydrogeological assessment and provided multiple deposition and trial testimony as a fact witness.

*Adjudicatory Hearing for Application of Long Point Partners, L.P. for Permit No. MSW-2270, July 2000, Austin, Texas.* Provided expert opinion (written report), deposition and hearing testimony. Was accepted as an expert in the field of Hydrogeology.

*Tensas Parish Police Jury v Louisiana Department of Environmental Quality, 1997.* Provided deposition testimony as fact witness.

*Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds, Baton Rouge, Louisiana: Pearl River, Bayou Bonfouca Sites. September 1998-October 1999.* Provided expert opinion (written report), multiple deposition testimony, and bench and jury trial testimony regarding the Pearl River site in Louisiana. Was recognized as an expert in the field of Geology.

*Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds, et al: Southern Wood Piedmont Site. 1999-2000, 19<sup>th</sup> Judicial District Court, Division D, East Baton Rouge Parish, LA.* Provided expert opinion (written report), deposition testimony, and trial testimony regarding the Southern Wood Piedmont site in Macon, Georgia. Was recognized as an expert in the field of Geology.

*Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds, et al, Jennison Wright Facility. November 2001. 19<sup>th</sup> Judicial District Court, Division D, East Baton Rouge Parish, LA.* Provided expert opinion, deposition testimony, and trial testimony regarding the Jennison Wright Facility in Toledo, Ohio. Was recognized as an expert in the field of Geology.

***Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds, et al, Baystreet Site. December 2001. 19<sup>th</sup> Judicial District Court, Division D, East Baton Rouge Parish, LA.*** Provided expert opinion, and deposition testimony. Provided evidence that led to a successful motion for judgement as a matter of law regarding the Baystreet Tank Facility in Savannah, Georgia.

***Norfolk Southern Corp. et al v. California Union Insurance Company and Certain Underwriting Members of Lloyds, et al, Oneida Site. January-February 2002. 19<sup>th</sup> Judicial District Court, Division D, East Baton Rouge Parish, LA.*** Provided expert opinion, and deposition testimony concerning the Oneida, Tennessee rail yard.

***Davison Transport, Inc. and Melamine Decorative Laminate v United Technologies Automotive, Inc., the City of Ruston, and Essex Group, 3<sup>rd</sup> Judicial District Court, Lincoln Parish, 1999,2000.*** Conducted subsurface assessment and developed a corrective action plan. Provided deposition testimony and trial testimony as an expert in the fields of Hydrogeology and Site Assessment and Remediation.

***Mary Michael Morril v Shell Oil Company, 23<sup>rd</sup> Judicial District Court, Division A, May 2001.*** Conducted site assessment of an active oilfield using surface and borehole geophysical surveys, conventional drilling and sampling techniques and monitor well installation and sampling. Provided expert opinion and deposition testimony.

***B&C Land, Inc and Hackberry Farms v Exxon Mobil Corporation, et al, 23<sup>rd</sup> Judicial District Court, Division D, St. James Parish, LA. November 2002.*** Conducted site assessment of a former brine pit, injection well, and former oil and gas production locations in the Vacherie Field. Provided deposition testimony.

***Martinez Seafood v Thibaut Oil, 23<sup>rd</sup> Judicial District Court, Ascension Parish, LA. December 2001.*** Performed removal of UST, remediation of impacted soils, groundwater monitoring and site closure. Provided deposition testimony.

***Victor Vegas and Jane Vegas v Miller Exploration Company, et al, Civil District Court, Orleans Parish, LA. August 2002.*** Conducted site assessment of gas well blowout in Foules Dome Field, Catahoula Parish, LA. using surface and borehole geophysics, conventional drilling and sampling techniques, and the installation of nested monitoring wells to a depth of 200 feet. Provided deposition testimony.

***Vienne v Conoco, Inc., 15<sup>th</sup> Judicial District Court, Division C. May 2004.*** Performed a site assessment of an oilfield and former gas fractionation plant using surface geophysical surveys, NORM screening, and soil and water sampling. Provided deposition testimony.

***J. Paulin Duhe, Inc. v Texaco, Inc., et al., 16<sup>th</sup> JDC, Iberia Parish, Louisiana. November 2004 and June 2005.*** Performed a site assessment at an oilfield in south Louisiana that included production facilities, salt water injection wells, former pits, and separation/fractionation facilities. The assessment included surface geophysical

surveys, direct push conductivity logging, soil and groundwater sampling, and NORM screening. Provided deposition testimony.

***Armelise Planting Company, et al v. BP Amoco, et al., 23<sup>rd</sup> JDC, Assumption Parish, Louisiana. December 2004.*** Performed a site assessment at the Napoleonville Oilfield in south Louisiana that included former production facilities, salt water injection wells, former pits, and separation/fractionation facilities. The assessment included surface geophysical surveys, direct push conductivity logging, borehole geophysical logging, soil and groundwater sampling, and NORM screening. Provided deposition testimony.

***Cheryl Lanoux, et al v. Crompton Manufacturing Company, Inc., et al, 23<sup>rd</sup> JDC, Ascension Parish, Louisiana, February 2005.*** Performed a site assessment of an uncontrolled hazardous waste dumping site that had historically received toluene tars and sludge. The dumping site was later developed for private residences and a child daycare facility. The assessment included soil and groundwater sampling; surface water and sediment sampling; and determination of groundwater flow direction, velocity and estimated yield and interaction with an adjacent surface water body. The shallow regional geological regime was evaluated using drillers logs of registered water wells within a two mile radius. Provided deposition testimony.

***Weeks, et al v. Shell, 23<sup>rd</sup> JDC, St. Mary Parish, Louisiana, May 2005.*** Performed limited site assessment including soil and sludge/sediment sampling, and shallow groundwater sampling at a former oil and gas field in a South Louisiana Marsh. Provided deposition testimony.

***Armelise Planting Company, et al v. BP Amoco, et al., 23<sup>rd</sup> JDC, Assumption Parish, Louisiana. August 2005.*** Performed a site assessment at active salt dome storage facilities on Napoleonville Dome. The assessment included surface geophysics, conductivity probing, and shallow soil and groundwater sampling at brine storage pits at two of the cavern wells. Performed water well sampling and cavern evaluation across the dome. Provided deposition testimony.

***Firemen's Charitable & Benevolent Association of New Orleans v Orkin, Inc., United States District Court, Section S, December 2005 and March 2006.*** Performed a site assessment at a former pesticide management facility in New Orleans. The assessment included soil and groundwater sampling. Provided deposition testimony. Provided trial testimony as an expert in the areas of geology, hydrogeology and site assessment.

***Grand Lake Rod & Gun Club Inc and Roy O. Martin Lumber Company, Inc. v BP America Production Company, et al, 12<sup>th</sup> Judicial District Court, Division B, Avoyelles Parish, Louisiana, February 2006.*** Performed a site assessment at Five Mile Bayou Field, Three Mile Bayou Field, and Milligan Bayou Field in Avoyelles Parish, Louisiana. Provided deposition testimony.

***Alex Simoneaux et al v. Southern Natural Gas Co. et al, 23<sup>rd</sup> JDC, Assumption Parish, Louisiana, April 2006.*** Performed a site assessment of soil and groundwater in

northern Napoleonville Field, Assumption Parish, LA. The assessment included surface geophysics, soil and groundwater sampling, conductivity probing, and pump testing of wells to determine aquifer yield. Provided deposition testimony. Successfully defended well yield methodology in a Daubert Hearing and was qualified as an expert in geology, hydrogeology and site assessment.

***Lejeune Brothers, LLC v. Goodrich Petroleum Company, LLC., 16<sup>th</sup> JDC, Iberia Parish, LA, June 2006.*** Performed a site assessment of soil and groundwater at an oil and gas well tank battery and former pit area. The assessment included surface geophysics, soil and groundwater sampling, and conductivity probing. Provided deposition testimony.

***Robert H. Feaster et al. v. Reliant Energy Gas Transmission Co., Inc. et al, 1<sup>st</sup> JDC, Caddo Parish, LA, June 2006.*** Performed a site assessment of groundwater contamination by petroleum hydrocarbons caused by a former gas plant. The assessment included sampling existing water supply wells, drilling and sampling of boreholes, performing borehole geophysical logging, installation of monitoring wells, sampling of monitoring wells, development of a conceptual site model and evaluation of plume fate and transport through multiple aquifers. Provided deposition testimony.

***Tebow, William M. v Bradex Oil & Gas, Inc., 12<sup>th</sup> JDC, Avoyelles Parish, LA, August 2006.*** Performed a site assessment of soil and groundwater contamination by former oil and gas exploration and production facilities in the Haas Oil and Gas field, Avoyelles Parish, LA. The assessment included surface geophysics, direct push conductivity probing, historical aerial photograph interpretation, soil and groundwater sampling, borehole geophysical logging, and review of published data. Provided deposition testimony. Successfully defended qualifications and methodology in a Daubert hearing. Provided jury trial testimony and was qualified by the court as an expert in geology, hydrogeology and site assessment.

***Abshire, Evelyn et al v BP Corporation North America et al, 15<sup>th</sup> JDC, Acadia Parish, LA, August 2006.*** Performed a site assessment of the Jennings Oilfield, the oldest oil and gas field in Louisiana. The assessment included surface and borehole geophysics, soil and groundwater sampling, installation and sampling of numerous double cased boreholes to depths as great as 220 feet. Provided deposition testimony.

***Donald Marin et al v Exxon Mobil Corporation, 16<sup>th</sup> JDC, St. Mary Parish, LA, August 2006.*** Performed a site assessment of the Bayou Sale oil and gas field using historical aerial photography interpretation, surface geophysics, direct push conductivity logging, soil and groundwater sampling, and subaqueous sediment sampling. Provided deposition testimony. Provided bench trial testimony and was qualified by the court as an expert in geology, hydrogeology, and site assessment.

***Fleming Companies, Inc, v Baker Petrolite Corp, 15<sup>th</sup> JDC, Lafayette Parish, LA, November 2006.*** Performed an evaluation of hydrocarbon contamination in the Chicot Aquifer, and performed a predictive groundwater flow model that allowed development

of cost for remediation. Provided deposition testimony and trial testimony. Was accepted as an expert in the fields of Geology, Hydrogeology and Site Assessment.

***Brownell Land Co. L.L.C. v Oxy USA Inc, et al, U.S. District Court, Eastern District, Section K, Civil Action No. 05-CV-225, July 2007.*** Performed a contamination assessment at the Bay Natchez oilfield using surface geophysics, intrusive assessment, historical aerial photograph interpretation, and a review of DNR production files. Issued an expert report that used onsite closure criteria listed in Statewide Order 29B to evaluate soil contamination, and used the LDEQ RECAP protocol to evaluate groundwater contamination. Provided deposition testimony.

***J. Gerald Dupont v Metairie Energy Company, Inc, et al. 18<sup>th</sup> JDC, Division B, Iberville Parish, LA, April 2007.*** Performed a contamination assessment at Bayou Choctaw oilfield using surface geophysics, intrusive assessment, historical aerial photograph interpretation, and a review of DNR production files. Issued an expert report that used onsite closure criteria listed in Statewide Order 29B to evaluate soil contamination, and used the LDEQ RECAP protocol to evaluate groundwater contamination. Provided deposition testimony.

***Roy O. Martin Lumber Company, L.L.C. v Mobil Exploration and Producing North America Inc, et al, 18<sup>th</sup> JDC, Pointe Coupee Parish, LA., October 2007.*** Performed a contamination assessment at the Bayou Latenatche-Ravenswood oilfield utilizing Statewide Order 29B to evaluate soil contamination, and performed a RECAP analysis to evaluate groundwater contamination. Provided remediation cost estimates. Provided deposition testimony.

***Tensas Poppadoc, Inc v Chevron USA, Inc et al; 7<sup>th</sup> JDC, Docket No. 40769, Div B, Concordia Parish, Louisiana, March 2008 through January 2009.*** Performed a contamination assessment and evaluated contaminated Class 1 groundwater using RECAP approach. Soil was evaluated using Statewide Order 29B closure standards. Provided deposition testimony. Provided trial testimony in a jury trial, and was qualified as an expert in geology, hydrogeology, site assessment, implementation of RECAP (Louisiana's risk based regulatory standards), and regulatory compliance. Provided testimony at Louisiana's first Act 312 hearing at the Department of Natural Resources, and was accepted as an expert in areas previously qualified.

***Gloria Ned, Individually and on Behalf of Jessie January and Jacqueline January v No. 2003-001100, Division "D" Union Pacific Corp; Union Pacific Railroad Corp; PPG Industries, Inc.; W.J. Peard: A.L. Greathouse; Harry C. Hank; Tommy G Brown and Dallas Stutes, Lake Charles, Calcasieu Parish, LA, January and March 2009.*** Performed an evaluation of fate and transport of PCE and daughter products in groundwater, and evaluated risk in the framework of the RECAP document. Provided trial testimony in a bench trial on prematurity, and was accepted as an expert in geology, hydrogeology, site assessment, RECAP, and regulatory compliance.

***Black River Real Estate Company, Inc v Hunt Oil Company, et al, 7<sup>th</sup> JDC, Concordia Parish, Div B, Ross Bayou Field, late 2008-early 2009.*** Performed a

contamination assessment and evaluated contaminated Class 1 groundwater using RECAP approach. Soil was evaluated using Statewide Order 29B closure standards. Assessment utilized surface and borehole geophysics, conventional soil and groundwater sampling, aquifer testing, groundwater flow gradient considering density effects of brine contamination, and predictive groundwater modeling to determine groundwater capture/recovery zones for remediation design. Provided deposition testimony.

***Clyde Tucker, Ronald Johnson, Gloria Laubach v Shell Oil, et al, 3<sup>rd</sup> JDC, Union Parish, Ora Field, early-2010.*** Testified at a prematurity and improper cumulation hearing, was accepted as an expert in the fields of geology, hydrogeology, site assessment, regulatory compliance and implementation of RECAP.

***Sandra Bernard, et al v BP Amoco, et al, 38<sup>th</sup> JDC, Cameron Parish, LA, Hackberry Field, mid-2010.*** Performed a contamination assessment and remedial alternatives study. Utilized Statewide Order 29B to evaluate soil contamination, and performed a RECAP analysis to evaluate soil, sediment, and groundwater contamination. Provided remediation cost estimates. Provided depositional testimony. Successfully defended qualifications and methodology in a Daubert hearing.

***State of Louisiana (Vermilion Parish School Board) et al v Louisiana Land and Exploration Company, et al, 15<sup>th</sup> JDC, Vermilion Parish, Louisiana, July 2010.*** Performed a contamination assessment in an inundated wetlands area, and defined the extent of contamination to subaqueous sediment, soil and groundwater within the Chicot Aquifer and overlying Class 3 groundwater. Prepared a contamination assessment report, and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony.

***Joseph Ray LeJeune, Jr et al v Reed Rubinstein, et al, 18<sup>th</sup> JDC, Point Coupee Parish, Louisiana, July 2010.*** Performed a file review and onsite assessment of drums, a UST, soil and groundwater to evaluate the presence of unknown solvent and organic chemicals that had historically been dumped on residential property. Provided report and deposition testimony. Testified in a bench trial and was accepted as an expert in the fields of geology, hydrogeology, site assessment, implementation of Louisiana's RECAP, and remediation.

***Mary Belva Benard v Chevron USA, ConocoPhillips Company, Hilcorp Energy Company and Plains Resources, Inc., 15<sup>th</sup> JDC, Vermilion Parish, LA, August 2010.*** Performed a contamination assessment and remedial alternatives study for property in the Erath Field, Vermilion Parish, LA. Utilized Statewide Order 29B and the LDEQ RECAP standards to evaluate soil contamination, and performed a RECAP analysis to evaluate soil, sediment, and groundwater contamination. Provided remediation cost estimates. Provided depositional testimony.

***Daniel Hardee et al v ARCO et al, 14<sup>th</sup> JDC, Calcasieu Parish, LA, October 2010.*** Performed a contamination assessment and remedial alternatives study for property in the Gueydan Field, Vermilion Parish, LA. Utilized Statewide Order 29B and the LDEQ

RECAP standards to evaluate soil contamination, and performed a RECAP analysis to evaluate groundwater contamination. Provided remediation cost estimates. Provided depositional testimony.

***Hebert v Energen Resources Corp, et al, 14<sup>th</sup> JDC, Calcasieu Parish, LA, October 2010.*** Performed a contamination assessment and remedial alternatives study for property in the Section 32 Field, Calcasieu Parish, LA. Utilized Statewide Order 29B and the LDEQ RECAP standards to evaluate soil contamination, and performed a RECAP analysis to evaluate groundwater contamination. Provided remediation cost estimates. Provided depositional testimony.

***Labarre v Texas Brine, et al, February 2011.*** Provided deposition testimony regarding facts that potentially would be used in a prematurity hearing.

***Clyde Tucker et al v. Shell Oil, et al;*** Docket 42934, Div A; 3<sup>rd</sup> Judicial District, Union Parish, LA, Ora Field, LA. Provided testimony at a prescription hearing as an expert in geology, hydrogeology, site assessment and regulatory liaison.

***Hazel Richard Savoie, et al v Pioneer Exploration, Ltd, et al, Docket 10-18078, 38<sup>th</sup> JDC, Cameron Parish, LA, 2011.*** Performed contamination assessment and remedial alternatives study with cost estimates for remediation. Provided depositional testimony and jury trial testimony. Was qualified as an expert in geology, hydrogeology, site assessment, remediation, regulatory compliance, and implementation of LDEQ RECAP. Provided deposition testimony in preparation for preponderance hearing.

***Broussard Heirs Intervention of Texaco Exploration and Production Inc. v Hilcorp Energy Company, et al, 15<sup>th</sup> JDC, Docket 98-71298-D, Vermilion Parish, Louisiana; November 2012.*** Performed contamination assessment of the Henry Gas Plant and pipeline hub, and of former operations associated with the Erath Oil and Gas Field. Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil, sediment and groundwater contamination. Performed a RECAP analysis to evaluate groundwater contamination. Prepared a remedial alternatives study and cost model to address soil, sediment and groundwater contamination. Provided depositional testimony.

***Ruby Mhire et al v Total Petrochemicals USA, et al; 38<sup>th</sup> JDC, Docket 10-18239; Cameron Parish, Louisiana, November 2012.*** Performed contamination assessment of historical exploration and production activities and a former production pit on property within the Grand Chenier Oil Field, Cameron Parish, LA Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil, sediment and groundwater contamination. Performed a RECAP analysis to evaluate groundwater contamination. Prepared a remedial alternatives study and cost model to address soil, sediment and groundwater contamination. Provided depositional testimony.

***Sterling Sugars, Inc. v BP America Production Company, et al; 16<sup>th</sup> JDC, Case No. 113095, Div "E", St. Mary Parish, Louisiana, November 2012.*** Performed contamination assessment of historical exploration and production activities on property

within the Charenton and Franklin Oil Fields, St. Mary Parish, LA Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil, sediment and groundwater contamination. Performed a RECAP analysis to evaluate groundwater contamination. Prepared a remedial alternatives study and cost model to address soil, sediment and groundwater contamination. Provided depositional testimony.

**Joseph Dupont and Doris Petrus v Mobil Oil E&P Southeast, Inc., et al; Docket 52090, Division “Ad Hoc”, 18<sup>th</sup> JDC, Iberville Parish, LA; February 2013.** Performed contamination assessment and remedial alternatives study with cost estimates for remediation. Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil, sediment and groundwater contamination. Performed a RECAP analysis to evaluate groundwater contamination. Provided deposition testimony.

**Gustave J Labarre et al v Texas Brine Company, LLC and Georgia Gulf Chemicals & Vinyls, LLC; 23<sup>rd</sup> JDC, Div “C”, #30650, Napoleonville Storage Dome, Assumption Parish, LA; October 2013.** Performed contamination assessment and remedial alternatives study of a leaking pit used to store solution mined brine. Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil and groundwater contamination. Provided deposition testimony.

**Tillman et al v Chevron USA Inc, et al; Docket #44096; Div “B”; 7<sup>th</sup> JDC, Concordia Parish, LA; Lake St. John Oilfield, Concordia Parish, LA, February 2014.** Performed contamination assessment and remedial alternatives study with cost estimates for remediation. Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil and groundwater contamination. ModFlow and Winflow groundwater predictive models were used to design a groundwater recovery system. Demonstrative exhibits included a 3-dimensional computer model of groundwater contaminant plumes. Provided deposition testimony.

**Lexington Land Development, LLC v Chevron Pipeline Company, et al; Docket No. 561893, Division “22”; 19<sup>th</sup> JDC, East Baton Rouge Parish, Louisiana, April 2014.** Provided depositional testimony concerning historical oil and gas contamination, and a leak of gasoline-diesel mixture from a hole in a transmission pipeline that was installed within one year of the leak. The leak occurred at the center of a brine contamination plume originating at a former production pit, beneath an electrical transmission line corridor.

**Clyde Tucker et al v Shell Oil Company, et al; Docket No. 42934, Division “B”; 3<sup>rd</sup> JDC, Union Parish, Louisiana, Ora Oil Field, November 2014.** Performed contamination assessment and authored an assessment report and Plan for Additional Assessment and Remediation in accordance with Statewide Order 29B. Provided deposition testimony.

***State of Louisiana (Vermilion Parish School Board) et al v Louisiana Land and Exploration Company, et al, 15<sup>th</sup> JDC, Vermilion Parish, Louisiana, November 2014.*** Performed a contamination assessment and a remedial alternatives analysis with a cost

estimate for a remediation alternative. Provided deposition testimony. Provided testimony at jury trial, and was qualified as an expert in geology, hydrogeology, site assessment, remediation, and implementation of regulations.

**Joseph Dupont et al v Mobil Oil E&P Southeast, Inc., et al; Docket 52090, Division “Ad Hoc”, 18<sup>th</sup> JDC, Iberville Parish, LA; February 2015.** Performed contamination assessment and remedial alternatives study with cost estimates for remediation. Utilized Statewide Order 29B and the LDEQ RECAP protocol to evaluate soil, sediment and groundwater contamination. Performed a RECAP analysis to evaluate groundwater contamination. Provided deposition testimony.

**Claude Coulon Jumonville, et al v Sunset Petroleum, et al; Docket 44491, Division “C”, 18<sup>th</sup> JDC, Pointe Coupee Parish, LA; Moore Sams Field, Iberville Parish, LA; June 2015.** Performed contamination assessment of an oil-based mud drilling pit and remedial alternatives study with cost estimates for remediation. Utilized Statewide Order 29B to evaluate soil and groundwater contamination. Provided deposition testimony.

**Frank B Allain et al v Exxon Mobil Corporation, et al; Docket No. 62430; 18<sup>th</sup> JDC; Iberville Parish, LA; Bayou Des Glaises Field, Louisiana, April 2015.** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in October 2015.

**Sterling Sugars, Inc. v Amerada Hess Corp, et al; 17<sup>th</sup> JDC, No. 100091, Division “D”; Raceland Oil Field, Lafourche Parish, LA.** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in August 2015. Provided testimony at a limited admission hearing at the Louisiana Department of Natural Resources in November 2015; and was accepted as an expert in geology, hydrogeology, site assessment, remediation, and regulatory compliance.

***State of Louisiana (Vermilion Parish School Board) et al v Louisiana Land and Exploration Company, et al, 15<sup>th</sup> JDC, Vermilion Parish, Louisiana, March 2016.*** Prepared a Feasible Plan for remediation and additional assessment for the Vermilion Parish School board. Provided testimony at the DNR hearing, and was qualified as an expert in geology, hydrogeology, site assessment, remediation, and implementation of regulations.

**State of Louisiana and Iberville Parish School Board v BP America Production Company et al; Docket No. 72605; 18<sup>th</sup> JDC, Division “A”; Grand River Field, Iberville Parish, LA.** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in May and June 2016.

**Barbara Mayeaux et al v Atlantic Richfield, et al; Docket No. 65591, Div “C”; 18<sup>th</sup> JDC, Iberville Parish, LA.** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in September 2016.

**Ritchie Grocer Co. v 2H Inc., et al; Docket No. 1:14-CV-02867, U.S.D.C.; Western District of Louisiana, Alexandria Division; Northern Eola Oil Field, Avoyelles Parish, LA.** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in October 2016.

**Elizabeth Miller Lefebvre Family LLC et al v Petrohawk Energy Corporation, et al; Docket 40199, Division “A”, 18<sup>th</sup> JDC; West Baton Rouge Parish, LA..** Performed a contamination assessment and a remedial alternatives analysis with a cost estimate for a remediation alternative. Provided deposition testimony in October 2016.

**Darryl Williams, et al v Motiva Enterprises, LLC, et al; CDC No. 2003-6746, Sec 7 (M); Orleans Parish, LA.** Performed a contamination assessment and vapor intrusion evaluation for leaking underground storage tank system into adjacent businesses and restaurants. Provided deposition testimony in December 2016. Provided trial testimony in February 2017 and was accepted as an expert in the fields of Geology, Hydrogeology, Site Assessment, Remediation and Regulatory Compliance including RECAP. The court rendered a verdict favorable to the plaintiffs, including a monetary award for the full value of our damage model.

**Catherine Alford, et al v Chevron USA Inc. et al; Civil Action No. 2:13-cv-05464; Sec. R Div 3, US Eastern District of LA; Potash Oil Field, Plaquemines Parish, LA.** Performed contamination assessment and remedial plan to address oilfield pits and contaminated canal sediment. Provided depositional testimony January 2017.

**Mathew Willis v Tennessee Gas Pipeline Company, LLC, et al; Docket No. 82,888; 16<sup>th</sup> JDC; North Cecilia Field, St. Martin Parish, LA.** Performed contamination assessment and remedial plan to address soil and groundwater contamination originating from oilfield pits and production equipment. Provided depositional testimony in August 2017. All parties settled before trial.

**Monique Gutierrez Inc., et al v ExxonMobil Corporation, et al; No. 201610135; 15<sup>th</sup> JDC, Div. “A”; Bosco Field, Acadia Parish, LA.** Performed contamination assessment of oilfield pits and production equipment, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in August 2017. All parties settled before trial.

**David V. Currie, et al v B.P. America Production Company, et al; Docket No. 10-18837; 38<sup>th</sup> JDC; West Hackberry Oil Field, Cameron Parish, LA.** Performed contamination assessment of this property in the West Hackberry Field where production began in 1928, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in March 2018.

**BCR Holdings Inc v Baby Oil Inc, et al; Docket #127030, Div “B”;** 17<sup>th</sup> JDC, Lafourche Parish, LA, Bully Camp Oil Field, Lafourche Parish, LA. Performed a contamination assessment of soils, sediment and surface water, and completed a remedial alternatives evaluation with cost estimates for decontamination. Provided deposition testimony in June 2018.

**Spanish Lake Restoration, LLC v Shell Oil Company, et al.; Docket 69702** 18<sup>th</sup> JDC, Division “C”, Ascension Parish, LA; St. Gabriel Field, Ascension Parish, LA. Performed a contamination assessment of soils and groundwater, and completed a remedial alternatives evaluation with cost estimates for decontamination. Provided deposition testimony and testimony at a prescription hearing in July 2018, and was accepted as an expert in geology, hydrogeology, site assessment and remediation.

**State of Louisiana and Two O’Clock Bayou Land Co. et al v Chevron USA, Inc, et al; Docket No. 12C5528, Div “B”;** 27<sup>th</sup> JDC, St. Landry Parish, LA; Krotz Springs Field, St. Landry Parish, LA. Performed contamination assessment of oilfield pits soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in August 2018.

**New 90 LLC and Louisiana Wetlands LLC v Grigsby Petroleum Inc and Chevron USA Inc; Docket No. 130528, 16<sup>th</sup> JDC;** Franklin Oil Field, St. Mary Parish, LA. Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in November 2018.

**Mary Josephine Buquoi Primeaux et al v Bil-Mik, Enc et al; Docket No. 62857, 18<sup>th</sup> JDC;** Bayou Des Glaises Oil Field, Iberville Parish, LA. Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in January 2019.

**Dwayne Belaire v Margone, LLC, et al; #20181016;** 5<sup>th</sup> JDC, Div “B”; Near the Bosco Field Crude Oil Gathering System and Tank Farm, Lafayette Parish, LA. Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater at a property adjacent to the facility, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in June 2019.

**Global Marketing Solutions, LLC et al v Blue Mills Farms, Inc. et al; docket No. 35373, Div “A”;** 18<sup>th</sup> JDC, West Baton Rouge Parish, LA. Performed limited environmental assessment of soil and groundwater contamination resulting from historical oil and gas exploration and production activities. Testified at a prescription hearing in April 2019 and was qualified as an expert in geology, hydrogeology, site assessment, and remediation.

**Lexington Land Development LLC v Chevron Pipeline Company et al; Docket 561893, Div 22, 19<sup>th</sup> JDC, East Baton Rouge Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided testimony at a hearing for prescription and was qualified as an expert in geology, hydrogeology, site assessment, and remediation.

**Bowie Lumber Associates v White Oak Operating Company LLC, et al; Docket 129052, Div “B”; 17<sup>th</sup> JDC; South Bayou Boeuf Field, Lafourche Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation of pit sludges, and soil and groundwater contamination. Provided depositional testimony in August 2019.

**Hine/Kyle Properties et al v M-I LLC et al; No. 129750; 16<sup>th</sup> JDC, Div “D”; Berwick, St. Mary Parish, LA.** Performed a contamination assessment of pollution to soil and groundwater from historical operations associated with a shore-based oilfield drilling fluid and chemical staging and mixing facility, and completed a remedial alternatives study with cost estimates for remediation of pit sludges, and soil and groundwater contamination. Provided depositional testimony in September 2019.

**Jack Anthony Devillier et al v Chevron USA, Inc, et al; Docket No. 12-C-5530, Div “C”; 27<sup>th</sup> JDC, St. Landry Parish, LA; Port Barre Oilfield, St. Landry Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in May 2020.

**Hero Lands Company LLC v Chevron USA Inc, et al; Docket #64320 Div “A”; 25<sup>th</sup> JDC; Stella Oil Field, Plaquemines Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in October 2020. Provided trial testimony in May 2021 and was accepted as an expert in Geology, Hydrogeology, Site Assessment, Remediation, and Regulatory Compliance.

**Litel Explorations LLC v Aegis Development Co. LLC, et al; 31<sup>st</sup> JDC; Docket C-823-17; South Thornwell Gas Field, Jefferson Davis Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, including an actively leaking oil well that exhibited excessive pressure at the wellhead. Mapped a buried channel sand deposit in communication with the underlying Chicot Aquifer using information from water well driller’s logs. Completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in November 2020.

**Emerald Land Corporation v Trimont Energy (BL) LLC et al; Civil Action No. 6:17-CV-01655; Bateman Lake Oil Field, St. Mary Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to a freshwater marsh environment and characterized waste residuals in abandoned oilfield pits. Provided a restoration plan to detoxify the property. Provided deposition testimony in January 2021.

**Jointly Administered Chapter 11 Case Numbers 87 B 20142 (ASH) and 87 B 20143 (ASH): State of Louisiana and Vermilion Parish School Board v Chevron Corporation; Docket No. 83536; 15<sup>th</sup> JDC, Division “6”; Florence Oil Field, Vermilion Parish, LA, and Tomlinson Realty Company LLC et al v Chevron USA Inc, et al; Docket No. 12-C-5529, Div “D”; 27<sup>th</sup> JDC, Port Barre Oil Field, St. Landry Parish, LA.** The Vermilion Parish case involved a geophysical survey using terrain conductivity instrumentation to document environmental impact from former oilfield exploration and production operations. The St. Landry Parish case was a subset of a comprehensive environmental assessment of historical oilfield operations throughout the Port Barre oilfield, and work included delineation of soil and groundwater contamination. A conceptual site model was developed that included identifying a large buried paleo-Mississippi River point bar aquifer in communication with aquifers comprised of overlying and adjacent distributary deposits and underlying massive sands of the Atchafalaya Aquifer. Provided a restoration model with cost estimates. Provided deposition testimony in February 2021.

**James J. Martin Family, LLC v BP America Production Company et al; Robert Patricia Fleming, LLC v BP America Production Company et al; Div. “C”; 16<sup>th</sup> JDC, St. Martin Parish, LA; Anse La Butte Oil Field, St. Martin Parish, LA.** Performed a contamination assessment of historical oil exploration and production in an urban area just outside of Lafayette, Louisiana. The site included contamination to soil and to the principal aquifer in the region used for domestic and public potable supply. Performed capture zone modeling of a pump-and-treat remediation program and provided a cost estimate for restoration of soil and groundwater. Provided deposition testimony in March 2021.

**Delores H. Lewis, et al v Quintana Petroleum Corp., et al; Docket No. 10-20211; 38<sup>th</sup> JDC, Cameron Parish, LA; Hog Bayou and Lower Mud Lake Oil Field, Cameron Parish, LA.** Performed a contamination assessment of soil and subaqueous sediment at the Hog Bayou Oil Field that is accessible by boat. Provided a restoration plan to clean the property to meet lease obligations. Provided deposition testimony in April 2021.

**State of Louisiana and The St. Martin Parish School Board v Shell Oil Company, et al; 16<sup>th</sup> JDC, Civil Action 85170, Div “C”, West Lake Verret Oil Field, St. Martin Parish, LA.** Performed file reviews and a limited contamination assessment of soil, sediment and groundwater around a crater associated with a former blowout. Provided a plan for assessment. Provided depositional testimony in August 2001.

**Doyle Boudreaux and Montez Prejean v ConocoPhillips Company et al; 15<sup>th</sup> JDC, Division “D”; Civil Action No. 20171849; North Ossun Oil Field, Lafayette Parish, LA.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan that included predictive groundwater modeling. Provided depositional testimony in October 2021.

**Lake Charles Harbor & Terminal District v Reynolds Metal Co., et al; U.S.D.C. W.D. La. No. 2:17-cv-1114 W.D. LA.** Performed a limited assessment of an unlined solid waste dump (industrial landfill) illegally constructed on property owned by Lake Charles Harbor by Consolidated Aluminum Corp, a division of Alusuisse Group (later purchased by Reynolds). Material in the dump included rockwool asbestos, lubricating oils, cathode pot liner materials (EPA listed waste code K088), scrap materials, VOCs and degreasers and solvents, trash and scrap materials from dumpsters, electrostatic precipitator (ESP) tar, heat transfer medium (HTM) oil containing PCBs, bag house filter bags, etc. Assessment included regulatory file reviews, historical aerial image evaluation, terrain conductivity surveys, resistivity surveys, and three test pits used for visual observation and sample collection for laboratory analysis. Provided cost estimates to remove the material for proper disposal in a hazardous waste landfill. Provided depositional testimony in January 2022.

**East Rock LLC v Apache Corporation et al; Docket No. C-693-19; 31<sup>st</sup> JDC, Jefferson Davis Parish, LA; Welsh Oil Field.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in January 2022.

**Jeanerette Lumber and Shingle Company LLC v ConocoPhillips Company, et al; Docket No. 134307 Div “E”; 16<sup>st</sup> JDC, Bayou Pigeon Oil Field, Iberia Parish, LA;** Performed a contamination assessment of historical oilfield exploration and production pollution to soil, subaqueous sediment and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in January 2022.

**Bowie Lumber Associates v Anadarko OGC Company, et al; Docket 134888, Div “D”; 17<sup>th</sup> JDC; Lake Boeuf Field, Lafourche Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in February 2022.

**Henning Management, LLC v Chevron USA, Inc et al; Docket No. 73318; 1<sup>st</sup> JDC; Divison “C”, Jefferson Davis Parish, LA, Hayes Oil Field, Calcasieu and Jefferson Davis Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, including a former blowout in the early 1940’s that created a crater that remains today. Completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in May 2022. Provided testimony in

the Louisiana DNR Limited Admission Hearing on February 9, 2023 and was accepted as an expert in the fields of geology, hydrogeology, environmental site assessment, regulatory compliance, Statewide Order 29B and LDEQ RECAP.

**Louisiana Wetlands LLC and New 90 LLC v Energen Resources Corp et al; No. 130-527 Div “B”; 16<sup>th</sup> JDC, Franklin Oil Field, St Mary Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in June, July and September 2022. Drafted a Most Feasible Plan (MFP) for the landowners. Presented the MFP at the hearing at the 16<sup>th</sup> JDC in September 2022, and provided expert testimony and was accepted as an expert in Geology, Hydrogeology, Site Assessment, Remediation, and Regulatory Compliance.

**C.L. Bryant et al v XTO Energy Inc, et al; Number 79549-A, 42<sup>nd</sup> JDC, Desoto Parish, LA.** Performed preliminary soil and groundwater sampling, groundwater monitoring, extensive data review, and developed a geologic site conceptual model for contamination migration associated with surface blowouts of gas and fluids associated with hydraulic fracturing of horizontal Haynesville Shale wells in the Bethany-Longstreet Fields. The blowouts included very high pressurization of the freshwater Wilcox aquifer that caused water wells to blow water and gas over thirty feet above land surface. Provided expert testimony at a hearing in October 2022 and was accepted as an expert in Geology, Hydrogeology, Site Assessment, Remediation, and Regulatory Compliance.

**August J. Levert, Jr. Family, LLC, et al v BP America Production Company; Docket No. 78953; 18<sup>th</sup> JDC, Division “A”; Grand River Field, Iberville Parish, Louisiana.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil, subaqueous sediment and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided a fate and transport model using the Domenico Model. Provided deposition testimony in March 2023.

**State of Louisiana and The St. Martin Parish School Board v Shell Oil Company et al; 16<sup>th</sup> JDC, Civil Action 85170, Div “C”, West Lake Verret Field, St. Martin Parish, LA.** Performed comprehensive file review and initial field sampling of the “Big Bertha” blowout crater resulting from a 1942 subsurface blowout that released 22 billion cubic feet of wet gas and resulted in numerous craters and gas boils that were observed at ground surface over a two square mile area. The most intense gas boils dissipated over an eight year period, but minor gas and oil releases to the surface water within the Atchafalaya Basin were reported as recently as 1986. The crater is surrounded with contaminated soil containing an estimated 40,000 barrels of oil (NAPL) saturated soils. Prepared an expert report with a plan for assessment. Provided deposition testimony in August 2021. Provided expert testimony at a bench trial in May 2023 and was accepted as an expert in

Geology, Hydrogeology, Site Assessment, Remediation, Regulatory Compliance and Aerial Photograph Interpretation.

**The Parish of Cameron v Auster Oil and Gas, Inc., et al; Docket No. 10-19582, West Hackberry Field, Cameron Parish, Louisiana.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil, subaqueous sediment and groundwater to a formerly freshwater wetland and lake environment that converted to brackish/saline after the discharge of over 120 million barrels of produced salt water, and completed a remedial alternatives study with cost estimates for remediation consistent with requirements of the Louisiana Coastal Management Zone regulations. Provided deposition testimony in October 2023.

Louisiana Professional Engineering  
and  
Land Surveying Board

*Hereby Certifies that*

ICON Environmental Services, Inc.

*has complied with the regulation of this Board and is authorized  
to provide or to offer to provide engineering services in the State of  
Louisiana contingent upon payment of the annual renewal fee.*

*Baton Rouge, Louisiana - 02/20/2009*



*License Number 4001*

*[Signature]*  
Chairman  
*[Signature]*  
Secretary

State of  Louisiana

State Licensing Board for Contractors

This is to Certify that: **ICON ENVIRONMENTAL SERVICES, INC.**  
2049 Commercial Dr.  
Port Allen, LA 70767

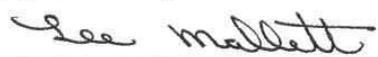
is duly licensed and entitled to practice the following classifications

HAZARDOUS WASTE TREATMENT OR REMOVAL



Witness our hand and seal of the Board dated,  
Baton Rouge, LA 20th day of August 2024

  
\_\_\_\_\_  
Director

  
\_\_\_\_\_  
Chairman

  
\_\_\_\_\_  
Treasurer

Expiration Date: August 19, 2027

License No: 35504

This License Is Not Transferrable

**State of Louisiana**  
STATE LICENSING BOARD FOR CONTRACTORS

JOHN BEL EDWARDS  
GOVERNOR



MICHAEL B. MCDUFF  
EXECUTIVE DIRECTOR

August 12, 2022

ICON ENVIRONMENTAL SERVICES, INC.  
2049 Commercial Dr.  
Port Allen, LA 70767

Dear Contractor:

Act 195 of the 2022 Regular Legislative Session was enacted and became effective August 1, 2022. This act updated the statutes under which the Louisiana State Licensing Board for Contractors operates and derives its statutory authority. Some of the updates include the repeal, merger, or renaming of a classification currently carried on your commercial license. As a result of the changes in this Act, you may hold fewer classifications on your license. In other cases, you will have the same number of classifications, but the names of one or more will be different.

The new classification name(s) may cover exactly the same type of work, or it may cover even more work than you are currently allowed to do. In no case, however, should the new classification name(s) decrease the type of work you have been able to do with the classification name(s) you held previously.

You currently hold the **7-454 Hazardous Materials Site Remediation** classification. Effective immediately, this classification will be removed from your license and replaced with **7-220 Hazardous Waste Treatment or Removal**, for the same qualifying party.

**How do you obtain an updated license certificate with the new classification(s) listed?**

Please login to your LSLBC's Contractor Portal to print a copy of your license. To access your LSLBC Contractor Portal, please go to: <http://arlspublic.lslbc.louisiana.gov>.

**USER ID:** 114915

**PASSWORD:** icon2049

If you should have any questions or concerns regarding this matter, please let us know. You may email us at [application@lslbc.louisiana.gov](mailto:application@lslbc.louisiana.gov).

Sincerely,

Applications Department  
Louisiana State Licensing Board for Contractors



## *Jason S. Sills, E.I.*

### *Professional Qualifications*

I have more than nineteen (19) years of experience implementing environmental engineering and remediation projects in Texas, Alabama, Tennessee, Georgia, Mississippi, and Louisiana. My projects have been in a wide variety of disciplines including hydrology, groundwater/soil remediation, surveying, geotechnical, environmental engineering, and construction project management. I have conducted and directed work entailing subsurface investigations, groundwater monitoring, groundwater/soil remediation system installation, corrective action plan development and implementation, site investigations, Risk Evaluation Corrective Action Plans (RECAP), hazardous and non-hazardous waste removal, and transportation/disposal. I am experienced with processing GEM surveys collected in the field, developing contour maps, and interpretation of GEM surveys to determine salt impact at various oil field related sites.

I have been responsible for the investigation and remediation of potentially contaminated sites for a number of companies in the southeastern United States. I have personally conducted a wide range of field and managerial duties including installation of soil borings and monitoring wells, soil and groundwater sampling, integration and analysis of data, interpretation of findings, data reduction, risk evaluation, corrective action design, corrective action implementation, scheduling of subcontractors, supervision of subcontractors and company personnel, and preparation of reports including Phase I assessments, Phase II assessments, Corrective Action Plans, and Louisiana RECAP evaluations.

### *Education*

- Louisiana State University, Baton Rouge, Louisiana  
Bachelor of Science in Environmental Engineering, Graduated August 2000  
Dates attended: 8/98 – 8/00
- Hinds Community College, Raymond, Mississippi  
Pre-Engineering Courses  
Dates attended: 8/96 – 5/98
- Graduated Warren Central High School, Vicksburg, Mississippi, 1996

### *Registration/Certification*

- E.I. Registration No. T-20568
- OSHA 40-Hour HAZWOPER Training
- Annual 8-hour HAZWOPER Refreshers (2001-Present)

### *Experience and Background*

#### **2009- Project Manager, ICON Environmental Services, Pres. Port Allen, Louisiana**

I am responsible for preparing proposals, cost analysis, and coordination of site assessment activities, remediation projects, routine soil and groundwater monitoring activities, interpretation of findings, data reduction, LDEQ Motor Fuels Trust Fund projects, Risk assessment (RECAP) of multi-media impact from industrial sources in accordance with LDEQ RECAP and LDNR 29B, and I have ten (10) years of experience with AutoCAD. Specific duties include:

- Project Manager for multiple Underground Storage Tank (UST) facilities, including budgeting, scheduling, remediation, compliance monitoring and reporting.
- Client/Agency Liaison for Eligibility, Site Investigations, RECAP, Remediation, and NFA Closures.
- Conveyance Notice Preparation for NFA Closures.
- Preparation of Site Investigation/Contamination Assessments, RECAP Evaluations, Sampling and Analysis Plans, Health and Safety Plans, and Quality Assurance Plans.
- CAP Design/Implementation, cost estimation, and Bid Submittals.
- CAP Activities Including Soil Removal, NAPL/Groundwater Recovery, and UST Closure.
- Remediation system design, procurement, startup, and O&M (including preparation of O&M activities and scheduling).
- Compliance Monitoring and Reporting for UST facilities.
- Monitor Well/Piezometer Installations.
- Discharge Permitting and Reporting under LPDES.
- Technical evaluation of remediation system effectiveness, including system efficiency, contaminant reduction, system optimization.
- Initial site findings audits on production facilities for major oil & gas production/exploration companies.
- Preparation of site findings reports and remediation plans for oil production facilities.
- Depositional testimony for litigation associated with soil and groundwater contamination from oilfield activities.

- Interpretation of GEM surveys conducted at oil field sites and comparing lab analytical to GEM survey response.

**2000- Project Manager, Southern Environmental Management & Specialties (SEMS),  
2009 Baton Rouge, Louisiana.**

I was responsible for project activities including preparation of proposals (work plans and cost estimates), conducting site investigations, managing subcontractors and onsite SEMS personnel, and preparing risk evaluations, corrective action plans, and site findings. Specific duties include:

- Project Manager for multiple petroleum retail sites with underground storage tanks (USTs) in Louisiana.
- Development and execution of site investigations to define contamination at various facilities, which includes soil and groundwater sampling, integration and analysis of collected data, interpretation of findings, data reduction, prepare findings report, risk evaluation, corrective action design, and corrective action implementation.
- Assisted in the preparation of stormwater pollution plans for multiple clients in the southeast.
- Preparation of Phase I, Phase II, risk evaluation including Louisiana's RECAP, site characterization, and corrective action plans.
- Preparation of site assessment work proposals that include cost estimates, site work plans, Sampling and Analysis Plans, Health and Safety Plans, and Quality Assurance Plans.
- Project Manager for groundwater and soil corrective action design and track implementation to remediate organic constituents for multiple clients in the southeast.
- Project Coordinator for groundwater sampling, analysis, and reporting at several Resource Conservation and Recovery Act (RCRA) facilities.
- Emergency Response Coordinator for an electrical company in Louisiana. I was one of the onsite managers of response personnel.
- Project Manager for compliance inspections for the LDEQ at over 250 underground storage tank facilities that were affected by hurricanes in Louisiana.

**Jason S. Sills, E.I.**

**LIST OF LITIGATION TESTIMONY**

**Charles Keith Montgomery v Citgo Petroleum Corp, et al, 27<sup>th</sup> Judicial District Court, Docket No. 10-4151-A and 10-5128-B, St. Landry Parish, August 2013.** Provided expert opinion (written report), and deposition testimony. Case Settled ~2013.

**Clyde Tucker et al v Shell Oil Company, et al; Docket No. 42934, Division “B”; 3<sup>rd</sup> JDC, Union Parish, Louisiana, Ora Oil Field, December 2014.** Provided expert opinion (written report), and deposition testimony. Case Settled ~2015.

**Frank B Allain et al v Exxon Mobil Corporation, et al; Docket No. 62430; 18<sup>th</sup> JDC; Iberville Parish, LA; Bayou Des Glaises Field, Louisiana, April 2015.** Provided expert opinion (written report), and deposition testimony. Case Settled ~2016.

**Ritchie Grocer Co. v 2H Inc., et al; Docket No. 1:14-CV-02867, U.S.D.C.; Western District of Louisiana, Alexandria Division; Northern Eola Oil Field, Avoyelles Parish, LA, August 2016.** Provided expert opinion (written report), and deposition testimony.

**Barbara Mayeaux et al v Atlantic Richfield, et al; Docket No. 65591, Div “C”; 18<sup>th</sup> JDC, Iberville Parish, LA, September 2015.** Provided expert opinion (written report), and deposition testimony in November 2016.

**Matthew Willis v. Tennessee Gas Pipeline Company, LLC, et al; Docket No. 82,888; 16<sup>th</sup> JDC; Parish of Saint Martin North Cecilia Field, LA, February 2017.** Provided expert opinion (written report), and deposition testimony in August 2017.

**State of Louisiana and Two O’Clock Bayou Land Co. et al v Chevron USA, Inc, et al; Docket No. 12C5528, Div “B”; 27<sup>th</sup> JDC, St. Landry Parish, LA; Krotz Springs Field, March 2017.** Provided expert opinion (written report), and deposition testimony in August 2018.

**Dwayne Belaire v Margone, LLC, et al; #20181016; 5<sup>th</sup> JDC, Div “B”; Near the Bosco Field Crude Oil Gathering System and Tank Farm, Lafayette Parish, LA.** Provided expert opinion (written report), and deposition testimony in June 2019.

**Bowie Lumber Associates v White Oak Operating Company LLC, et al; Docket 129052, Div “B”; 17<sup>th</sup> JDC; South Bayou Boeuf Field, Lafourche Parish, LA.** Provided expert opinion (written report), and deposition testimony in August 2019.

**Kenneth Paul Lyons, et al v Axiall Corporation, et al; Docket No. 2015-1008; Div. “E”; 14<sup>th</sup> JDC; Calcasieu Parish, LA.** Performed a contamination assessment

of pipeline right-of-way, completed a remedial alternatives study with cost estimates for remediation of soil and groundwater contamination. Provided depositions testimony in August 2019.

**Jack Anthony Devillier et al v Chevron USA, Inc, et al; Docket No. 12-C-5530, Div “C”; 27<sup>th</sup> JDC, St. Landry Parish, LA; Port Barre Oilfield, St. Landry Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in May 2020.

**Hero Lands Company LLC v Chevron USA Inc, et al; Docket #64320 Div “A”; 25<sup>th</sup> JDC; Stella Oil Field, Plaquemines Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in October 2020.

**Litel Explorations LLC v Aegis Development Co. LLC, et al; 31<sup>st</sup> JDC; Docket C-823-17; South Thornwell Gas Field, Jefferson Davis Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater. Completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in November 2020.

**Emerald Land Corporation v Trimont Energy (BL) LLC et al; Civil Action No. 6:17-CV-01655; Bateman Lake Oil Field, St. Mary Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to a freshwater marsh environment. Provided a restoration plan to remove contamination. Provided deposition testimony in January 2021.

**James J. Martin Family, LLC v BP America Production Company et al; Robert Patricia Fleming, LLC v BP America Production Company et al; Div. “C”; 16<sup>th</sup> JDC, St. Martin Parish, LA; Anse La Butte Oil Field, St. Martin Parish, LA.** Performed a contamination assessment of historical oil exploration and production in an urban area just outside of Lafayette, Louisiana. The site included contamination to soil and to the principal aquifer in the region used for domestic and public potable supply. Performed capture zone modeling of a pump-and-treat remediation program and provided a cost estimate for restoration of soil and groundwater. Provided deposition testimony in March 2021.

**Delores H. Lewis, et al v Quintana Petroleum Corp., et al; Docket No. 10-20211; 38<sup>th</sup> JDC, Cameron Parish, LA; Hog Bayou and Lower Mud Lake Oil Field, Cameron Parish, LA.** Performed a contamination assessment of soil and subaqueous sediment at the Hog Bayou Oil Field that is accessible by boat. Provided a restoration plan to clean the property to meet lease obligations. Provided deposition testimony in April 2021.

**Hero Lands Company LLC v Chevron USA Inc, et al; Docket #64320 Div “A”; 25<sup>th</sup> JDC; Stella Oil Field, Plaquemines Parish, LA.** Performed a contamination

assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided testimony at the trial and was qualified as an expert in site assessment and remediation in May 2021.

**Doyle Boudreaux and Montez Prejean v ConocoPhillips Company et al; 15<sup>th</sup> JDC, Division “D”; Civil Action No. 20171849; North Ossun Oil Field, Lafayette Parish, LA.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan. Provided depositional testimony in October 2021.

**Durel Joseph Romaine, et al v Freeport-Mcmoran Oil & Gas, et al; 15<sup>th</sup> JDC; Division “A”; Civil Action No. 108131; Kaplan Field, Vermillion Parish, Louisiana.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan. Provided depositional testimony in December 2021.

**Lake Charles Harbor & Terminal District v. Reynolds Metal Co., et al., U.S.D.C. W.D. La. No. 2:17-cv-1114 W.D. Louisiana.** Performed a sampling assessment and volume calculation of closed landfill. Provided an assessment and restoration plan. Provided depositional testimony in January 2022.

**East Rock LLC v Apache Corporation et al; Docket No. C-693-19; 31<sup>st</sup> JDC, Jefferson Davis Parish, LA; Welsh Oil Field.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in January 2022.

**Bowie Lumber Associates v Anadarko OGC Company, et al; Docket 134888, Div “D”; 17<sup>th</sup> JDC; Lake Boeuf Field, Lafourche Parish, LA.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil and groundwater, and completed a remedial alternatives study with cost estimates for remediation. Provided deposition testimony in February 2022.

**Wichita Partnership, LTD., et al v ConocoPhillips Company; Docket No. 2020-001291, Div. “B”; 14<sup>th</sup> JDC, Calcasieu Parish, LA; Phoenix Lake Field.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan. Provided depositional testimony in August 2022.

**Henning Management, LLC v Chevron USA, Inc et al; Docket No. 73318; 1<sup>st</sup> JDC; Divison “C”, Jefferson Davis Parish, LA, Hayes Oil Field, Calcasieu and**

**Jefferson Davis Parish, LA.** Drafted a Most Feasible Plan (MFP) for the landowners. Presented the MFP at the hearing to the LDNR in February 2023, and provided expert testimony and was accepted as an expert in site assessment and remediation, interpretation and application of Statewide Order 29-B, and interpretation and application of Louisiana Department of Environmental Quality RECAP.

**August J. Levert, Jr. Family, LLC, et al; v BP America Production Company; Docket No. 78953; Division “A”; 18<sup>th</sup> JDC; Iberville Parish, LA.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan. Provided depositional testimony in March 2023.

**Rich Land Seed Co. et al v BLSW Pleasure Corp, et al; Civil Action No. 3:21-01070; United States District Court; Western District of Louisiana; Monroe Division; Monroe Oil Field; Morehouse Parish, LA.** Performed a contamination assessment of soil and groundwater including constituents that included heavy metals, petroleum hydrocarbons, salt constituents, and technologically enhanced radioactive materials. Provided an assessment report and a restoration plan. Provided depositional testimony in June 2023.

**The Parish of Cameron v Auster Oil and Gas, Inc., et al; Docket No. 10-19582, West Hackberry Field, Cameron Parish, Louisiana.** Performed a contamination assessment of historical oilfield exploration and production pollution to soil, subaqueous sediment and groundwater to a formerly freshwater wetland and lake environment that converted to brackish/saline after the discharge of over 120 million barrels of produced salt water, and completed a remedial alternatives study with cost estimates for remediation consistent with requirements of the Louisiana Coastal Management Zone regulations. Provided deposition testimony in October 2023.

**APPENDIX E**  
**NORM SURVEY**

Castex Development  
9403-016-0100



*Rite in the Rain*  
ALL-WEATHER  
**JOURNAL**  
Nº 391FX



6-6-22

to shoot 7c.

1310 Langlinus back on site @ CD-7c

1400 leave site

6-8-22

630 Mob to site

825 Meet Ken Champagne - HET

Derek Pencairn - RSO - Surveyor

WORM Survey using Ludlum

Model 3 w/ 44-2 Probe

sn 193876 cal date 5/3/22

Battery = Good

Cs 137 = 800  $\mu$ R/hrCrawfish ponds, oilfield roads,  
grass fields, hardwoods, oak trees,  
cypress treesBackground = 10  $\mu$ R/hr

GPS 15R 0536112

3338930

David Saganeti w/ ERM oversight

Survey TB area + around sn 229984

many hot spots reading  $> 20 \mu$ R/hrWill w/ Bammer @ TB to  
perform norm survey for current  
operator*Rite in the Rain*

6 6-8-22

DP

9:00 AM  
sunny

Mob to sn 162279 + sn 206253  
for survey. (Drill crew @ location)  
all readings 10-15  $\mu\text{R/hr}$

1200 Survey around TB ENCO Resources  
CIB HVNA; R.R. Bruce NO 3  
Luw 610371 +

o+G well sn 200772 + sn 208588  
Found scale on the ground  
reading  $> 20 \mu\text{R/hr}$  + a  
hot flowline  $> 50 \mu\text{R/hr}$

1:330 Survey around o+G sn 82022  
thick brush found large pile of  
scale reading  $> 20 \mu\text{R/hr}$

Survey around sn 76164 + sn 971675  
all readings 10-15  $\mu\text{R/hr}$

Survey around sn 158347 + sn 217815  
all readings 9-12  $\mu\text{R/hr}$

Survey around sn 34959 JCD-2 + CD-3  
all readings 8-12  $\mu\text{R/hr}$

1605

DP

6-8-22

7

Survey around sn 28396  
all readings 9-13  $\mu\text{R/hr}$

1605 Check out meter  
Cs = 800  $\mu\text{R/hr}$   
Bottle = Good

Put in the Rain.

6-9-22

DP, CJ

85°F

620 Mob to site

820 meet Sydney Manal w/ HET

David S w/ ERM splitting samples

Flow sampling & documenting  
NORM Derek & Chase

Using Ludlum Model 3 w/  
40-2 probe.

Cs 137 = 800  $\mu$ R/hr

Battery = Good

R-1 536112  
3338930

BACKGROUND

	before	After
surface	10 $\mu$ R/hr	10 $\mu$ R/hr
@ 1m	10 $\mu$ R/hr	10 $\mu$ R/hr
845 (0-6) @ 6"	-	15 $\mu$ R/hr
870 (6-12) @ 12"	-	16
855 (12-18) @ 18"	-	16
900 (18-24) @ 24"	-	16 $\mu$ R/hr

Using hand auger to sample 3" bucket head of  
2 1/2" ditch head. Devon w/ alternate bled intervals.

DP, CJ

6-9-22

R-2 537009  
3339021

OTG well sn 200772  $\rightarrow$  sn 208588

TB ENCO Resources LUN610371

Scale on the surface

	before	After
2x1' x 20 $\mu$ R/hr - Hot spot	23 $\mu$ R/hr	
surface	23 $\mu$ R/hr	18
@ 1m	10	18 $\mu$ R/hr
930 (0-6) @ 6"		22
935 (6-12) @ 12"		19 $\mu$ R/hr
@		

E1 537002  
3339033

Flowline @

Hot spot 200  $\mu$ R/hr  
85' of active flowline between  
separators reading > 100  $\mu$ R/hr

Rite in the Rain

6-9-22

DP, CT

90°  
cloudy

R-3 537064  
3339078

scale from inside of a  
tank that was removed  
14'x10' area reading > 20  $\mu$ R/hr  
before After

	@ surface	43 $\mu$ R/hr	32 $\mu$ R/hr
	@ 1m	33 $\mu$ R/hr	19
1000	(6") @ 6"		29
1005	(6-12") @ 12"		24
1010	(7-15") @ 18"		20

Hot spot 43  $\mu$ R/hr @  
sn 82022 / sn 139607

E-2 15 537128  
3339311

TB 26 pcs of tubing  
High reading 1700  $\mu$ R/hr

TB E-3 537139  
3339309

90° flange on well head  
@ sn 229984  
reading 290  $\mu$ R/hr

DP, CT

6-9-22 11

TB E-4 537126  
3339288

2.5' pc of cut flowline w/ 90°  
120  $\mu$ R/hr

TB E-5 537127  
3339282

separator active  
470  $\mu$ R/hr

TB R-5 537122  
3339282  
sn 229984

8'x7' area coming from separator  
reading > 20  $\mu$ R/hr

Hot spot 250  $\mu$ R/hr  
before After

	@ 1m	65 $\mu$ R/hr	70
	@ surface	250	140
1100 (6")	@ 6"		75

refusal concrete or stone @ 6"

Rite in the Rain

6-9-22

DP, CS

Sample on R-4 537136  
 pg 14 coming from well head  
 sn 229984  
 11'x6' area > 20  $\mu$ R/hr  
 High 800  $\mu$ R/hr

R-6 537122  
 3339285  
 3'x4' area > 20  $\mu$ R/hr  
 High 30  $\mu$ R/hr

R-9 537104  
 3339316  
 1'x1' area > 20  $\mu$ R/hr  
 hot spot 32  $\mu$ R/hr

R-7 537140  
 3339270  
 6" spot reading 26  $\mu$ R/hr

PP, CS

6-9-22

R-8 537138  
 3339295  
 6" spot reading 40  $\mu$ R/hr

R-10a 537144  
 3339302  
 spot under 90° in  
 flow line 14' from well head  
 High reading 120  $\mu$ R/hr  
 6" spot > 20  $\mu$ R/hr

R-10b 537143  
 3339306  
 7' from well head  
 High read 40  $\mu$ R/hr  
 1'x1' > 20  $\mu$ R/hr

All readings from TB + sn 229984  
 location

*Rite in the Rain.*

6-9-22

DP, CJ

## R4 Sampling

sample 10' from well head  
packed limestone

1130 0-4" refusal @ 4" large rocks  
11'x6' area reading > 20  $\mu$ R/hr  
before after

surface	800 $\mu$ R/hr	210
@ 1m	35	45
@ 4"		160 $\mu$ R/hr

Put decon water in Rad-5 sample hole.

Close meter Cs-137 = 800  $\mu$ R/hr  
Battery = Good

1145 Mob to the shop

7-3-24

630 Mob to site

840 @ site

un cap wells

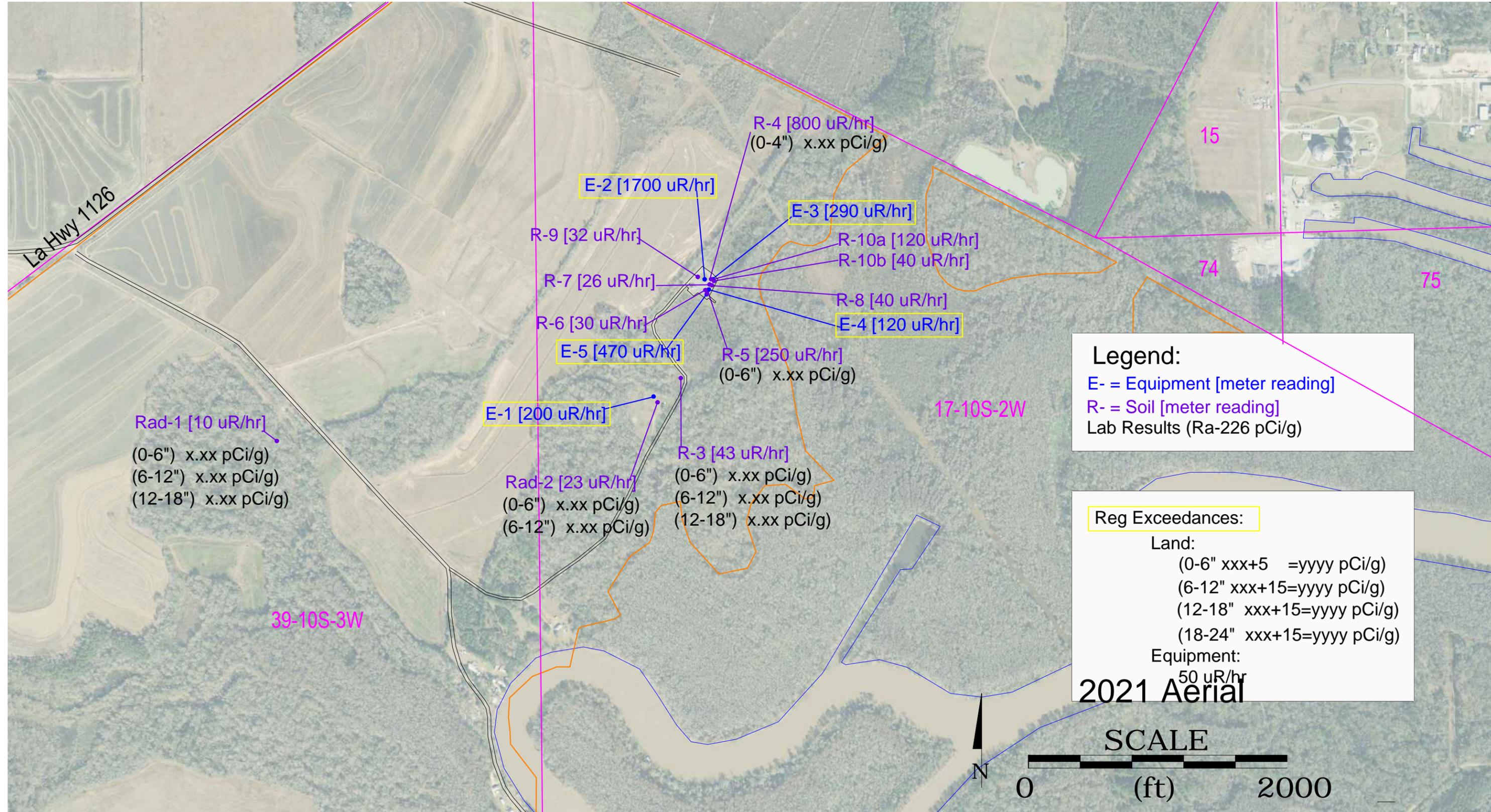
ERM Marcus S + HET Ryan L.

930 SJ Langlois Chad & Dick  
surveying wells CD12-17

DP wtr levels - un cap wells

Well	DTW	TD
1240 2a	18.61	
2b	29.43	
3a	16.08	
3b	29.92	
11a	18.33	
11b	32.46	
15 RB	18.91	49.13
15 BA	18.86	39.3
15 C	26.26	69.29
5A	14.85	
5B	60.75	
8		
4a	14.03	
4b	37.65	

Rate in the Rain



E-2 [1700 uR/hr]

E-3 [290 uR/hr]

R-9 [32 uR/hr]

R-10a [120 uR/hr]

R-7 [26 uR/hr]

R-10b [40 uR/hr]

R-6 [30 uR/hr]

R-8 [40 uR/hr]

E-5 [470 uR/hr]

E-4 [120 uR/hr]

R-5 [250 uR/hr]  
(0-6") x.xx pCi/g

E-1 [200 uR/hr]

17-10S-2W

Rad-1 [10 uR/hr]  
(0-6") x.xx pCi/g  
(6-12") x.xx pCi/g  
(12-18") x.xx pCi/g

Rad-2 [23 uR/hr]  
(0-6") x.xx pCi/g  
(6-12") x.xx pCi/g

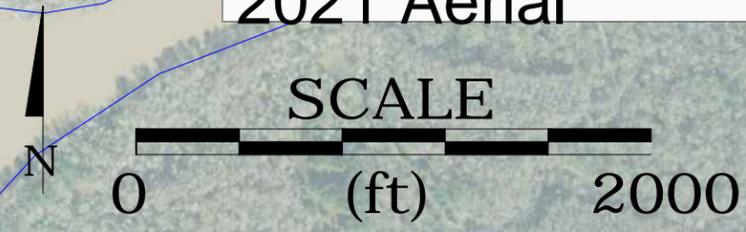
R-3 [43 uR/hr]  
(0-6") x.xx pCi/g  
(6-12") x.xx pCi/g  
(12-18") x.xx pCi/g

39-10S-3W

**Legend:**  
 E- = Equipment [meter reading]  
 R- = Soil [meter reading]  
 Lab Results (Ra-226 pCi/g)

**Reg Exceedances:**  
 Land:  
 (0-6" xxx+5 =yyyy pCi/g)  
 (6-12" xxx+15=yyyy pCi/g)  
 (12-18" xxx+15=yyyy pCi/g)  
 (18-24" xxx+15=yyyy pCi/g)  
 Equipment:  
 50 uR/hr

2021 Aerial



**APPENDIX F**

**SOIL REMEDIATION CALCULATIONS  
AND BACKUP DOCUMENTATION**

**SOIL CONTAMINATION VOLUMES - REMEDIATION TO BACKGROUND STANDARDS**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

**SOIL EXCAVATION VOLUMES**

Depth Interval (ft bgs)	Impacted Thickness (ft)	Surface Area of Soil Contamination (m <sup>2</sup> )	Surface Area of Soil Contamination (ft <sup>2</sup> )	Volume of Soil Contamination (ft <sup>3</sup> )	Volume of Soil Contamination (BCY)
0-6'	6	3,142	33,808	202,848	7,513
2-4'	2	201	2,163	4,326	160
6-20'	14	635	6,833	95,656	3,543
0-20'	20	7,126	76,676	1,533,515	56,797
0-6'	6	2,433	26,179	157,074	5,818
0-20'	20	557	5,993	119,866	4,439
0-12'	12	742	7,984	95,807	3,548
0-12'	12	184	1,980	23,758	880
2-6'	4	1,308	14,074	56,296	2,085
0-6'	6	22	232	1,394	52
0-12'	12	132	1,420	17,044	631
0-0.5'	0.5	0.186	2	1	0.037
0-0.5'	0.5	13.0	140	70	2.59
0-0.5'	0.5	6.13	66	33	1.22
0-0.5'	0.5	5.20	56	28	1.04

Soil > 5 pCi/g **4.89**  
 Soil < 5pCi/g **85,466**  
 Total **85,471**

**CLEAN OVERBURDEN VOLUMES**

Thickness of Overburden (ft)	Surface Area of Overburden (ft <sup>2</sup> )	Volume of Overburden (ft <sup>3</sup> )	Volume of Overburden (BCY)
2	2,163	4,326	160
2	14,074	28,148	1,043
		0	0

**1,203**

**COST ESTIMATE FOR REMEDIATION OF SOIL CONTAMINATION TO BACKGROUND STANDARDS**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

RS Means Reference Number	Quantity	Unit	Description	Unit Cost	Total
<i>Excavation, Disposal, Backfilling</i>					
31 23 16.42 0300 31 23 23.15 6070	86,674	yd <sup>3</sup>	Excavation (equip & labor)	\$2.74	\$237,802
	109,403	yd <sup>3</sup>	Transportation	\$7.80	\$853,343
	623,561	bbl	Disposal (Soil < 5pCi/g)	\$22.00	\$13,718,338
	36	bbl	Disposal (Soil > 5pCi/g)	\$27.00	\$963
31 23 23.20 4102 31 23 23.16 0200	85,471	yd <sup>3</sup>	Offsite backfill material and transportation	\$19.25	\$1,645,018
31 23 23.14 5420	86,674	yd <sup>3</sup>	Backfilling of excavation	\$1.64	\$141,972
<i>Confirmatory Sampling</i>					
	70	sample	Personnel and equipment	\$140	\$9,800
	70	sample	Laboratory analysis (includes 20% markup)	\$300	\$21,000
<i>Project Management</i>					
	86,674	yd <sup>3</sup>	Excavation oversight (geologist/engineer)	\$0.58	\$50,004
	86,674	yd <sup>3</sup>	Backfilling oversight (geologist/engineer)	\$1.01	\$87,402

Project Total: **\$16,765,641**

Notes

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

## Jason Sills

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**From:** Drew Campbell <acampbell@iconenv.com>  
**Sent:** Thursday, October 17, 2024 10:23 AM  
**To:** ICON-Jason  
**Subject:** FW: Cost Proposal request

Drew Campbell  
Staff Geologist  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, LA 70767  
o.(225)344-8490  
c.(225)290-4455  
f.(225)344-6654



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**From:** Kevin Juneau [mailto:kjuneau@customecology.com]  
**Sent:** Thursday, October 17, 2024 9:54 AM  
**To:** Drew Campbell <acampbell@iconenv.com>  
**Subject:** RE: Cost Proposal request

Good morning,

The rate to provide end dumps for this project is \$7.80 per cubic yard ( Truck measure). Rate includes fuel surcharges.

Any questions give me a call.

Thanks

Kevin Juneau  
Director Of Industrial Waste



P.O. Box 69  
Walker, LA 70785  
[Kjuneau@customecology.com](mailto:Kjuneau@customecology.com)  
Office 225-667-1707 Ext. 145  
Cell 225-324-6001

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**From:** Drew Campbell <[acampbell@iconenv.com](mailto:acampbell@iconenv.com)>  
**Sent:** Thursday, October 17, 2024 9:39 AM

**To:** Kevin Juneau <[kjuneau@customecology.com](mailto:kjuneau@customecology.com)>

**Subject:** Cost Proposal request

Hi Kevin,

We are looking for a proposed cost to haul excavated soil with end dumps from our Castex Development site in Jefferson Davis Parish to the Mermentau waste facility. We estimate a volume of 80,000 cubic yards. The site is directly southwest of Mermentau, as shown on the attached image. Please let me know if you need any other information.

Thanks,

Drew Campbell  
Staff Geologist  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, LA 70767  
o.(225)344-8490  
c.(225)290-4455  
f.(225)344-6654



## April 2022 South Louisiana Gate Pricing

Disposal Products		Mermentau	Bourg	Marine Transfer Stations	Unit
		Saltwater	<1% solids	\$ 6.00	\$ 6.00
Saltwater	≥1%<5% solids	\$ 13.00	\$ 13.00	NA	bbl
Oil Base Drilling waste		\$ 19.00	\$ 25.00	\$ 39.00	bbl
Water Base Drilling waste	20,000 ppm Chlorides & <5% oil	\$ 18.00	\$ 25.00	\$ 39.00	bbl
Water Base Drilling waste - elevated levels of CL or oils	20,000 ppm Chlorides or ≥5% oil	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Flowback Water (injectable)	<1% solids	job specific	job specific	job specific	bbl
Flowback Water (non-injectable)	>1% solids	job specific	job specific	job specific	bbl
Completion Fluids		\$ 25.00	\$ 25.00	\$ 39.00	bbl
Production Pit Sludges		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Storage Tank Sludges		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Production Sands and Solids		\$ 22.00	\$ 25.00	\$ 39.00	bbl
(NORM pricing may apply to any product)	NORM ≥5 pci/gr	Gate plus \$1.50 per pci/gr over 5	Gate plus \$1.50 per pci/gr over 5	Gate plus \$1.50 per pci/gr over 5	bbl
Freshwater	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Washout Water	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Washout Pit Water	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Pipeline water/waste	<20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Rainwater	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Freshwater	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Water	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Pit Water	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Pipeline water/waste	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Rainwater	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Water	R360 Facility Water	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Commercial Facility Waste		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Oil Spill Waste	(True oil spill waste, not remediation)	\$ 24.00	\$ 25.00	\$ 39.00	bbl
Wash Rack and Pumping Equipment		\$ 185.00	\$ 185.00	\$ 185.00	hr

**Marine deliveries to Mermentau will be billed at \$25/bbl**

**Facility Services and Extras quoted seperately**

Castex-ICON Report-001380

**BP/Castex-Ltd Adm-Apx I-001381**

**APPENDIX G**

**GROUNDWATER REMEDIATION CALCULATIONS  
AND BACKUP DOCUMENTATION**

**PORE VOLUME FLUSHING ANALYSIS-A-ZONE (PLUME 1 )**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

**Governing Equations:**

Single Pore Volume of Plume:  $PV = BnA$

Number of Pore Volume Flushes:  $NPV = -R_f \ln\left(\frac{C_f}{C_o}\right)$

**PORE VOLUME FLUSHING AND REMEDIATION TIME**

PARAMETER	UNIT	Chloride
Impacted Thickness	ft	21.2
Porosity	unitless	0.3
Area of Plume	ft <sup>2</sup>	5,945,112
Pore Volume	gal	282,825,624
Retardation Factor (Rf)	unitless	1
Target Concentration (Cf)	unitless	174
Initial Concentration (Co)	unitless	3,011
NPV		2.9
Recovery volume to achieve remediation target	gal	806,328,000
Aquifer pumping rate (single well)	gpm	0.61
Number of recovery wells	ea	84
Depth of recovery wells	ft	50
GW Recovery Rate	gpd	73,786
Time to reach remedial target	years	29.9

**COST FOR GROUNDWATER RECOVERY WITH OFFSITE DISPOSAL OF RETENTATE - A-ZONE (PLUME 1)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	84		\$163,800
4" PVC recovery well installation	\$69	foot	4200		\$289,800
1" Piezometer installation (for monitoring)	\$10	foot	4200		\$42,000
Submersible recovery pump and installation	\$1,372	ea	84		\$115,233
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$347,956	unit	1		\$347,956
Well Surface Completions	\$800	ea	84		\$67,200
Electrical (equipment, labor & materials)	\$329,670	unit	1		\$329,670
				Capital Costs Subtotal	\$1,506,160
Engineering Design (5% of capital costs)			5%		\$75,308
Construction Management (6% of capital costs)			6%		\$90,370
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$150,616
				TOTAL CAPITAL COSTS	\$1,822,454
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$14,700	QTR	120		\$1,760,454
GW Laboratory Analysis	\$26,400	QTR	120	\$632,326	\$3,793,957
GW Report	\$2,500	ea	60		\$149,698
				Subtotal	\$5,704,109
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$115,233	event	6		\$691,400
Electricity	\$0.08	kWh	15,065,409		\$1,205,233
Discharge Sampling	\$2,850	QTR	120		\$341,312
Discharge Lab Analysis	\$900	QTR	120	\$21,557	\$129,339
				Subtotal	\$2,367,284
				O&M Costs Subtotal	\$8,071,394
Technical Support (2% of O&M costs)			2%		\$161,428
Project Management (5% of O&M costs)			5%		\$403,570
				TOTAL O&M COSTS	\$8,636,391
<b>Offsite Disposal of Concentrated Wastewater From RO</b>					
Offsite Disposal	\$6.00	bbl	9,599,143		\$57,594,857
Transportation	\$2.25	bbl	9,599,143		\$21,598,071
				TOTAL DISPOSAL COSTS	\$79,192,929
				<b>TOTAL ESTIMATE FOR PROJECT</b>	<b>\$89,651,774</b>

Notes

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**COST FOR GROUNDWATER RECOVERY WITH ONSITE INJECTION OF RETENTATE - A-ZONE (PLUME 1)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	84		\$163,800
4" PVC recovery well installation (labor & materials)	\$69	foot	4200		\$289,800
1" Piezometer installation (for monitoring; labor & materials)	\$10	foot	4200		\$42,000
Submersible recovery pump and installation	\$1,372	ea	84		\$115,233
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$347,956	unit	1		\$347,956
Well Surface Completions	\$800	ea	84		\$67,200
Electrical (equipment, labor & materials)	\$329,670	unit	1		\$329,670
					Capital Costs Subtotal
					\$1,506,160
Engineering Design (5% of capital costs)			5%		\$75,308
Construction Management (6% of capital costs)			6%		\$90,370
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$150,616
					TOTAL CAPITAL COSTS
					\$1,822,454
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$14,700	QTR	120		\$1,760,454
GW Laboratory Analysis	\$26,400	QTR	120	\$632,326	\$3,793,957
GW Report	\$2,500	ea	60		\$149,698
					Subtotal
					\$5,704,109
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$115,233	event	6		\$691,400
Electricity	\$0.08	kWh	15,065,409		\$1,205,233
Discharge Sampling	\$2,850	QTR	120		\$341,312
Discharge Lab Analysis	\$900	QTR	120	\$21,557	\$129,339
					Subtotal
					\$2,367,284
					O&M Costs Subtotal
					\$8,071,394
Technical Support (2% of O&M costs)			2%		\$161,428
Project Management (5% of O&M costs)			5%		\$403,570
					TOTAL O&M COSTS
					\$8,636,391
					<b>TOTAL ESTIMATE FOR PROJECT</b>
					<b>\$10,458,845</b>

**Notes**

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**POWER CONSUMPTION CALCULATIONS - A-ZONE (PLUME 1)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

	<u># of Units</u>	<u>Unit Rated Power (kW)</u>	<u>Duration of Daily Operation (hr)</u>	<u>Daily Energy Consumption (kWh/d)</u>	<u>Quarterly Energy Consumption (kWh)</u>
<b>PUMPS</b>					
Submersible Pumps	84	0.7	22	1379	<b>125,798</b>
	84				<b>125,798</b>

**PIPING CALCULATIONS - A-ZONE (PLUME 1)**

**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**

**Mermentau West; Jefferson Davis Parish**

**Prepared for Mudd, Bruchhaus, & Keating, LLC**

**PIPING, FITTINGS AND WIRING REQUIREMENTS**

GW distribution pipe 3" Schedule 40 PVC	42,000
1.5" discharge line from pump to distribution piping	3,780
3" Elbow fittings (45°)	168
3" Couplings	2,100
3" T fittings	84
3/4 "electrical conduit	42,000

**PORE VOLUME FLUSHING ANALYSIS-A-ZONE (PLUME 2 )**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Governing Equations:

Single Pore Volume of Plume:  $PV = BnA$

Number of Pore Volume Flushes:  $NPV = -R_f \ln\left(\frac{C_f}{C_o}\right)$

**PORE VOLUME FLUSHING AND REMEDIATION TIME**

PARAMETER	UNIT	Barium
Impacted Thickness	ft	20
Porosity	unitless	0.3
Area of Plume	ft <sup>2</sup>	7,836,040
Pore Volume	gal	351,681,475
Retardation Factor (Rf)	unitless	1
Target Concentration (Cf)	unitless	0.315
Initial Concentration (Co)	unitless	0.800
NPV		0.9
Recovery volume to achieve remediation target	gal	327,780,882
Aquifer pumping rate (single well)	gpm	0.44
Number of recovery wells	ea	110
Depth of recovery wells	ft	50
GW Recovery Rate	gpd	69,696
Time to reach remedial target	years	12.9

**COST FOR GROUNDWATER RECOVERY WITH OFFSITE DISPOSAL OF RETENTATE - A-ZONE (PLUME 2)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	110		\$214,500
4" PVC recovery well installation	\$69	foot	5500		\$379,500
1" Piezometer installation (for monitoring)	\$10	foot	5500		\$55,000
Submersible recovery pump and installation	\$1,372	ea	110		\$150,901
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$455,657	unit	1		\$455,657
Well Surface Completions	\$800	ea	110		\$88,000
Electrical (equipment, labor & materials)	\$431,711	unit	1		\$431,711
					Capital Costs Subtotal
					\$1,925,769
Engineering Design (5% of capital costs)			5%		\$96,288
Construction Management (6% of capital costs)			6%		\$115,546
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$192,577
					TOTAL CAPITAL COSTS
					\$2,330,181
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$19,250	QTR	52		\$992,142
GW Laboratory Analysis	\$34,200	QTR	52	\$352,532	\$2,115,194
GW Report	\$2,500	ea	26		\$64,425
					Subtotal
					\$3,171,760
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$150,901	event	2		\$301,802
Electricity	\$0.08	kWh	8,490,435		\$679,235
Discharge Sampling	\$2,850	QTR	52		\$146,888
Discharge Lab Analysis	\$900	QTR	52	\$9,277	\$55,663
					Subtotal
					\$1,183,588
					O&M Costs Subtotal
					\$4,355,348
Technical Support (2% of O&M costs)			2%		\$87,107
Project Management (5% of O&M costs)			5%		\$217,767
					TOTAL O&M COSTS
					\$4,660,223
<b>Offsite Disposal of Concentrated Wastewater From RO</b>					
Offsite Disposal	\$6.00	bbl	3,902,153		\$23,412,920
Transportation	\$2.25	bbl	3,902,153		\$8,779,845
					TOTAL DISPOSAL COSTS
					\$32,192,765
					TOTAL ESTIMATE FOR PROJECT
					\$39,183,169

Notes

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**COST FOR GROUNDWATER RECOVERY WITH ONSITE INJECTION OF RETENTATE - A-ZONE (PLUME 2)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	110		\$214,500
4" PVC recovery well installation (labor & materials)	\$69	foot	5500		\$379,500
1" Piezometer installation (for monitoring; labor & materials)	\$10	foot	5500		\$55,000
Submersible recovery pump and installation	\$1,372	ea	110		\$150,901
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$455,657	unit	1		\$455,657
Well Surface Completions	\$800	ea	110		\$88,000
Electrical (equipment, labor & materials)	\$431,711	unit	1		\$431,711
					Capital Costs Subtotal
					\$1,925,769
Engineering Design (5% of capital costs)			5%		\$96,288
Construction Management (6% of capital costs)			6%		\$115,546
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$192,577
					TOTAL CAPITAL COSTS
					\$2,330,181
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$19,250	QTR	52		\$992,142
GW Laboratory Analysis	\$34,200	QTR	52	\$352,532	\$2,115,194
GW Report	\$2,500	ea	26		\$64,425
					Subtotal
					\$3,171,760
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$150,901	event	2		\$301,802
Electricity	\$0.08	kWh	8,490,435		\$679,235
Discharge Sampling	\$2,850	QTR	52		\$146,888
Discharge Lab Analysis	\$900	QTR	52	\$9,277	\$55,663
					Subtotal
					\$1,183,588
					O&M Costs Subtotal
					\$4,355,348
Technical Support (2% of O&M costs)			2%		\$87,107
Project Management (5% of O&M costs)			5%		\$217,767
					TOTAL O&M COSTS
					\$4,660,223
					<b>TOTAL ESTIMATE FOR PROJECT</b>
					<b>\$6,990,403</b>

**Notes**

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**POWER CONSUMPTION CALCULATIONS - A-ZONE (PLUME 2)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

	<u># of Units</u>	<u>Unit Rated Power (kW)</u>	<u>Duration of Daily Operation (hr)</u>	<u>Daily Energy Consumption (kWh/d)</u>	<u>Quarterly Energy Consumption (kWh)</u>
<b>PUMPS</b>					
Submersible Pumps	110	0.7	22	1805	<b>164,735</b>
	110				<b>164,735</b>

**PIPING CALCULATIONS - A-ZONE (PLUME 2)**

**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**

**Mermentau West; Jefferson Davis Parish**

**Prepared for Mudd, Bruchhaus, & Keating, LLC**

**PIPING, FITTINGS AND WIRING REQUIREMENTS**

GW distribution pipe 3" Schedule 40 PVC	55,000
1.5" discharge line from pump to distribution piping	4,950
3" Elbow fittings (45°)	220
3" Couplings	2,750
3" T fittings	110
3/4 "electrical conduit	55,000

**PORE VOLUME FLUSHING ANALYSIS-B-ZONE (PLUME 3 )**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Governing Equations:

Single Pore Volume of Plume:  $PV = BnA$

Number of Pore Volume Flushes:  $NPV = -R_f \ln\left(\frac{C_f}{C_o}\right)$

**PORE VOLUME FLUSHING AND REMEDIATION TIME**

PARAMETER	UNIT	Chloride
Impacted Thickness	ft	12
Porosity	unitless	0.3
Area of Plume	ft <sup>2</sup>	5,019,394
Pore Volume	gal	135,162,242
Retardation Factor (Rf)	unitless	1
Target Concentration (Cf)	unitless	174
Initial Concentration (Co)	unitless	2,081
NPV		2.5
Recovery volume to achieve remediation target	gal	335,411,662
Aquifer pumping rate (single well)	gpm	0.62
Number of recovery wells	ea	52
Depth of recovery wells	ft	80
GW Recovery Rate	gpd	46,426
Time to reach remedial target	years	19.8

**COST FOR GROUNDWATER RECOVERY WITH OFFSITE DISPOSAL OF RETENTATE - B-ZONE (PLUME 3)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	52		\$101,400
4" PVC recovery well installation	\$69	foot	4160		\$287,040
1" Piezometer installation (for monitoring)	\$10	foot	4160		\$41,600
Submersible recovery pump and installation	\$1,372	ea	52		\$71,335
Storage Tanks	\$37,000	ea	2		\$74,000
Recovery piping and fittings (incl. labor & materials)	\$217,497	unit	1		\$217,497
Well Surface Completions	\$800	ea	52		\$41,600
Electrical (equipment, labor & materials)	\$204,082	unit	1		\$204,082
				Capital Costs Subtotal	\$1,041,054
Engineering Design (5% of capital costs)			5%		\$52,053
Construction Management (6% of capital costs)			6%		\$62,463
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$104,105
				<b>TOTAL CAPITAL COSTS</b>	<b>\$1,259,675</b>
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$9,100	QTR	79		\$720,492
GW Laboratory Analysis	\$16,800	QTR	79	\$266,028	\$1,596,167
GW Report	\$2,500	ea	40		\$98,969
				Subtotal	\$2,415,628
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$71,335	event	4		\$285,340
Electricity	\$0.08	kWh	6,165,744		\$493,260
Discharge Sampling	\$2,850	QTR	79		\$225,649
Discharge Lab Analysis	\$900	QTR	79	\$14,251	\$85,509
				Subtotal	\$1,089,757
				O&M Costs Subtotal	\$3,505,384
Technical Support (2% of O&M costs)			2%		\$70,108
Project Management (5% of O&M costs)			5%		\$175,269
				<b>TOTAL O&amp;M COSTS</b>	<b>\$3,750,761</b>
<b>Offsite Disposal of Concentrated Wastewater From RO</b>					
Offsite Disposal	\$6.00	bbl	3,992,996		\$23,957,976
Transportation	\$2.25	bbl	3,992,996		\$8,984,241
				<b>TOTAL DISPOSAL COSTS</b>	<b>\$32,942,217</b>
				<b>TOTAL ESTIMATE FOR PROJECT</b>	<b>\$37,952,653</b>

**Notes**

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**COST FOR GROUNDWATER RECOVERY WITH ONSITE INJECTION OF RETENTATE - B-ZONE (PLUME 3)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	52		\$101,400
4" PVC recovery well installation (labor & materials)	\$69	foot	4160		\$287,040
1" Piezometer installation (for monitoring; labor & materials)	\$10	foot	4160		\$41,600
Submersible recovery pump and installation	\$1,372	ea	52		\$71,335
Storage Tanks	\$37,000	ea	2		\$74,000
Recovery piping and fittings (incl. labor & materials)	\$217,497	unit	1		\$217,497
Well Surface Completions	\$800	ea	52		\$41,600
Electrical (equipment, labor & materials)	\$204,082	unit	1		<u>\$204,082</u>
					Capital Costs Subtotal \$1,041,054
Engineering Design (5% of capital costs)			5%		\$52,053
Construction Management (6% of capital costs)			6%		\$62,463
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		<u>\$104,105</u>
					TOTAL CAPITAL COSTS \$1,259,675
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$9,100	QTR	79		\$720,492
GW Laboratory Analysis	\$16,800	QTR	79	\$266,028	\$1,596,167
GW Report	\$2,500	ea	40		<u>\$98,969</u>
					Subtotal \$2,415,628
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$71,335	event	4		\$285,340
Electricity	\$0.08	kWh	6,165,744		\$493,260
Discharge Sampling	\$2,850	QTR	79		\$225,649
Discharge Lab Analysis	\$900	QTR	79	\$14,251	<u>\$85,509</u>
					Subtotal \$1,089,757
					O&M Costs Subtotal \$3,505,384
Technical Support (2% of O&M costs)			2%		\$70,108
Project Management (5% of O&M costs)			5%		<u>\$175,269</u>
					TOTAL O&M COSTS \$3,750,761
					<b>TOTAL ESTIMATE FOR PROJECT \$5,010,436</b>

**Notes**

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**POWER CONSUMPTION CALCULATIONS - B-ZONE (PLUME 3)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

	<u># of Units</u>	<u>Unit Rated Power (kW)</u>	<u>Duration of Daily Operation (hr)</u>	<u>Daily Energy Consumption (kWh/d)</u>	<u>Quarterly Energy Consumption (kWh)</u>
<b>PUMPS</b>					
Submersible Pumps	52	0.7	22	853	<b>77,875</b>
	52				<b>77,875</b>

**PIPING CALCULATIONS - B-ZONE (PLUME 3)**

**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**

**Mermentau West; Jefferson Davis Parish**

**Prepared for Mudd, Bruchhaus, & Keating, LLC**

**PIPING, FITTINGS AND WIRING REQUIREMENTS**

GW distribution pipe 3" Schedule 40 PVC	26,000
1.5" discharge line from pump to distribution piping	3,900
3" Elbow fittings (45°)	104
3" Couplings	1,300
3" T fittings	52
3/4 "electrical conduit	26,000

**PORE VOLUME FLUSHING ANALYSIS-B-ZONE (PLUME 4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Governing Equations:

Single Pore Volume of Plume:  $PV = BnA$

Number of Pore Volume Flushes:  $NPV = -R_f \ln\left(\frac{C_f}{C_o}\right)$

**PORE VOLUME FLUSHING AND REMEDIATION TIME**

PARAMETER	UNIT	Chloride
Impacted Thickness	ft	12
Porosity	unitless	0.3
Area of Plume	ft <sup>2</sup>	9,931,892
Pore Volume	gal	267,445,988
Retardation Factor (Rf)	unitless	1
Target Concentration (Cf)	unitless	174
Initial Concentration (Co)	unitless	1,708
NPV		2.3
Recovery volume to achieve remediation target	gal	610,852,807
Aquifer pumping rate (single well)	gpm	0.46
Number of recovery wells	ea	103
Depth of recovery wells	ft	80
GW Recovery Rate	gpd	68,227
Time to reach remedial target	years	24.5

**COST FOR GROUNDWATER RECOVERY WITH OFFSITE DISPOSAL OF RETENTATE - B-ZONE (PLUME 4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	103		\$200,850
4" PVC recovery well installation	\$69	foot	8240		\$568,560
1" Piezometer installation (for monitoring)	\$10	foot	8240		\$82,400
Submersible recovery pump and installation	\$1,372	ea	103		\$141,298
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$430,811	unit	1		\$430,811
Well Surface Completions	\$800	ea	103		\$82,400
Electrical (equipment, labor & materials)	\$404,239	unit	1		\$404,239
				Capital Costs Subtotal	\$2,061,058
Engineering Design (5% of capital costs)			5%		\$103,053
Construction Management (6% of capital costs)			6%		\$123,663
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		\$206,106
				TOTAL CAPITAL COSTS	\$2,493,880
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$18,025	QTR	98		\$1,768,567
GW Laboratory Analysis	\$32,100	QTR	98	\$629,914	\$3,779,483
GW Report	\$2,500	ea	49		\$122,647
				Subtotal	\$5,670,697
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$141,298	event	4		\$565,192
Electricity	\$0.08	kWh	15,134,837		\$1,210,787
Discharge Sampling	\$2,850	QTR	98		\$279,635
Discharge Lab Analysis	\$900	QTR	98	\$17,661	\$105,967
				Subtotal	\$2,161,580
				O&M Costs Subtotal	\$7,832,277
Technical Support (2% of O&M costs)			2%		\$156,646
Project Management (5% of O&M costs)			5%		\$391,614
				TOTAL O&M COSTS	\$8,380,536
<b>Offsite Disposal of Concentrated Wastewater From RO</b>					
Offsite Disposal	\$6.00	bbl	7,272,057		\$43,632,343
Transportation	\$2.25	bbl	7,272,057		\$16,362,129
				TOTAL DISPOSAL COSTS	\$59,994,472
				<b>TOTAL ESTIMATE FOR PROJECT</b>	<b>\$70,868,889</b>

Notes

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**COST FOR GROUNDWATER RECOVERY WITH ONSITE INJECTION OF RETENTATE - B-ZONE (PLUME 4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Unit Cost	Unit	Quantity	Markup (20%)	Total
<b>Capital Costs</b>					
<b>GW Recovery Wells</b>					
Rig mobilization/demobilization	\$2,500	ea	1		\$2,500
Drill Rig and Crew	\$1,950	day	103		\$200,850
4" PVC recovery well installation (labor & materials)	\$69	foot	8240		\$568,560
1" Piezometer installation (for monitoring; labor & materials)	\$10	foot	8240		\$82,400
Submersible recovery pump and installation	\$1,372	ea	103		\$141,298
Storage Tanks	\$37,000	ea	4		\$148,000
Recovery piping and fittings (incl. labor & materials)	\$430,811	unit	1		\$430,811
Well Surface Completions	\$800	ea	103		\$82,400
Electrical (equipment, labor & materials)	\$404,239	unit	1		<u>\$404,239</u>
					Capital Costs Subtotal
					\$2,061,058
Engineering Design (5% of capital costs)			5%		\$103,053
Construction Management (6% of capital costs)			6%		\$123,663
Contingency for pilot testing and remediation system optimization (10% of capital costs )			10%		<u>\$206,106</u>
					TOTAL CAPITAL COSTS
					\$2,493,880
<b>Operation and Maintenance</b>					
<b>GW Monitoring</b>					
GW Sampling	\$18,025	QTR	98		\$1,768,567
GW Laboratory Analysis	\$32,100	QTR	98	\$629,914	\$3,779,483
GW Report	\$2,500	ea	49		<u>\$122,647</u>
					Subtotal
					\$5,670,697
<b>Recovery/Injection Well O&amp;M</b>					
Pump Replacement	\$141,298	event	4		\$565,192
Electricity	\$0.08	kWh	15,134,837		\$1,210,787
Discharge Sampling	\$2,850	QTR	98		\$279,635
Discharge Lab Analysis	\$900	QTR	98	\$17,661	<u>\$105,967</u>
					Subtotal
					\$2,161,580
					O&M Costs Subtotal
					\$7,832,277
Technical Support (2% of O&M costs)			2%		\$156,646
Project Management (5% of O&M costs)			5%		<u>\$391,614</u>
					TOTAL O&M COSTS
					\$8,380,536
					<b>TOTAL ESTIMATE FOR PROJECT</b>
					<b>\$10,874,417</b>

**Notes**

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**POWER CONSUMPTION CALCULATIONS - B-ZONE (PLUME 4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

	<u># of Units</u>	<u>Unit Rated Power (kW)</u>	<u>Duration of Daily Operation (hr)</u>	<u>Daily Energy Consumption (kWh/d)</u>	<u>Quarterly Energy Consumption (kWh)</u>
<b>PUMPS</b>					
Submersible Pumps	103	0.7	22	1690	<b>154,252</b>
	103				<b>154,252</b>

**PIPING CALCULATIONS - B-ZONE (PLUME 4)**

**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**

**Mermentau West; Jefferson Davis Parish**

**Prepared for Mudd, Bruchhaus, & Keating, LLC**

**PIPING, FITTINGS AND WIRING REQUIREMENTS**

GW distribution pipe 3" Schedule 40 PVC	51,500
1.5" discharge line from pump to distribution piping	7,725
3" Elbow fittings (45°)	206
3" Couplings	2,575
3" T fittings	103
3/4 "electrical conduit	51,500

**CAPITAL AND O&M COSTS FOR REVERSE OSMOSIS SYSTEM (BRACKISH) (A-ZONE PLUMES 1&2) & (B-ZONE Plumes 3&4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Quantity	Unit	Unit Cost	Markup (20%)	Total
<b>Capital Costs</b>					
<u>Reverse Osmosis System</u>					
Pre-treatment Unit (stripperator)	6	ea	\$19,193		\$115,158
RO Unit	6	ea	\$84,067		\$504,402
Remediation System Enclosure	6	ea	\$12,776		<u>\$76,658</u>
					Capital Costs Subtotal
					\$696,218
Engineering Design (5% of capital costs subtotal)	5%				\$34,811
Construction Management (6% of capital costs subtotal)	6%				\$41,773
Contingency for pilot testing and remediation system optimization (10% of project subtotal)	10%				<u>\$69,622</u>
					TOTAL CAPITAL COSTS
					\$842,424
<b>Operation and Maintenance</b>					
<u>Reverse Osmosis System O&amp;M</u>					
RO Membrane Replacement (every 2 years)	15	event	\$4,800		\$72,000
Electricity	1,831,831	kWh	\$0.08		<u>\$146,546</u>
					O&M Subtotal
					\$218,546
Technical Support (2% of O&M subtotal)	2%				\$4,371
Project Management (5% of O&M subtotal)	5%				<u>\$10,927</u>
					TOTAL O&M COSTS
					\$233,845
					<b>TOTAL ESTIMATE</b>
					<b>\$1,076,269</b>

Notes

Heavy Construction Costs With RSMMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

**RO SYSTEM POWER CONSUMPTION CALCULATIONS (BRACKISH) (A-ZONE PLUMES 1&2 HIGH K)**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	<u># of Units</u>	<u>Unit Rated Power (kW)</u>	<u>Duration of Daily Operation (hr)</u>	<u>Daily Energy Consumption (kWh/d)</u>	<u>Quarterly Energy Consumption (kWh)</u>
<b><u>TREATMENT SYSTEM</u></b>					
RO System	1	3.7	22	82	<b>7,488</b>
Feed Pump	1	3.7	23	86	<b>7,828</b>
					<b>15,316</b>

**CAPITAL AND O&M COSTS FOR SALTWATER DISPOSAL WELLS (A-ZONE PLUMES 1&2) & (B-ZONE Plumes 3&4)**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Description	Quantity	Unit	Unit Cost	Markup (20%)	Total
<b>Capital Costs</b>					
Saltwater Disposal Wells (2)					\$6,100,000
<b>Operation and Maintenance</b>					
Annual O&M	54.4	event	\$112,180		\$6,102,592
<b>TOTAL ESTIMATE</b>					<b>\$12,202,592</b>

**COST ESTIMATE TO INSTALL GAS VENT WELLS INTO THE CHICOT AQUIFER**  
 Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;  
 Mermentau West; Jefferson Davis Parish  
 Prepared for Mudd, Bruchhaus, & Keating, LLC

Time by Task	Cost per Unit	Number of Units	Markup (20%)	Total (\$)
<b>Installation of Vent Wells ( well to 110' bgs)</b>				
Elm Springs	\$150,000.00 /well	3 wells	\$90,000.00	\$540,000
Geologist	\$125.00 /hour	84 hours		\$10,500
Mileage (support trucks)	\$120.00 /day	6 days		\$720
Hotel	\$150.00 /night	6 nights		\$900
Per diem	\$50.00 /day	6 days		\$300
			<b>SUBTOTAL</b>	<b>\$552,420</b>

<b>PER WELL TOTAL:</b>	<b>\$552,420</b>
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CALCULATION OF PREDICTED DRAWDOWN VS DISTANCE FROM PUMPING WELL

Method: Back-calculate drawdown using Theis nonequilibrium equation to predict a cone of depression around a pumping well assuming an initially flat wtr table, laterally extensive aquifer, no dewatering effects or aquifer/water compressibility. Then superimpose the cone of depression onto the highest observed potentiometric maps to predict zone of capture.

Site: CASTEX Zone A Plume 1

Pumping well: 4-inch Diameter Recovery well

Hydraulic Conductivity: 0.3009 (ft/day) Sat thick (b): 21.2 (ft)

Conversions

10690 (gpd) 7.42 (gpm)

$u = \frac{r^2 S}{4Tt}$

r (distance from well) see values below  
 S (storativity) 0.01  
 T (transmissivity) 6.37908 (ft<sup>2</sup>/day)  
 t (time since pumping began) 90 (days)  
 u (well function exponential integral) see values below

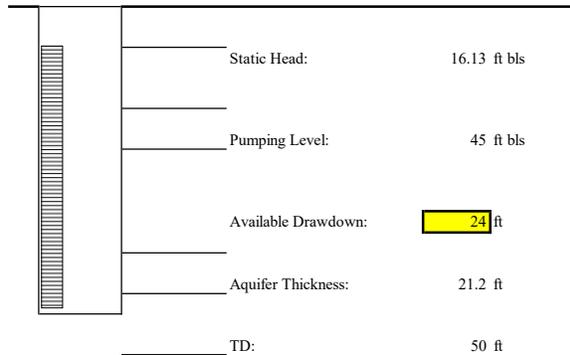
Radius of drainage for RW in time 23 (feet)  
 7 (meters)

L	u	W(u)	Q =			
0.1 (feet)	4.35E-08	16.37225	0.61 (gpm)	117 (cfd)	10,569	Cubic feet of water pumped in time
0.5 (feet)	1.09E-06	13.15338			35,230	Cubic feet of aquifer drained in time
1 (feet)	4.35E-06	11.76709	878.4 (gpd)		3	Number of wells in Area
10 (feet)	4.35E-04	7.162348			31,707	Total volume of wtr in Area in time
20 (feet)	1.74E-03	5.777359				
30 (feet)	3.92E-03	4.968603				
40 (feet)	6.97E-03	4.396279				
50 (feet)	1.09E-02	3.953893				
100 (feet)	4.35E-02	2.599818				
200 (feet)	1.74E-01	1.337328				
300 (feet)	3.92E-01	0.716139				
400 (feet)	6.97E-01	0.376104				
500 (feet)	1.09E+00	0.18947				
1000 (feet)	4.35E+00	0.002467				
1800 (feet)	1.41E+01	4.97E-08				

$ho-h = \frac{Q * W(u)}{4 \pi T}$

Q (discharge) 117.433 (ft<sup>3</sup>/day)  
 W(u) (well function value) from table  
 ho-h (drawdown)

L	ho-h (ft)
0.1 (feet)	23.98
0.5 (feet)	19.27
1 (feet)	17.24
10 (feet)	10.49
20 (feet)	8.46
30 (feet)	7.28
40 (feet)	6.44
50 (feet)	5.79
100 (feet)	3.81
200 (feet)	1.95911995
300 (feet)	1.04910857
400 (feet)	0.55097356
500 (feet)	0.27756419
1000 (feet)	0.00361337
1800 (feet)	7.2779E-08



**CALCULATION OF PREDICTED DRAWDOWN VS DISTANCE FROM PUMPING WELL**

**Method:** Back-calculate drawdown using Theis nonequilibrium equation to predict a cone of depression around a pumping well assuming an initially flat wtr table, laterally extensive aquifer, no dewatering effects or aquifer/water compressibility. Then superimpose the cone of depression onto the highest observed potentiometric maps to predict zone of capture.

Site: **CASTEX Zone A Plume 2**

Pumping well: 4-inch Diameter Recovery well

Hydraulic Conductivity: 0.3009 (ft/day) Sat thick (b): 20 (ft)

**Conversions**

10690 (gpd) 7.42 (gpm)

$u = \frac{r^2 S}{4Tt}$

r (distance from well) see values below  
 S (storativity) 0.01  
 T (transmissivity) 6.018 (ft<sup>2</sup>/day)  
 t (time since pumping began) 90 (days)  
 u (well function exponential integral) see values below

Radius of drainage for RW in time 20 (feet)  
 6 (meters)

$Q =$	0.44 (gpm)	85 (cfd)	7,624	Cubic feet of water pumped in time
			25,412	Cubic feet of aquifer drained in time
	633.6 (gpd)		3	Number of wells in Area
			22,871	Total volume of wtr in Area in time

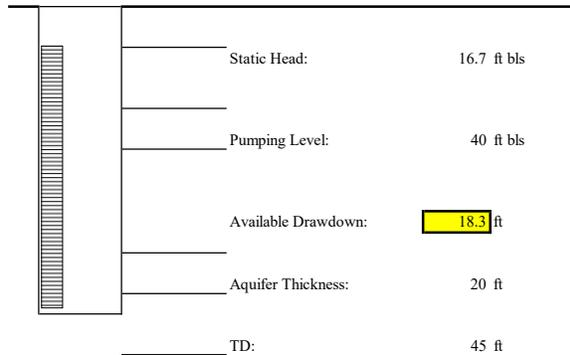
  

$L$	$u$	$W(u)$	$Q$
0.1 (feet)	4.62E-08	16.31398	
0.5 (feet)	1.15E-06	13.09511	
1 (feet)	4.62E-06	11.70882	
10 (feet)	4.62E-04	7.104105	
20 (feet)	1.85E-03	5.719194	
30 (feet)	4.15E-03	4.910569	
40 (feet)	7.39E-03	4.338426	
50 (feet)	1.15E-02	3.896274	
100 (feet)	4.62E-02	2.544104	
200 (feet)	1.85E-01	1.288626	
300 (feet)	4.15E-01	0.677218	
400 (feet)	7.39E-01	0.347666	
500 (feet)	1.15E+00	0.170473	
1000 (feet)	4.62E+00	0.001807	
1800 (feet)	1.50E+01	2.03E-08	

$ho-h = \frac{Q * W(u)}{4 \pi T}$

Q (discharge) 84.7059 (ft<sup>3</sup>/day)  
 W(u) (well function value) from table  
 ho-h (drawdown)

$L$	ho-h (ft)
0.1 (feet)	18.27
0.5 (feet)	14.67
1 (feet)	13.11
10 (feet)	7.96
20 (feet)	6.41
30 (feet)	5.50
40 (feet)	4.86
50 (feet)	4.36
100 (feet)	2.85
200 (feet)	1.44337346
300 (feet)	0.7585428
400 (feet)	0.38941609
500 (feet)	0.19094464
1000 (feet)	0.00202383
1800 (feet)	2.2738E-08



CALCULATION OF PREDICTED DRAWDOWN VS DISTANCE FROM PUMPING WELL

Method: Back-calculate drawdown using Theis nonequilibrium equation to predict a cone of depression around a pumping well assuming an initially flat wtr table, laterally extensive aquifer, no dewatering effects or aquifer/water compressibility. Then superimpose the cone of depression onto the highest observed potentiometric maps to predict zone of capture.

Site: CASTEX Zone B Plume 3

Pumping well: 4-inch Diameter Recovery well

Hydraulic Conductivity: 0.3123 (ft/day) Sat thick (b): 12 (ft)

Conversions

10690 (gpd) 7.42 (gpm)

$u = \frac{r^2 S}{4Tt}$

r (distance from well) see values below  
 S (storativity) 0.01  
 T (transmissivity) 3.7476 (ft<sup>2</sup>/day)  
 t (time since pumping began) 90 (days)  
 u (well function exponential integral) see values below

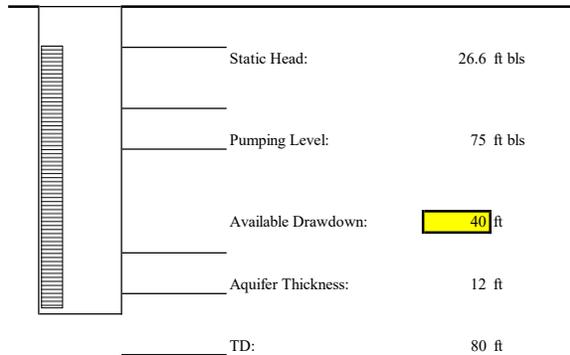
Radius of drainage for RW in time 31 (feet)  
 9 (meters)

L	u	W(u)	Q =			
0.1 (feet)	7.41E-08	15.84034	0.62 (gpm)	119 (cfd)	10,742	Cubic feet of water pumped in time
0.5 (feet)	1.85E-06	12.62147			35,807	Cubic feet of aquifer drained in time
1 (feet)	7.41E-06	11.23518	892.8 (gpd)		3	Number of wells in Area
10 (feet)	7.41E-04	6.630745			32,227	Total volume of wtr in Area in time
20 (feet)	2.96E-03	5.246672				
30 (feet)	6.67E-03	4.439439				
40 (feet)	1.19E-02	3.86924				
50 (feet)	1.85E-02	3.429573				
100 (feet)	7.41E-02	2.097604				
200 (feet)	2.96E-01	0.914421				
300 (feet)	6.67E-01	0.39808				
400 (feet)	1.19E+00	0.161982				
500 (feet)	1.85E+00	0.060037				
1000 (feet)	7.41E+00	7.26E-05				
1800 (feet)	2.40E+01	0				

$ho-h = \frac{Q * W(u)}{4 \pi T}$

Q (discharge) 119.358 (ft<sup>3</sup>/day)  
 W(u) (well function value) from table  
 ho-h (drawdown)

L	ho-h (ft)
0.1 (feet)	40.15
0.5 (feet)	31.99
1 (feet)	28.48
10 (feet)	16.81
20 (feet)	13.30
30 (feet)	11.25
40 (feet)	9.81
50 (feet)	8.69
100 (feet)	5.32
200 (feet)	2.31758597
300 (feet)	1.00892903
400 (feet)	0.41054186
500 (feet)	0.15216388
1000 (feet)	0.00018411
1800 (feet)	0



CALCULATION OF PREDICTED DRAWDOWN VS DISTANCE FROM PUMPING WELL

Method: Back-calculate drawdown using Theis nonequilibrium equation to predict a cone of depression around a pumping well assuming an initially flat wtr table, laterally extensive aquifer, no dewatering effects or aquifer/water compressibility. Then superimpose the cone of depression onto the highest observed potentiometric maps to predict zone of capture.

Site: CASTEX Zone B Plume 4

Pumping well: 4-inch Diameter Recovery well

Hydraulic Conductivity: 0.3123 (ft/day) Sat thick (b): 12 (ft)

Conversions

10690 (gpd) 7.42 (gpm)

$u = \frac{r^2 S}{4Tt}$

r (distance from well) see values below  
 S (storativity) 0.01  
 T (transmissivity) 3.7476 (ft<sup>2</sup>/day)  
 t (time since pumping began) 90 (days)  
 u (well function exponential integral) see values below

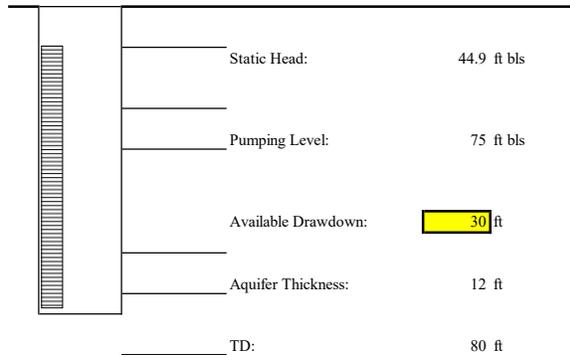
Radius of drainage for RW in time 27 (feet)  
 8 (meters)

L	u	W(u)	Q =	89	7,970	Cubic feet of water pumped in time
0.1 (feet)	7.41E-08	15.84034	0.46 (gpm)	89 (cfd)	26,567	Cubic feet of aquifer drained in time
0.5 (feet)	1.85E-06	12.62147	662.4 (gpd)		3	Number of wells in Area
1 (feet)	7.41E-06	11.23518			23,910	Total volume of wtr in Area in time
10 (feet)	7.41E-04	6.630745				
20 (feet)	2.96E-03	5.246672				
30 (feet)	6.67E-03	4.439439				
40 (feet)	1.19E-02	3.86924				
50 (feet)	1.85E-02	3.429573				
100 (feet)	7.41E-02	2.097604				
200 (feet)	2.96E-01	0.914421				
300 (feet)	6.67E-01	0.39808				
400 (feet)	1.19E+00	0.161982				
500 (feet)	1.85E+00	0.060037				
1000 (feet)	7.41E+00	7.26E-05				
1800 (feet)	2.40E+01	0				

$ho-h = \frac{Q * W(u)}{4 \pi T}$

Q (discharge) 88.5561 (ft<sup>3</sup>/day)  
 W(u) (well function value) from table  
 ho-h (drawdown)

L	ho-h (ft)
0.1 (feet)	29.79
0.5 (feet)	23.73
1 (feet)	21.13
10 (feet)	12.47
20 (feet)	9.87
30 (feet)	8.35
40 (feet)	7.28
50 (feet)	6.45
100 (feet)	3.94
200 (feet)	1.71949927
300 (feet)	0.74856025
400 (feet)	0.30459557
500 (feet)	0.11289578
1000 (feet)	0.0001366
1800 (feet)	0





<b>Company:</b> Icon Environmental Services	<b>Address:</b> 2049 Commercial Dr. Port Allen LA 70767
<b>Name:</b> Wayne Prejean, P.E.	<b>Country:</b> United States
<b>Email:</b> wprejean@iconenv.com	<b>Phone:</b> 225-344-8490
	<b>Fax:</b>

Qty	Part No.	Description	Unit Price (\$)	Ext Price (\$)
<b>20,000 GPD Brackish Water Reverse Osmosis System</b>				
<b>Recommended Pre-Treatment:</b>				
1	CDS-36-G-15	Prechlorination Dosing System, Adjustable metering pump, Polyethylene solution tank, Manual, 220V/1pH/60Hz	\$795.00	\$795.00
1	FP/BW	Filter Feed / Back Wash Pump, 460V/3pH/60Hz	\$6,443.00	\$6,443.00
1	31F30150MM	30" FRP Tank Multimedia Filter complete with media, 3150 Fleck valve, 2" Pipe size, 220V/1pH/60Hz	\$7,150.00	\$7,150.00
1	31F36210GS	36" FRP Tank Greensand Filter complete with media, 3150 Fleck valve, 2" Pipe size, 220V/1pH/60Hz	\$9,950.00	\$9,950.00
1	31F30150AC	30" FRP Tank Activated Carbon Filter complete with media, 3150 Fleck valve, 2" Pipe size, 220V/1pH/60Hz	\$7,709.00	\$7,709.00
1	CDS-36-G-15	Antiscalant Dosing System, Adjustable metering pump, Polyethylene solution tank, Manual, 220V/1pH/60Hz	\$795.00	\$795.00
1	PA0100-PLUS-5	Antiscalant 5 gallon pail	\$330.00	\$330.00
<b>BWRO System:</b>				
1	BW-24K-8240	Brackish Reverse Osmosis System modified to produce 20,000 GPD at maximum 10,000 ppm feed water TDS, 460V/3ph/60Hz, with powder coated carbon steel frame, (8) FRP pressure vessels, (16) 4" TFC spiral wound membranes (Filmtec or Hydranautics), pressure gauges, pressure switches, flow meters, high pressure pump (Grundfos or equal), microprocessor control panel.	\$49,700.00	\$49,700.00
<b>Recommended Post-Treatment:</b>				
1	CDS-36-G-15-pH-H	Post pH Dosing System, Adjustable Metering Pump, Polyethylene Solution Tank, Manual, pH Monitor, 220V/1pH/60Hz	\$1,195.00	\$1,195.00

**QUOTATION 137542-0**

**April 20, 2022**

Prepared by: **May Higazy**

Qty	Part No.	Description	Unit Price (\$)	Ext Price (\$)
<b>Terms and Conditions</b>			Sub Total:	\$84,067.00
<b>Payment:</b>	50% down/50% at shipping		Discount 0%:	\$0.00
<b>Lead Time:</b>	12-14 weeks		Tax 0%:	\$0.00
<b>Validity:</b>	30 days		Freight:	\$0.00
<b>Freight Terms:</b>	<b>Factory USA</b>		Total (USD):	\$84,067.00

Shipping is not included

## TERMS AND CONDITIONS OF SALE

All products and services processed by Pure Aqua, Inc., its affiliates or subsidiaries shall be in accordance with the following terms and conditions

All products and services processed by Pure Aqua, Inc., its affiliates or subsidiaries shall be in accordance with the following terms and conditions.

**ORDER ACCEPTANCE:** Pure Aqua reserves the right to accept or reject an order request. Possession of a price sheet or a product catalog is not an offer to sell the product listed. Pure Aqua sells wholesale only and does not sell to end users. These terms and conditions shall be considered a part of all accepted orders and accepted purchase orders. No purported acceptance of any order on terms and conditions which modify, supersede, supplement or otherwise alter the accepted order shall be binding upon Pure Aqua and such terms and conditions shall be deemed rejected and replaced by the accepted order, notwithstanding Pure Aqua's acceptance of any money. In the event of a conflict between the accepted order and any prior or contemporaneous agreement or document exchanged between the parties, the accepted order governs. Some orders may require a down payment. If client approval is required for an order, client approval must be made within 14 days to proceed with the project. If 14 days have passed without client approval, then Pure Aqua may revise any pricing before proceeding with the project or accepting the order.

**CANCELLATION OR CHANGE OF ORDER:** Orders are processed as they are received. Buyer's add-ons or changes to orders are subject to Pure Aqua acceptance. Once an order is in process (or production), if as a consequence of an instruction from you regarding any change to the order including add-ons, we delay or suspend (but not cancel) an order or any part of an order, we may vary the price for the order and/or separate portions of the order. You may not cancel an order, or any part of it, without our written consent, which may be withheld in our absolute discretion. In addition, any cancellation of an order may incur a minimum 35% restocking fee. Without prejudice to our right to refuse consent for you to cancel an order, as a condition of giving such consent we may require that you pay any and all costs reasonably incurred by us in relation to the cancelled order or the cancelled part of the order plus a reasonable profit to the date of cancellation. Pure Aqua may delay or cancel an order or delivery of an order at any time if: a) we reasonably form the opinion that you are insolvent or at material risk of insolvency; b) you fail to pay any amount on the due date; c) where an account is found delinquent and no arrangements have been made with the Credit Department to settle the account; or d) we reasonably form the opinion that fulfilling the order to you may have a negative impact upon our business or commercial reputation or image.

**STANDARDS:** The Pure Aqua system is designed to Pure Aqua's standards and is not NSF or UL listed. Pure Aqua makes no claim or guarantee that the system meets NSF or any other standards. NSF components are supplied where applicable. It is your obligation to determine if any components meet installation requirements and the legal requirements. Component data sheets are supplied from the respective manufacturers for various components as is.

**CUSTOM EQUIPMENT:** Custom equipment is subject to the terms and conditions detailed on the separate Pure Aqua quote form and will require a minimum 35% down payment.

**PRICES:** Products are sold at prices currently in effect at time of order, together with any applicable taxes, charges and delivery costs in relation to the products and are exworks Santa Ana, CA-USA unless otherwise specified. Prices generally coincide with dated Pure Aqua printed price sheets and website information, exclusive of any applicable taxes, charges and delivery costs in relation to the order. However, Pure Aqua reserves the right to change prices at any time, without notice and without updating published material on our website or in print. Freight costs are for the customer's account.

**DELIVERY:** Stock items distributed by Pure Aqua are generally shipped within 1 to 4 working days after our acceptance of an order. We may require additional time on special orders, large orders, or items not stocked. The risk in the order shall pass to you upon placement of the order onto transport for delivery to you. If your shipment is delayed, lost, weathered or damaged in transit, Pure Aqua is not responsible for any liability for any loss, damage, consequence or expense. Pure Aqua is not responsible for delays due to conditions beyond our control.

**SHIPPING CHARGES:** All shipments are exworks Santa Ana, CA-USA, unless otherwise specified and shipping costs are the customer's responsibility.

### TERMS OF PAYMENT:

1. Via Wire Transfers
2. Via Letter of Credit (L/C)
  - Letter of credit must be irrevocable, advised and confirmed by any MAJOR financial institution in the United States with draft payable at sight.
  - Letter of Credit must state that all bank charges inside and outside the United States are to be borne by the opener. Payment terms apply as per contract and include penalties for late payment. A minimum purchase requirement of \$250 is necessary to help defer handling.

**OPEN ACCOUNT:** To establish an open account, we will conduct a complete credit analysis. This requires correspondence with you, your suppliers, and your bank or financial institution. The time involved depends on the response time from the references you give us. You will be notified when your credit is approved. In the interim, all orders must be prepaid. No open account terms for customers outside of the United States.

**DAMAGED MERCHANDISE:** The risk in the order shall pass to you upon placement of the order onto transport for delivery to you. If your shipment is delayed, lost, weathered or damaged in transit, Pure Aqua is not responsible for any liability for any loss, damage, consequence or expense. It is your responsibility to check shipments for damage before acceptance or note on freight bill "Subject to inspection for concealed damage." Consignee is responsible for filing a claim with the freight carrier for any and all damages or losses. Return of Damaged Goods will not be authorized. We will not accept Return of Damaged Goods.

**ERRORS AND RETURN GOODS AUTHORIZATION:** No returns will be accepted without prior authorization. Call Pure Aqua to request an RGA number. You must prepay all freight/shipping charges. An RGA not used in 30 days will expire. We will refuse a return 30 days after an RGA is issued and any invoice will be payable within terms. Special order goods are not returnable. All authorized returns are subject to a 35% restocking fee.

**DEFECTIVE GOODS & WARRANTY PROCESSING:** An item returned for warranty consideration without prior authorization will be refused. Call Pure Aqua to obtain an RGA number. Pure Aqua and its manufacturers reserve the right to repair or replace defective merchandise. If pre-warranty replacement merchandise has been sent and the warranted goods are repairable, the repaired product will be returned to you at our expense and the pre-warranty invoice will be for your account. If the warranted product is not repairable, an offsetting credit invoice will be issued to your account. If the warranty consideration is denied, all expenses are for your account.

**PROPRIETARY RIGHTS:** Any and all of Pure Aqua's designs, trademarks, trade names specifications, patents, copyrights, formulas and manufacturing information are its intellectual property and proprietary data and shall be utilized for purposes intended in the order only.

**LIMITED WARRANTY:** This limited warranty and the remedies set for are exclusive and in lieu of all other warranties, remedies and conditions, whether oral, written, statutory, express or implied. Pure Aqua disclaims all statutory and implied warranties, including without limitation, warranties of merchantability and fitness for a particular purpose and warranties against hidden or latent defects, to the extent permitted by law. In so far as such warranties cannot be disclaimed, Pure Aqua limits the duration and remedies of such warranties to the duration of this express warranty and, at Pure Aqua's option, the repair or replacement services described below. Products manufactured by Pure Aqua are warranted to be free of defects in material and workmanship for a period of one year from the system start up and commissioning, or fourteen months from the ship date, whichever comes first. Pure Aqua's responsibility and liability shall be limited solely and exclusively to the replacement or the repair of parts manufactured by Pure Aqua and will not be liable for any cost arising from removal, installation, transportation or any other charges that may arise in connection with the warranty claim. Products and/or system components sold by Pure Aqua and manufactured by others are subject to the warranty provided by the manufacturer of said products and/or components and not by Pure Aqua's warranty. Pure Aqua will not be liable for damage to products caused by incorrect operation, misuse, abuse, unauthorized alteration, repair, accident or if products were not installed and operated in accordance to the Pure Aqua operation and installation manual. Pure Aqua will not be liable for any incidental or consequential damages, losses, or expenses arising from installation, use or any other causes.

# Chemical Dosing Systems

Capacity: 6 to 120 GPD

**CDS**  
**SERIES**

Pure Aqua supplies a comprehensive selection of dosing pump systems for small to large-scale applications within disinfection, flocculation, and pH adjustment. Our engineers have expertise in proposals regarding "plug and pump" including complete packages. We manufacture chemical dosing systems with custom-made solutions that are intended to produce available dosing technology in complete packages. The Pure Aqua CDS series chemical dosing systems offer a wide range of capacities to meet various chemical treatment applications. Each system includes the chemical metering pump and polyethylene chemical tank, along with the necessary hoses and fitting for the pump.

## Standard Features

### Diaphragm Metering

- Fully adjustable output capacity from 6-120 GPD
- Manual function control for stroke rate & length
- Highly reliable timing circuit
- EMI resistant
- Thermally protected solenoid with auto-reset
- Bleed valve assembly
- Plastic pvc head/fittings and polyethylene tank for a wide range of corrosion resistance to such chemicals as mild acid, chlorine, and caustic solution

### Digital Metering

- Maximum turn-down ratio of 1:1000
- Dosing rate is set using a logarithmic scale that runs from 0.1-100%

## Available Options

- 230V/1ph/50Hz or 60Hz
- Epoxy coated stainless steel mixer
- pH controller
- ORP controller
- Stand-by pump
- Skid mounted unit
- Custom built unit
- Pump maintenance spare kit
- Level switch
- Local control panel



## Applications

- Water purification and pollution control
- Iron, hydrogen sulfide & manganese removal
- Scale prevention
- Acid water neutralization
- Coagulation and turbidity removal
- Waste water treatment
- Food Processing
- Detergent and wetting agent metering
- Swimming pool treatment
- Liquid fertilizer treatment
- Hydroponics nutrient treatment
- Municipal water treatment
- Algae control
- Livestock water treatment



 **PURE AQUA, INC.®**

Castex-ICON Report-001413

BP/Castex-Ltd Adm-Apx I-001414

# Chemical Dosing Systems

Capacity: 6 to 120 GPD

**CDS**  
**SERIES**

Pure Aqua CDS series provides chemical dosing pumps that comprise a complete package with fully custom engineering, corrosion-resistance, and pre-packaging. This package consists of the capacity to utilize specific pump technology best suited for your intended use. The CDS series allows engineers and specialists in this field to outline the most effective chemical feed system for their water treatment application. The specialized features of our chemical feed system give it further advantages that separate it from similar systems in the market. These features include a compact and transportable preorganized skid with great security, corrosion resistance, and alternative choices of metering pumps available.

## Water Treatment Applications and Uses:

- pH neutralization
- Disinfection
- Coagulation and flocculation
- Sodium hydroxide feed
- Sulfuric acid dosing
- Fluoride treatment
- Potassium permanganate dosing
- Dispersant polymer dosing
- Alum feed
- Antiscalant addition
- Hydrochloric acid metering
- Sodium hypochlorite systems
- Dechlorination SMBS



Model #	Output Capacity		Max Pressure (PSI)	Pump Material			Tubing Connection	Electrical Data		NSF Rating	Tank Size
	GPD	LPD		Dosing Head	Valve Ball	Gasket		Watts	Enclosure Class		
<b>Diaphragm Metering</b>											
CDS-6	6	23	100	PVC	Ceramic	Teflon	3/8" OD	130	IP41/NEMA3	125	15
CDS-12	12	45									15
CDS-22	22	83									15
CDS-30	30	114									35
CDS-48	48	182					50				
CDS-76	76	284					100				
CDS-96	96	356					100				
CDS-120	120	454					150				

<b>Digital Metering</b>											
CDS-36-G-15	36	136	145	PVC	Ceramic	EPDM	1/4" OD	19	IP65/NEMA 4X	Yes	15
CDS-36-G-35							35				
CDS-96-G-55	96	356	60				3/8" OD				55
CDS-96-G-100							100				

Pure Aqua also supplies: Custom Engineered Solutions, Multimedia Pretreatment, Activated Carbon Pretreatment, Water Conditioning, Chemical Dosing Systems, Ultraviolet (UV) Sterilizers and Ozonation Systems.



**PURE AQUA, INC.®**

Water Treatment and Reverse Osmosis Systems

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Authorized Dealer:

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# Commercial Media Filters

FRP Tanks: 7" to 42" Diameter

**MF-400**

**SERIES**

Pure Aqua's pressure filters clarify water by removing sediment, turbidity, iron, unpleasant tastes, odors, suspended particles, and unwanted color, all of which are commonly found in surface water. They can be used in a variety of services including: industrial, municipal, and institutional applications.

## Standard Features

- High performance FRP tank
- 115V/1ph/60Hz power supply
- Automatic backwash valve
- Top mounted Fleck valve
- Time controller for scheduled backwash cycle
- Flow controller to limit backwash flow
- All internals are plastic materials

## Available Options

- Duplex systems
- Tanks according to ASME code for 18" and larger
- Stainless steel tanks
- Epoxy coated steel tanks
- 240V/1ph/50Hz power supply
- Vacuum breaker
- Pressure relief valve
- Inlet/outlet sample valves
- Inlet/outlet pressure gauges
- Differential pressure switch and gauge
- Filters using diaphragm valves
- Auxiliary switch for backwash pump start



FLECK 3150



FLECK 2850



FLECK 5800



58F1220MM

31F36210MM

## Operation Specifications

- Operating pressure: 25-100 psi (1.73-6.9 bar)
- Electrical supply: 115V/1ph/60Hz
- Operating temperature: 41-110°F (5-43°C)

## Media Filtration Operating Cycles

### Service Cycle

Water flows downward through the media while solids accumulate in the media bed. The purified water passes through to downstream processes.

### Backwash Cycle

When the filter begins to clog or when the head loss (pressure drop) through the bed increases, flow rates are reduced. To prevent degradation of water quality, the flow is reversed. This is directed by the control valve(s) to drain, carrying with it, the particulate matter that has built up during service. The required flow is specific to the media and is essential to proper cleaning of the media bed. For media filters, the backwash flow is always higher than the service flow rate.



28F2175MM  
and 28F2175AC on a skid

# Commercial Media Filters

FRP Tanks: 7" to 42" Diameter

**MF-400**

**SERIES**



## Pressure Gauges

Pre and post filter pressure gauges are important to monitor the filter pressure and determine the backwash frequency.



## DP Switch

The differential pressure gauge and switch are used to automatically initiate backwash based on the differential pressure.



## Auxiliary Switch

Auxiliary switches are used to provide a signal to start a backwash pump or to provide a status signal to a BMS system or interlock with an RO system.

## Filter Media Types

Pure Aqua supplies a wide range of quality filter media that meet industry standards for efficient and effective filtration.



Coarse Gravel

Fine Gravel

Coconut Carbon Media

Silica Sand

Anthracite Media

## Sand

Graded in various ranges, Pure Aqua's sand can be used as filtration media or underbedding depending on particle size and application.

## Calcite

Calcite media is specially graded calcium carbonate compound for neutralizing acid with consistent dissolving rates for water treatment.

## Manganese Greensand

Manganese Greensand media is treated siliceous material for treating water containing iron, manganese and hydrogen sulfide.

## Anthracite

Anthracite is recommended as a filter media where additional silica in the water is not desirable and removes lighter weight turbidity.

## Activated Carbon

Activated carbon media is used to remove taste, odor and chlorine and used in many drinking water applications.

## ProSand

ProSand is based on a rare natural mineral. Its unique properties radically improve the performance and cost of media filtration.



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MFJAN 2017

Castex-ICON Report-001416

**BP/Castex-Ltd Adm-Apx I-001417**

# Commercial Media Filters

FRP Tanks: 7" to 42" Diameter

**MF-400**

**SERIES**

## Advantages of Multimedia Filtration

- Proven process and most tested forms of water treatment
- Modular control valves designed for operational flexibility
- Filtration media is inexpensive and long-lasting



Hub and laterals

- Resistant to fouling (clogging)
- Faster flow rates
- Produces high quality filtered water

Model #		Flow Rate								Tank Size D"xH"	Media Qty (ft <sup>3</sup> )	Pipe Size		Approx. Weight (lbs)
		Minimum		Average		Peak		Backwash						
Option 1	Option 2	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H			
<b>Multi Layer Filters: Anthracite, Sand and Gravel (Turbidity Removal)</b>														
56F705MM	58F705MM	2.7	0.6	4.0	0.9	5.3	1.2	4.0	0.9	7x44	0.5	0.75"	1"	64
56F8075MM	58F8075MM	3.5	0.8	5.4	1.2	7.0	1.6	5.4	1.2	8x44	0.75	0.75"	1"	79
56F910MM	58F910MM	4.4	1.0	6.6	1.5	8.8	2.0	6.6	1.5	9x48	1	0.75"	1"	110
56F1015MM	58F1015MM	5.4	1.2	8.1	1.8	10.8	2.5	8.1	1.8	10x54	1.5	0.75"	1"	141
58F1220MM		7.8	1.8	11.7	2.7	15.6	3.5	11.7	2.7	12x52	2	1"		200
58F1325MM		9.2	2.1	13.8	3.1	18.4	4.2	13.8	3.1	13x54	2.5	1"		236
58F1435MM	28F1435MM	10.7	2.4	16.1	3.7	21.4	4.9	16.1	3.7	14x65	3.5	1.25"	1.5"	344
58F1645MM	28F1645MM	13.9	3.2	20.9	4.8	27.8	6.3	20.9	4.8	16x65	4.5	1.25"	1.5"	430
58F1855MM	28F1855MM	17.7	4.0	26.6	6.0	35.4	8.0	26.6	6.0	18x65	5.5	1.25"	1.5"	650
28F2175MM		24.1	5.5	36.2	8.2	48.2	11.0	36.2	8.2	21x62	7.5	1.5"		805
28F24100MM		31.4	7.1	47.1	10.7	62.8	14.3	47.1	10.7	24x72	10	1.5"		1067
31F30150MM		49.1	11.2	73.7	16.8	98.2	22.3	73.7	16.8	30x72	15	2"		1693
31F36210MM		70.7	16.1	106.1	24.1	116.2	26.4	106.1	24.1	36x72	21	2"		2555
31F42280MM		96.2	21.9	116.2	26.4	125.0	28.4	116.2	26.4	42x72	28	2"		3801
<b>AG Filters: Non-Hydrous Silicon Dioxide (Turbidity Removal)</b>														
56F705AG	58F705AG	1.9	0.4	2.7	0.6	3.2	0.7	2.7	0.6	7x44	0.5	0.75"	1"	39
56F8075AG	58F8075AG	2.5	0.6	3.5	0.8	4.2	1.0	3.5	0.8	8x44	0.75	0.75"	1"	46
56F910AG	58F910AG	3.1	0.7	4.4	1.0	5.3	1.2	4.4	1.0	9x48	1	0.75"	1"	58
56F1015AG	58F1015AG	3.8	0.9	5.4	1.2	6.5	1.5	5.4	1.2	10x54	1.5	0.75"	1"	72
58F1220AG		5.5	1.2	7.8	1.8	9.4	2.1	7.8	1.8	12x52	2	1"		92
58F1325AG		6.4	1.5	9.2	2.1	11.0	2.5	9.2	2.1	13x54	2.5	1"		105
58F1435AG	28F1435AG	7.5	1.7	10.7	2.4	12.8	2.9	10.7	2.4	14x65	3.5	1.25"	1.5"	155
58F1645AG	28F1645AG	9.7	2.2	13.9	3.2	16.7	3.8	13.9	3.2	16x65	4.5	1.25"	1.5"	185
58F1855AG	28F1855AG	12.4	2.8	17.7	4.0	21.2	4.8	17.7	4.0	18x65	5.5	1.25"	1.5"	241
28F2175AG		16.9	3.8	24.1	5.5	28.9	6.6	24.1	5.5	21x62	7.5	1.5"		354
28F24100AG		22.0	5.0	31.4	7.1	37.7	8.6	31.4	7.1	24x72	10	1.5"		455
31F30150AG		34.4	7.8	49.1	11.2	58.9	13.4	49.1	11.2	30x72	15	2"		761
31F36210AG		49.5	11.2	70.7	16.1	84.8	19.3	70.7	16.1	36x72	21	2"		1137
31F42280AG		67.3	15.3	96.2	21.9	115.4	26.2	96.2	21.9	42x72	28	2"		1638
<b>Activated Carbon Filters: Granular Form with High Degree of Porosity (Taste, Odor and Color Removal)</b>														
56F705AC	58F705AC	1.9	0.4	2.7	0.6	3.2	0.7	3.2	0.7	7x44	0.5	0.75"	1"	40
56F8075AC	58F8075AC	2.5	0.6	3.5	0.8	4.2	1.0	4.2	1.0	8x44	0.75	0.75"	1"	48
56F910AC	58F910AC	3.1	0.7	4.4	1.0	5.3	1.2	5.3	1.2	9x48	1	0.75"	1"	61
56F1015AC	58F1015AC	3.8	0.9	5.4	1.2	6.5	1.5	6.5	1.5	10x54	1.5	0.75"	1"	76
58F1220AC		5.5	1.2	7.8	1.8	9.4	2.1	9.4	2.1	12x52	2	1"		97
58F1325AC		6.4	1.5	9.2	2.1	11.0	2.5	11.0	2.5	13x54	2.5	1"		111
58F1435AC	28F1435AC	7.5	1.7	10.7	2.4	12.8	2.9	12.8	2.9	14x65	3.5	1.25"	1.5"	164
58F1645AC	28F1645AC	9.7	2.2	13.9	3.2	16.7	3.8	16.7	3.8	16x65	4.5	1.25"	1.5"	196
58F1855AC	28F1855AC	12.4	2.8	17.7	4.0	21.2	4.8	21.2	4.8	18x65	5.5	1.25"	1.5"	254
58F2175AC	28F2175AC	16.9	3.8	24.1	5.5	28.9	6.6	28.9	6.6	21x62	7.5	1.25"	1.5"	465
28F24100AC		22.0	5.0	31.4	7.1	37.7	8.6	37.7	8.6	24x72	10	1.5"		630
31F30150AC		34.4	7.8	49.1	11.2	58.9	13.4	58.9	13.4	30x72	15	2"		1038
31F36210AC		49.5	11.2	70.7	16.1	84.8	19.3	84.8	19.3	36x72	21	2"		1487
31F42280AC		67.3	15.3	96.2	21.9	115.4	26.2	115.4	26.2	42x72	28	2"		2393

# Commercial Media Filters

FRP Tanks: 7" to 42" Diameter

# MF-400

**SERIES**

Model #		Flow Rate								Tank Size D"xH"	Media Qty (ft <sup>3</sup> )	Pipe Size		Ap- prox. Weight (lbs)
Option 1	Option 2	Minimum		Average		Peak		Backwash						
		GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H	GPM	M <sup>3</sup> /H					
<b>Birm Filters: Insoluble Catalyst (Fe and Mn Reduction)</b>														
56F705BM	58F705BM	1.9	0.4	2.7	0.6	3.2	0.7	3.2	0.7	7x44	0.5	0.75"	1"	48
56F8075BM	58F8075BM	2.5	0.6	3.5	0.8	4.2	1.0	4.2	1.0	8x44	0.75	0.75"	1"	60
56F910BM	58F910BM	3.1	0.7	4.4	1.0	5.3	1.2	5.3	1.2	9x48	1	0.75"	1"	77
56F1015BM	58F1015BM	3.8	0.9	5.4	1.2	6.5	1.5	6.5	1.5	10x54	1.5	0.75"	1"	100
58F1220BM		5.5	1.2	7.8	1.8	9.4	2.1	9.4	2.1	12x52	2	1"		130
58F1325BM		6.4	1.5	9.2	2.1	11.0	2.5	11.0	2.5	13x54	2.5	1"		153
58F1435BM	28F1435BM	7.5	1.7	10.7	2.4	12.8	2.9	12.8	2.9	14x65	3.5	1.25"	1.5"	222
58F1645BM	28F1645BM	9.7	2.2	13.9	3.2	16.7	3.8	16.7	3.8	16x65	4.5	1.25"	1.5"	270
58F1855BM	28F1855BM	12.4	2.8	17.7	4.0	21.2	4.8	21.2	4.8	18x65	5.5	1.25"	1.5"	345
28F2175BM		16.9	3.8	24.1	5.5	28.9	6.6	28.9	6.6	21x62	7.5	1.5"		597
28F24100BM		22.0	5.0	31.4	7.1	37.7	8.6	37.7	8.6	24x72	10	1.5"		795
31F30150BM		34.4	7.8	49.1	11.2	58.9	13.4	58.9	13.4	30x72	15	2"		1285
31F36210BM		49.5	11.2	70.7	16.1	84.8	19.3	84.8	19.3	36x72	21	2"		1883
31F42280BM		67.3	15.3	96.2	21.9	115.4	26.2	115.4	26.2	42x72	28	2"		2921
<b>Calcite Filters : pH Neutralization</b>														
56F705CF	58F705CF	1.9	0.4	2.7	0.6	3.2	0.7	3.2	0.7	7x44	0.5	0.75"	1"	51
56F8075CF	58F8075CF	2.5	0.6	3.5	0.8	4.2	1.0	4.2	1.0	8x44	0.75	0.75"	1"	65
56F910CF	58F910CF	3.1	0.7	4.4	1.0	5.3	1.2	5.3	1.2	9x48	1	0.75"	1"	83
56F1015CF	58F1015CF	3.8	0.9	5.4	1.2	6.5	1.5	6.5	1.5	10x54	1.5	0.75"	1"	109
58F1220CF		5.5	1.2	7.8	1.8	9.4	2.1	9.4	2.1	12x52	2	1"		142
58F1325CF		6.4	1.5	9.2	2.1	11.0	2.5	11.0	2.5	13x54	2.5	1"		168
58F1435CF	28F1435CF	7.5	1.7	10.7	2.4	12.8	2.9	12.8	2.9	14x65	3.5	1.25"	1.5"	243
58F1645CF	28F1645CF	9.7	2.2	13.9	3.2	16.7	3.8	16.7	3.8	16x65	4.5	1.25"	1.5"	297
58F1855CF	28F1855CF	12.4	2.8	17.7	4.0	21.2	4.8	21.2	4.8	18x65	5.5	1.25"	1.5"	378
28F2175CF		16.9	3.8	24.1	5.5	28.9	6.6	28.9	6.6	21x62	7.5	1.5"		645
28F24100CF		22.0	5.0	31.4	7.1	37.7	8.6	37.7	8.6	24x72	10	1.5"		855
31F30150CF		34.4	7.8	49.1	11.2	58.9	13.4	58.9	13.4	30x72	15	2"		1375
31F36210CF		49.5	11.2	70.7	16.1	84.8	19.3	84.8	19.3	36x72	21	2"		2027
31F42280CF		67.3	15.3	96.2	21.9	115.4	26.2	115.4	26.2	42x72	28	2"		3113
<b>Manganese Greensand Filters: Enriched Quality with High Catalytic Capacity (Fe, Mn and H<sub>2</sub>S Reduction)</b>														
56F705GS	58F705GS	1.9	0.4	2.7	0.6	3.2	0.7	3.2	0.7	7x44	0.5	0.75"	1"	71
56F8075GS	58F8075GS	2.5	0.6	3.5	0.8	4.2	1.0	4.2	1.0	8x44	0.75	0.75"	1"	94
56F910GS	58F910GS	3.1	0.7	4.4	1.0	5.3	1.2	5.3	1.2	9x48	1	0.75"	1"	122
56F1015GS	58F1015GS	3.8	0.9	5.4	1.2	6.5	1.5	6.5	1.5	10x54	1.5	0.75"	1"	168
58F1220GS		5.5	1.2	7.8	1.8	9.4	2.1	9.4	2.1	12x52	2	1"		220
58F1325GS		6.4	1.5	9.2	2.1	11.0	2.5	11.0	2.5	13x54	2.5	1"		265
58F1435GS	28F1435GS	7.5	1.7	10.7	2.4	12.8	2.9	12.8	2.9	14x65	3.5	1.25"	1.5"	379
58F1645GS	28F1645GS	9.7	2.2	13.9	3.2	16.7	3.8	16.7	3.8	16x65	4.5	1.25"	1.5"	473
58F1855GS	28F1855GS	12.4	2.8	17.7	4.0	21.2	4.8	21.2	4.8	18x65	5.5	1.25"	1.5"	593
28F2175GS		16.9	3.8	24.1	5.5	28.9	6.6	28.9	6.6	21x62	7.5	1.5"		957
28F24100GS		22.0	5.0	31.4	7.1	37.7	8.6	37.7	8.6	24x72	10	1.5"		1245
31F30150GS		34.4	7.8	49.1	11.2	58.9	13.4	58.9	13.4	30x72	15	2"		1960
31F36210GS		49.5	11.2	70.7	16.1	84.8	19.3	84.8	19.3	36x72	21	2"		2963
31F42280GS		67.3	15.3	96.2	21.9	115.4	26.2	115.4	26.2	42x72	28	2"		4361

\*All filters require periodic backwashing to dispose of the accumulated debris. This is accomplished by backwashing clean water through the unit and then disposing of the effluent.

 <p><b>Pure Aqua, Inc.®</b> Water Treatment and Reverse Osmosis Systems sales@pureaqua.com    Tel: +1-714-432-9996 www.pureaqua.com    Fax: +1-714-432-9898</p>	  	Authorized Dealer:

# Commercial Brackish RO Systems

Capacity: 13,000 to 32,000 GPD

RO-300

SERIES

Pure Aqua's reverse osmosis systems are capable of removing salts, as well as other impurities such as bacteria, sugars, proteins, dyes and constituents having a molecular weight greater than 150-250 Daltons. Our commercial BWRO systems are strategically designed to be energy efficient and environmentally friendly while producing high-quality water.



BW-32K-7340-5

Pure Aqua supplies a full line of standard and fully customizable reverse osmosis systems, all of which are engineered using advanced 3D computer modeling and process design software for accurate and customized solutions.

## Standard Features

- ◆ Powder coated carbon steel frame
- ◆ 4" TFC spiral wound membranes
- ◆ Stainless steel multi-stage pump with TEFC motor
- ◆ FRP membrane housings
- ◆ 5 micron cartridge prefilter
- ◆ 460V/3ph/60Hz power requirement
- ◆ Microprocessor based control panel
- ◆ Programmable time delay and set points
- ◆ LCD screen
- ◆ Motor starter
- ◆ NEMA 12 enclosure
- ◆ Low pressure switch
- ◆ High pressure switch
- ◆ Liquid filled pressure gauges
- ◆ Permeate conductivity monitor
- ◆ Permeate & concentrate flow meters

## Available Options

- ◆ Feed water conductivity monitor
- ◆ Membrane cleaning skid
- ◆ Automatic hourly flush
- ◆ Feed/Permeate blending
- ◆ Export crating
- ◆ 220V or 380-415V/3ph/50 or 60Hz
- ◆ Product tank level switch
- ◆ Feed pH monitor with sensor
- ◆ Feed ORP monitor with sensor
- ◆ Water and hour meters
- ◆ Chemical dosing systems
- ◆ Media prefiltration systems
- ◆ Ozonation and UV sterilization systems
- ◆ Water softeners
- ◆ Post deionization polishers
- ◆ Skid mounted with pre or post treatment
- ◆ Containerized RO systems

 **PURE AQUA, INC.®**

Castex-ICON Report-001419

BP/Castex-Ltd Adm-Apx I-001420

# Commercial Brackish RO Systems

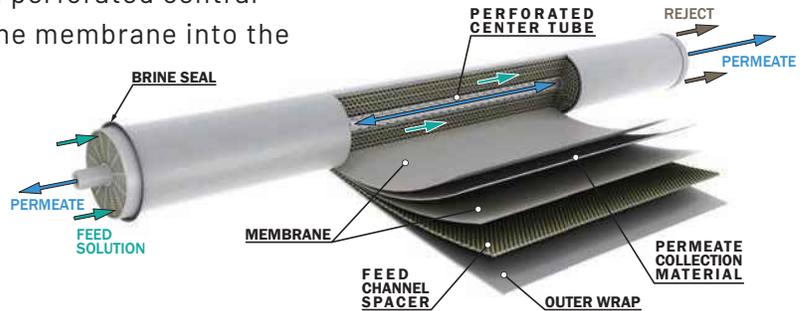
Capacity: 13,000 to 32,000 GPD

**RO-300**

**SERIES**

The spiral membrane is constructed from one or more membrane envelopes wound around a perforated central tube. The permeate passes through the membrane into the envelope and spirals inward to the central tube for collection.

The layers of the membrane envelope are detailed in the diagram to the right.



## Operation Specifications

- ◆ Max. feed water temperature: 42°C
- ◆ Feed water pressure: 20 to 80 psi
- ◆ Operating pressure: 150 to 250 psi
- ◆ Hydrogen Sulfide must be removed
- ◆ Turbidity must be removed
- ◆ Max. iron content: 0.05 ppm
- ◆ Feed water TDS: 0 to (1,000 or 3,000 or 5,000 ppm)
- ◆ Equipment upgrade for TDS over 5,000 ppm
- ◆ Hardness over 1 GPG requires antiscalant dosing
- ◆ pH tolerance range: 3-11
- ◆ Max. Silica Tolerance: 60 ppm @ 60% recovery
- ◆ Operate at higher TDS by lowering recovery

Model #	Permeate Flow Rate		Quantity of 4" Membranes	Motor Rating at 1,000 ppm		Approx. Weight (lbs)	Dimensions L"xW"xH"
	GPD	M <sup>3</sup> /D		60Hz (hp)	50Hz (kw)		
TW-13K-3340	13,000	49	9	2	2	750	145x35x60
TW-15K-5240	15,000	57	10	3	3	850	105x35x70
TW-18K-4340	18,000	68	12	5	3	875	145x35x70
TW-22K-5340	22,000	83	15	5	3	900	145x35x70
TW-24K-8240	24,000	91	16	5	4	950	105x35x75
TW-27K-6340	27,000	102	18	5	4	990	145x35x70
TW-32K-7340	32,000	121	21	5	4	1,025	145x35x75

Note: If the feed water TDS exceeds 1,000 ppm, the system model number changes to BW-XXK-XXXX, and a suffix is added to the end of the model number: "-3" is added if the TDS is 3,000 ppm or less, and "-5" is added if the TDS is 5,000 ppm or less. Example: Required system to produce 27,000 GPD with a feed water TDS of 5,000 ppm, the corresponding model number is: "BW-27K-6340-5".

Pure Aqua also supplies: Custom Engineered Solutions, Multimedia Pretreatment, Activated Carbon Pretreatment, Water Conditioning, Chemical Dosing Systems, Ultraviolet (UV) Sterilizers and Ozonation Systems.



**PURE AQUA, INC.®**

Water Treatment and Reverse Osmosis Systems

sales@pureaqua.com      Tel: +1-714-432-9996

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Authorized Dealer:

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**MK ENVIRONMENTAL INC**

**QUOTATION**

p 1 of 1

765 Springer Dr  
Lombard, IL 60148

[etung@mkenv.com](mailto:etung@mkenv.com)

Quotation valid for 90 days

SOLD TO:	SHIP TO:
Jason Sills ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, Louisiana 70767 (225) 344-8490	ICON Environmental Services, Inc. 2049 Commercial Drive Port Allen, Louisiana 70767

Date 4/25/2019  
Quote No. 219519  
Reference Iron removal  
Terms Net 30  
Freight included  
Ship Via FLATBED  
F.O.B. Factory

QTY	DESCRIPTION	UNIT PRICE	AMOUNT
1	30 amp 120/240 volt 3 phase, 4 wire plus ground electrical service Brought to NEMA 3R control Panel Motors will be TEFC construction  MKE Model SA15H Stripperator 15 GPM capacity Oil/Water Separator and air stripper treatment system Coalescing separator with product skimming weir Polypropylene coalescing pack with 1/2" spacing for efficient oil removal Low profile air stripper with 2 hp AMCA aluminum blower Nylon tube aeration air stripper for high mass removal rates with low maintenance Low, high, and high-high sump conductivity probes Clean out hatch Low blower pressure alarm Sump level sight glass	16,760.00	\$16,760.00
1	Centrifugal 1.5 hp transfer pump, 3450 rpm, TEFC motor Cast Iron housing with composite impeller, anti air lock design		
1	Bag Filter, size 2 Bag filters constructed of stainless steel with quick release bolts. Includes (20) 25-micron filter bags. Optional 5 or 10 micron		
1	Master Control Panel System, Including: NEMA 3R control panel IEC Magnetic motor starters, thermal overloads, safety switches, H-O-A controls Fused control transformer intrinsically safe relays, alarm indicator LED's, output channels Hard wired relay logic (1) exterior GFCI utility outlet Blower low pressure alarm Anti-falsing alarm circuit to prevent nuisance tripping		

Does not include permits, fees, etc....  
Offloading & placement by others.

EQUIPMENT SUB TOTAL		\$16,760.00
EQUIP. SALES TAX	9.450%	\$1,583.82
FREIGHT		\$850.00
<b>NET TOTAL</b>		<b>\$19,193.82</b>

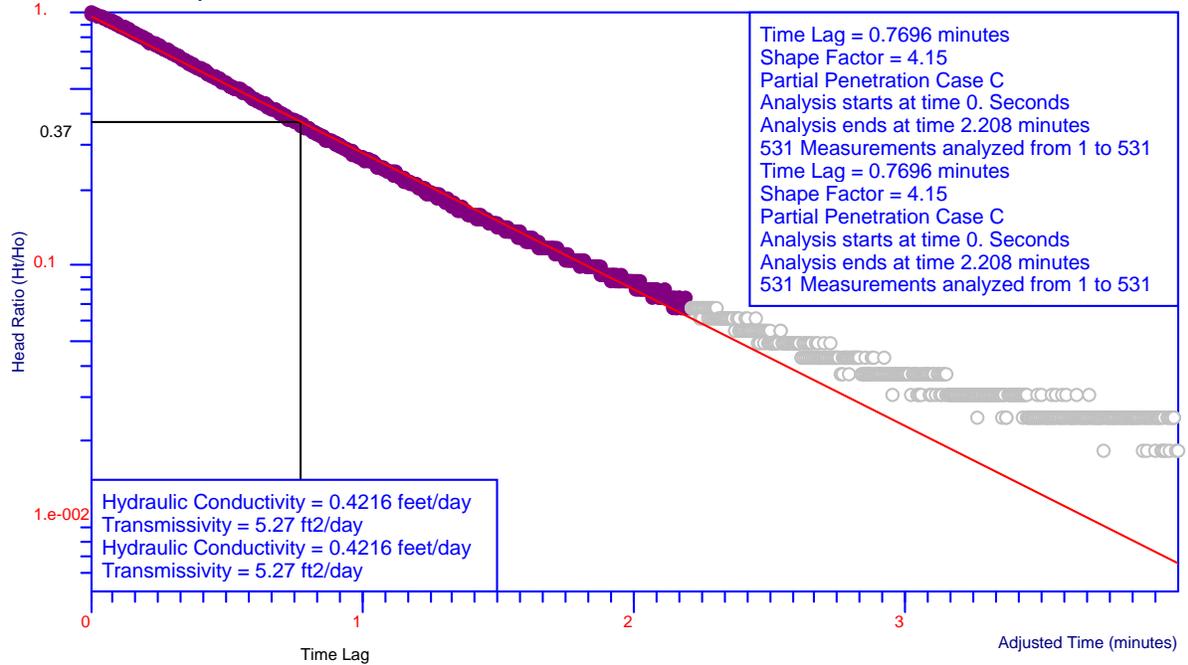
**APPENDIX H**  
**SLUG TEST DATA**

# Falling Head Test #1 7/3/2024

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-1C



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

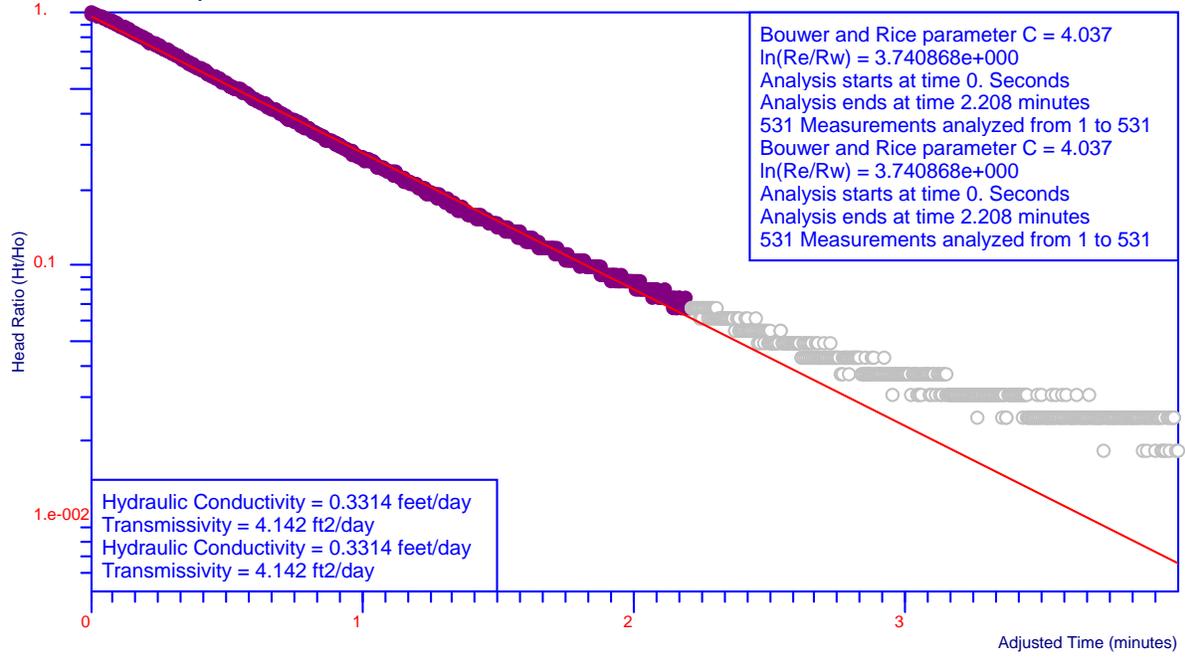
Ho is 1.63 feet at 0. Seconds

# Falling Head Test #1 7/3/2024

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-1C



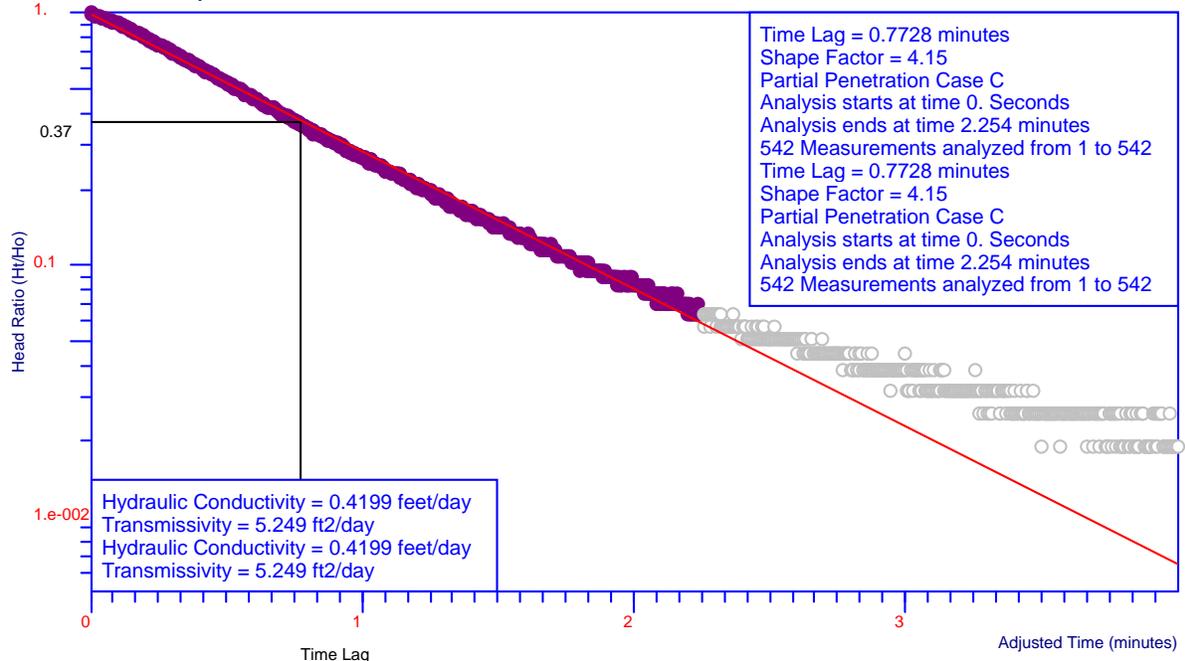
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #2 7/3/2024

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-1C



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

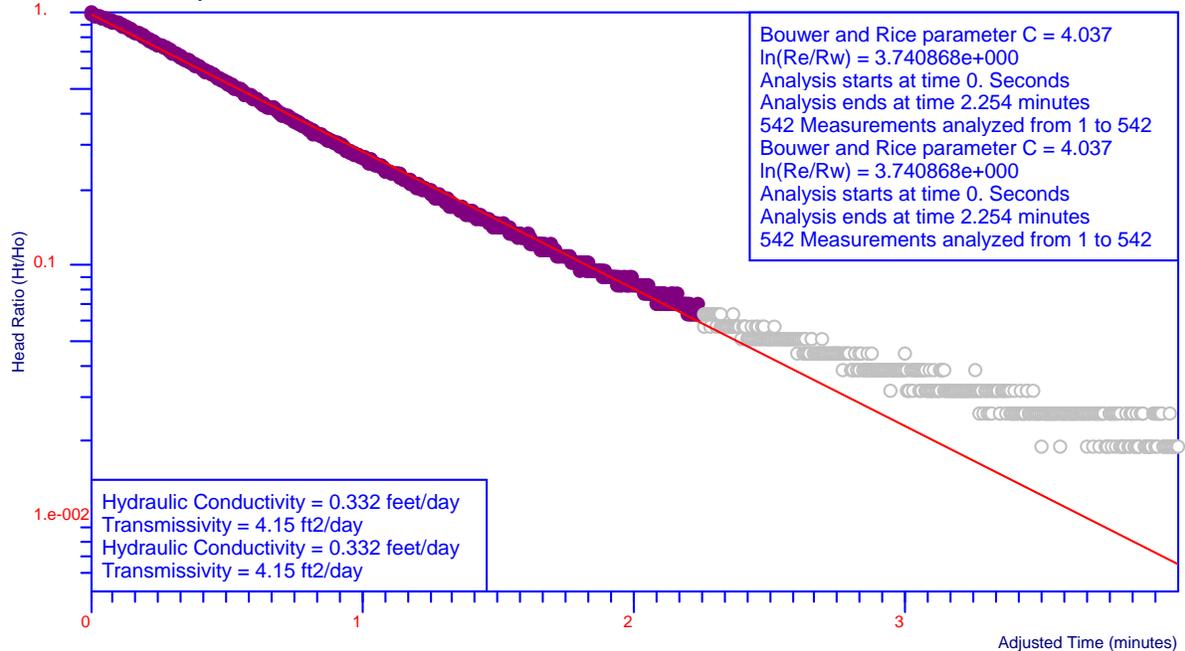
Ho is 1.57 feet at 0. Seconds

# Falling Head Test #2 7/3/2024

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-1C



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

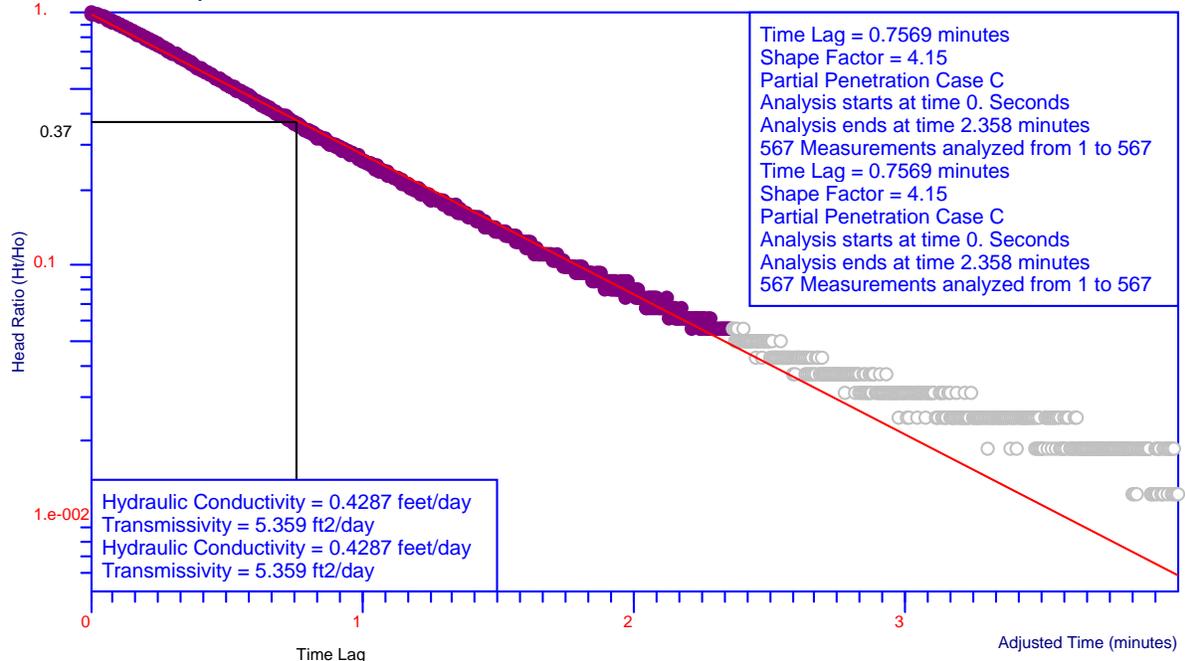
Ho is 1.57 feet at 0. Seconds

# Falling Head Test #3 7/3/2024

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-1C



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

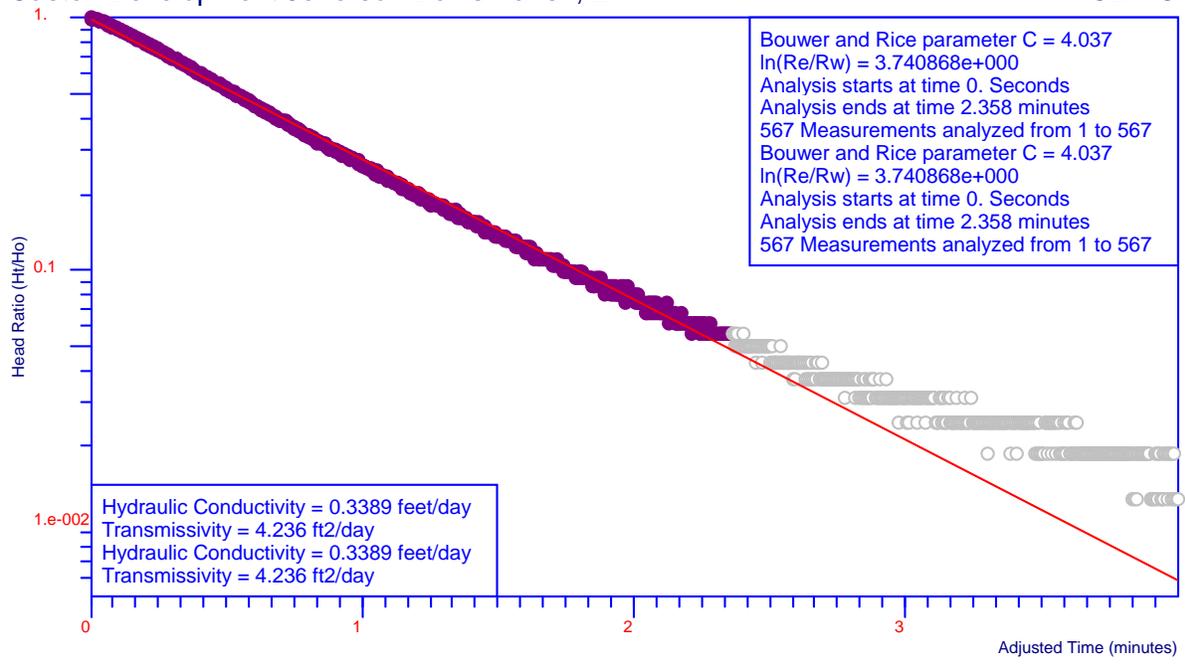
Ho is 1.62 feet at 0. Seconds

# Falling Head Test #3 7/3/2024

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-1C



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

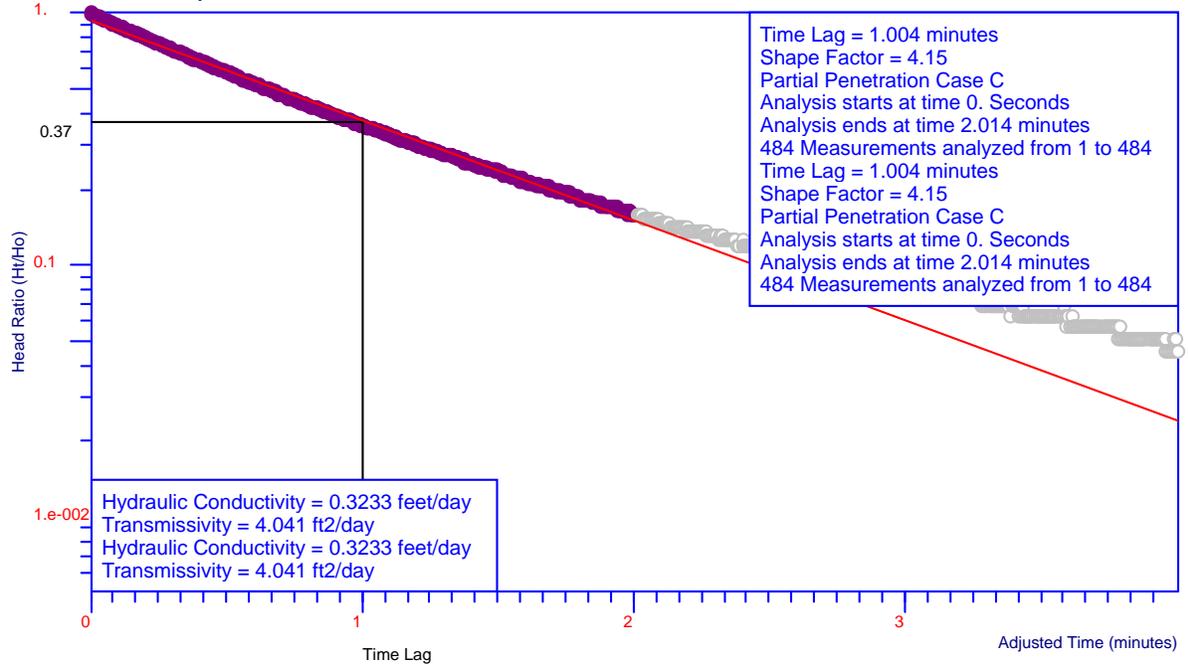
Ho is 1.62 feet at 0. Seconds

# Falling Head Test #1 6/28/2022

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-2A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

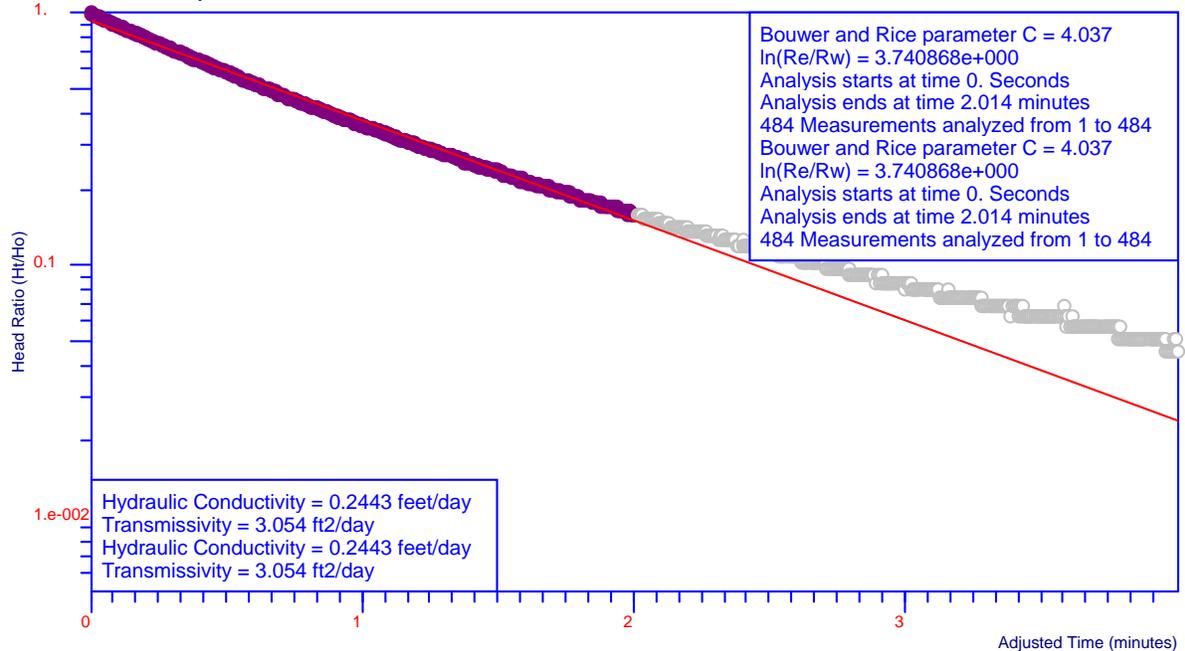
Ho is 1.76 feet at 0. Seconds

# Falling Head Test #1 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-2A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

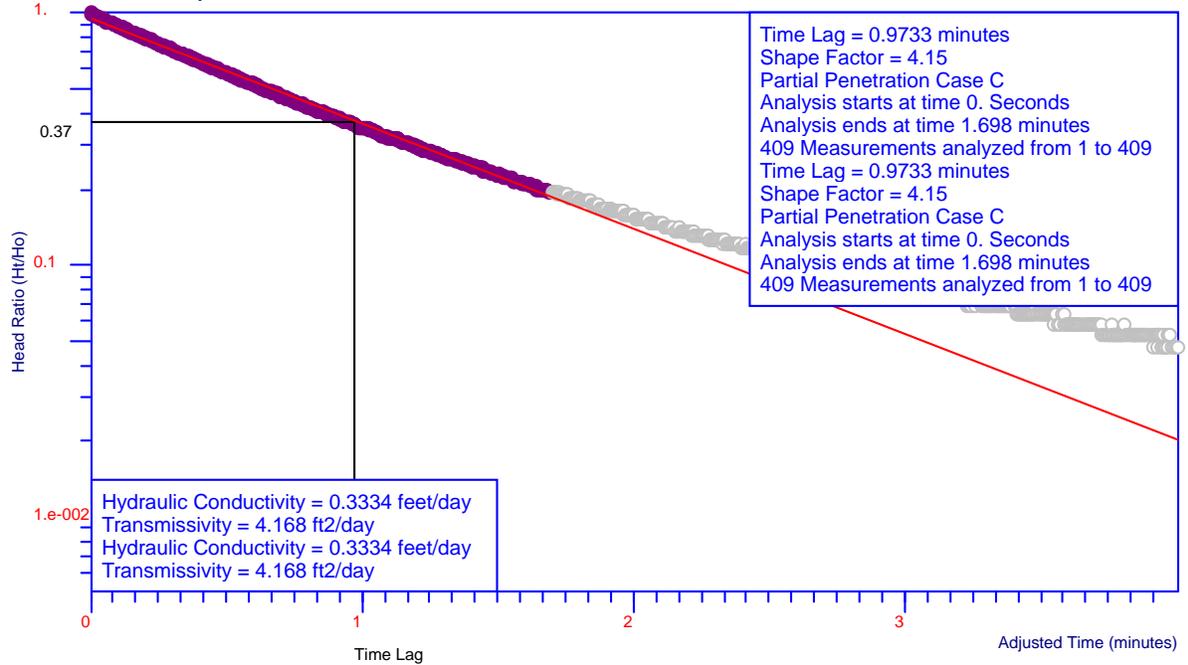
Adjusted Time (minutes)  
Ho is 1.76 feet at 0. Seconds

# Falling Head Test #2 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-2A



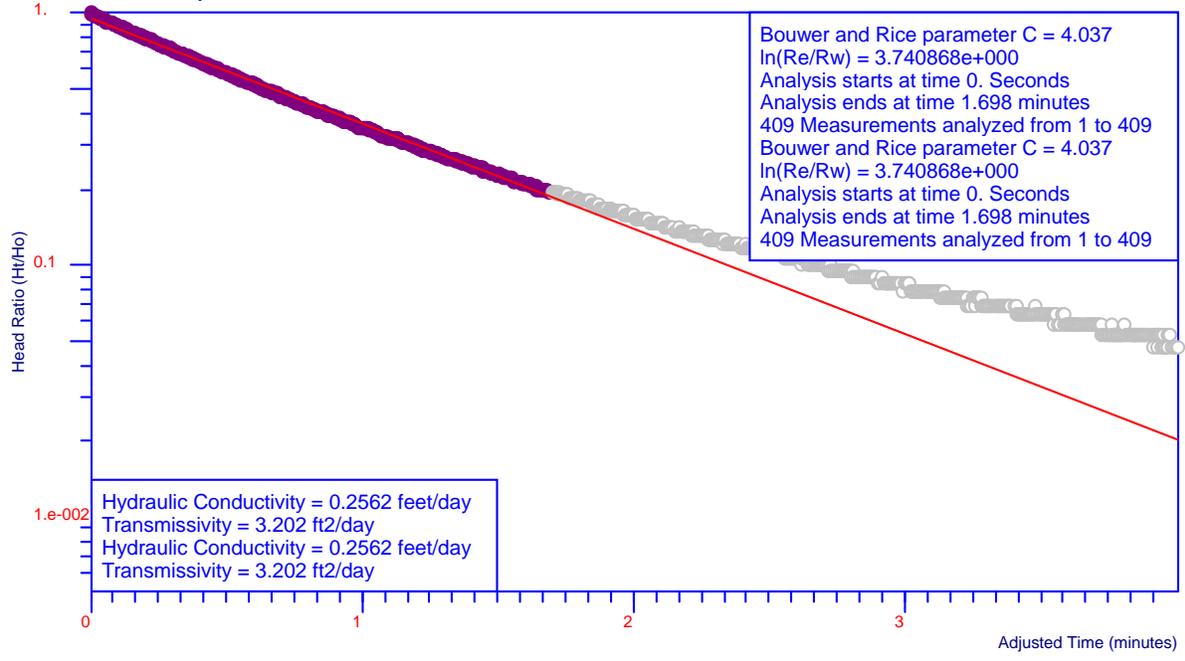
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #2 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-2A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

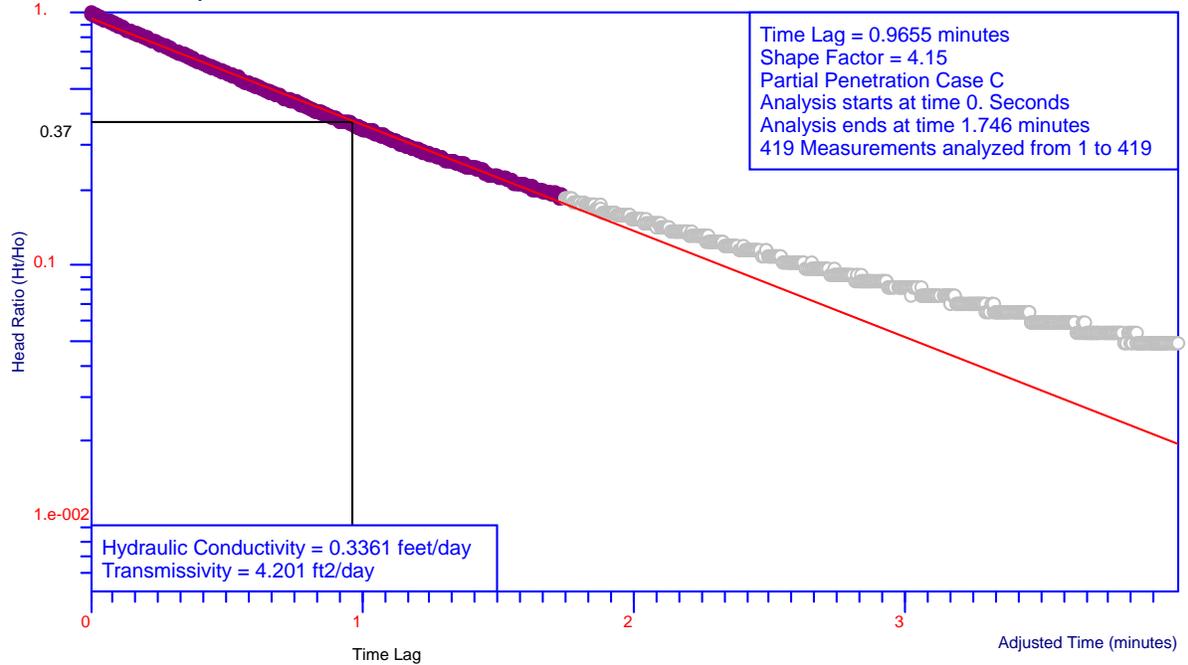
Ho is 1.9 feet at 0. Seconds

# Falling Head Test #3 6/28/2022

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-2A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

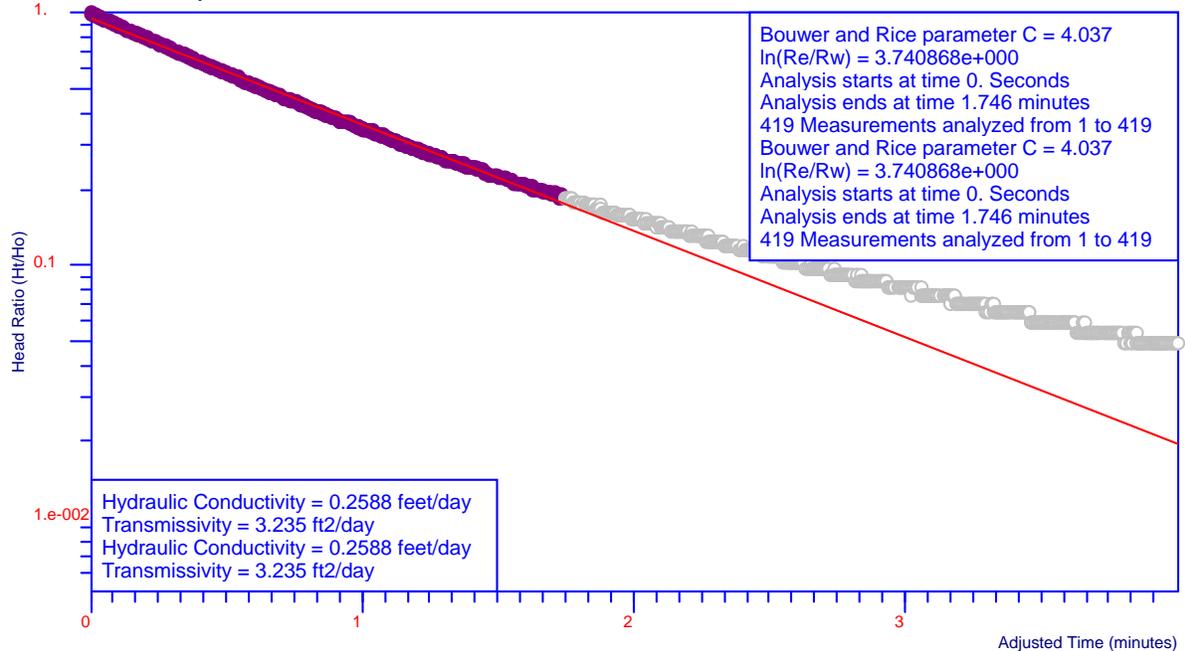
Ho is 1.85 feet at 0. Seconds

# Falling Head Test #3 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-2A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

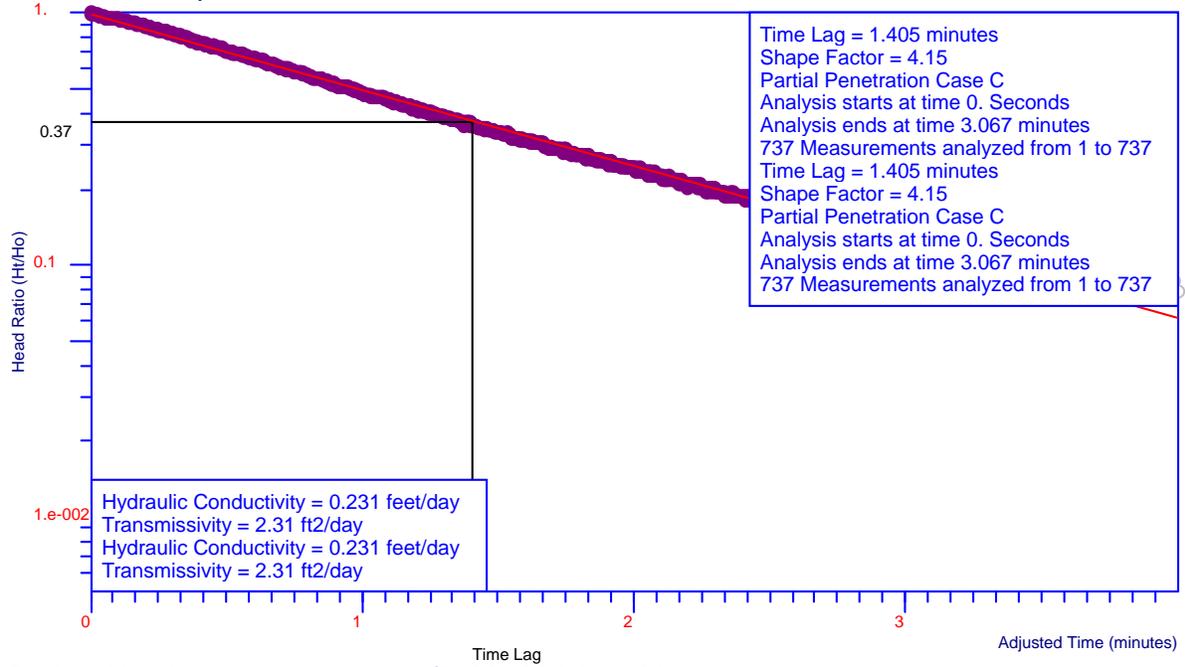
Ho is 1.85 feet at 0. Seconds

# Falling Head Test #1 7/3/2024

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



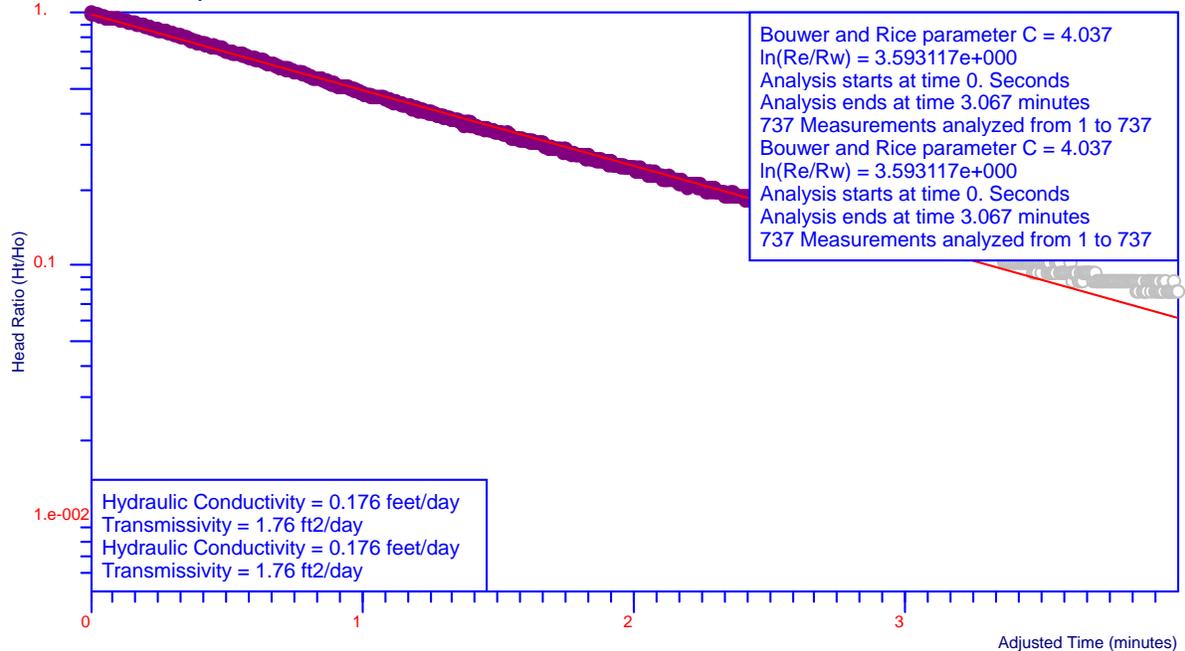
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #1 7/3/2024

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

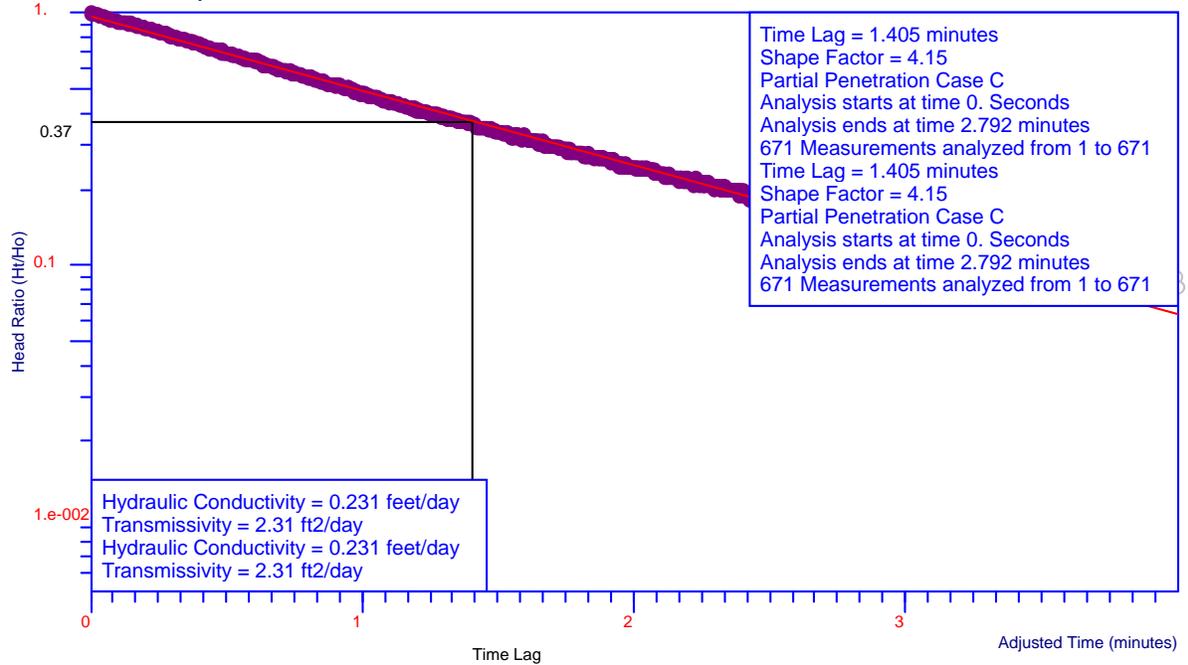
Ho is 1.28 feet at 0. Seconds

# Falling Head Test #2 7/3/2024

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

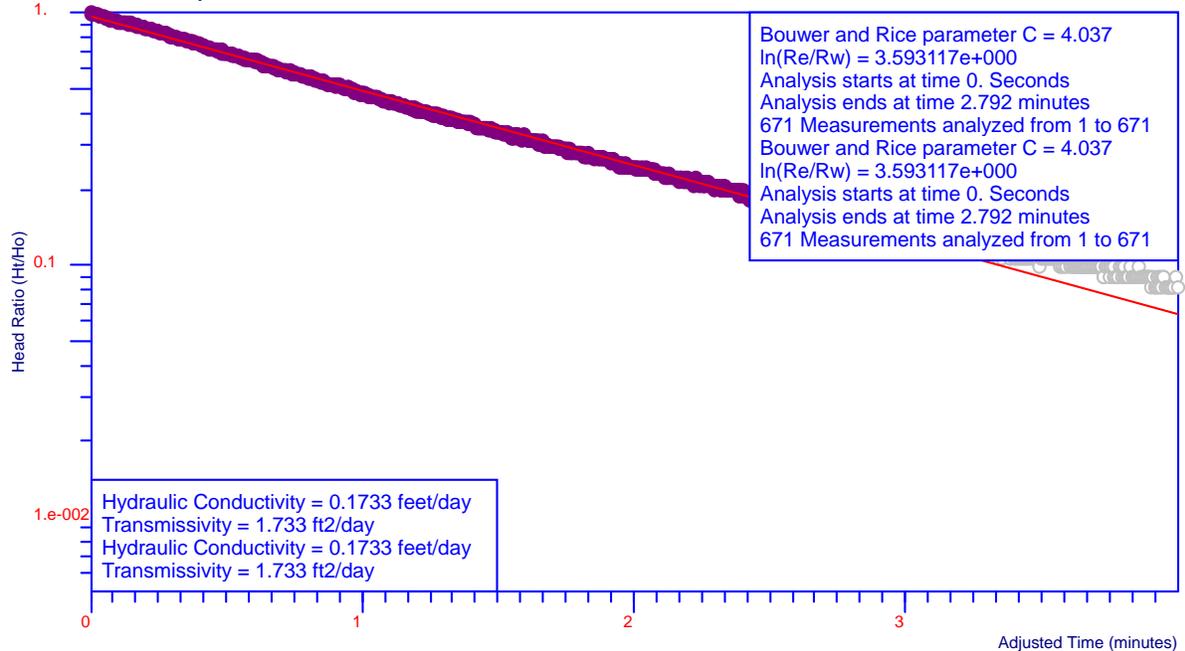
Ho is 1.22 feet at 0. Seconds

# Falling Head Test #2 7/3/2024

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

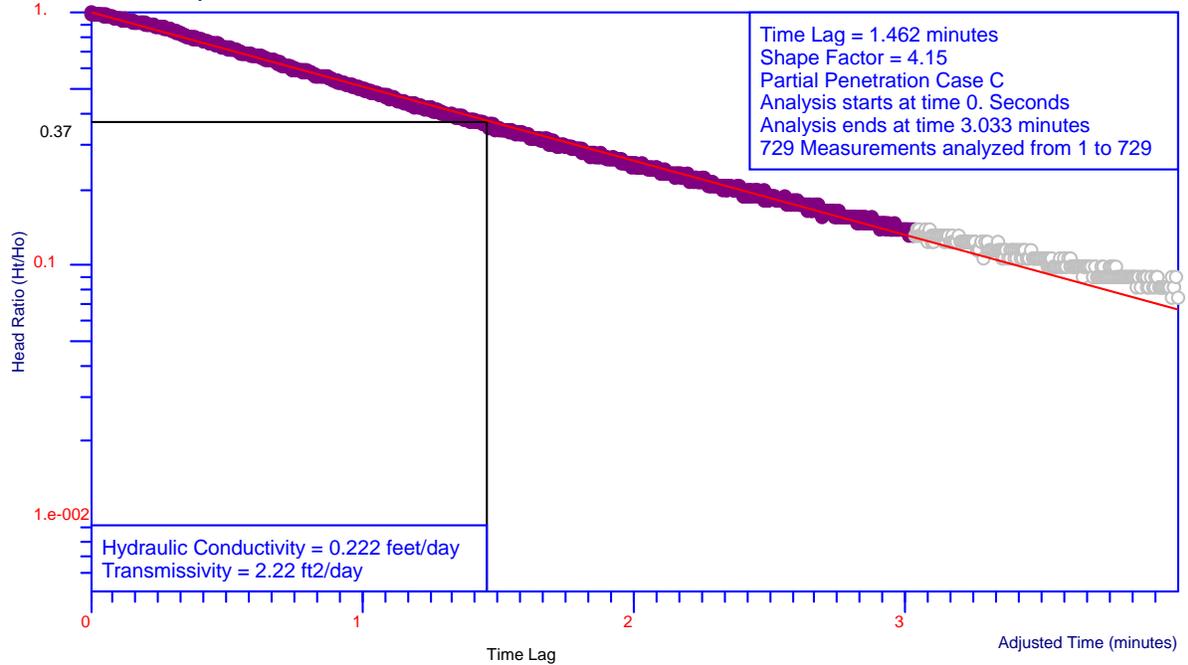
Adjusted Time (minutes)  
 $H_o$  is 1.22 feet at 0. Seconds

# Falling Head Test #3 7/3/2024

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

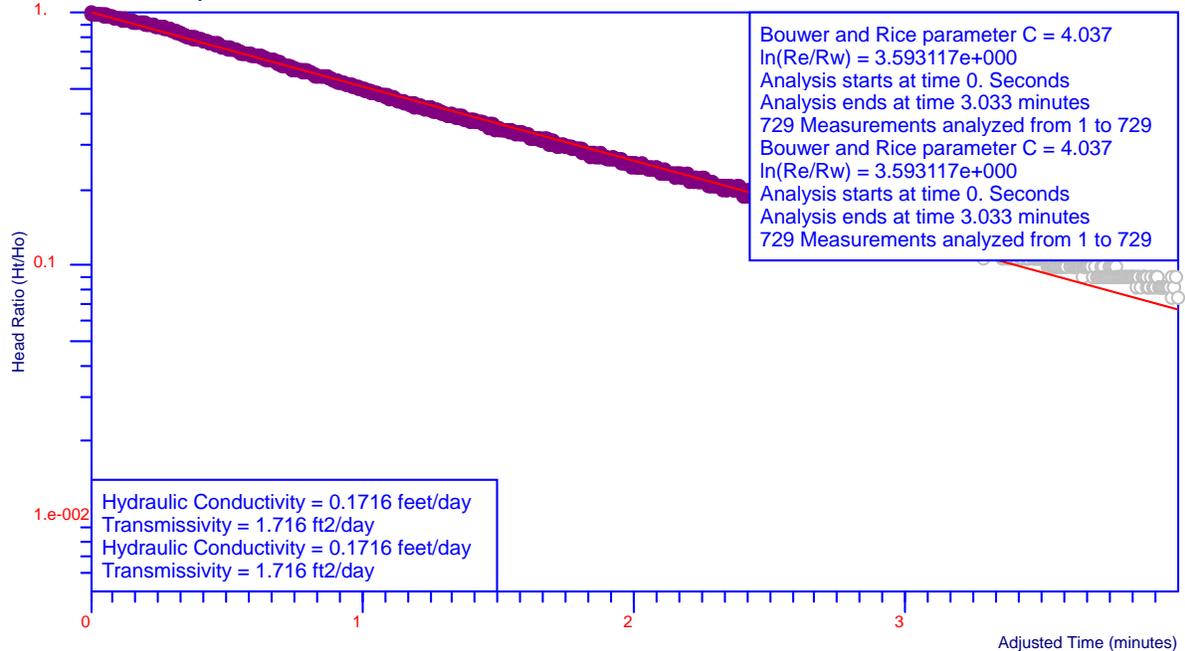
$H_o$  is 1.22 feet at 0. Seconds

# Falling Head Test #3 7/3/2024

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-2B



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

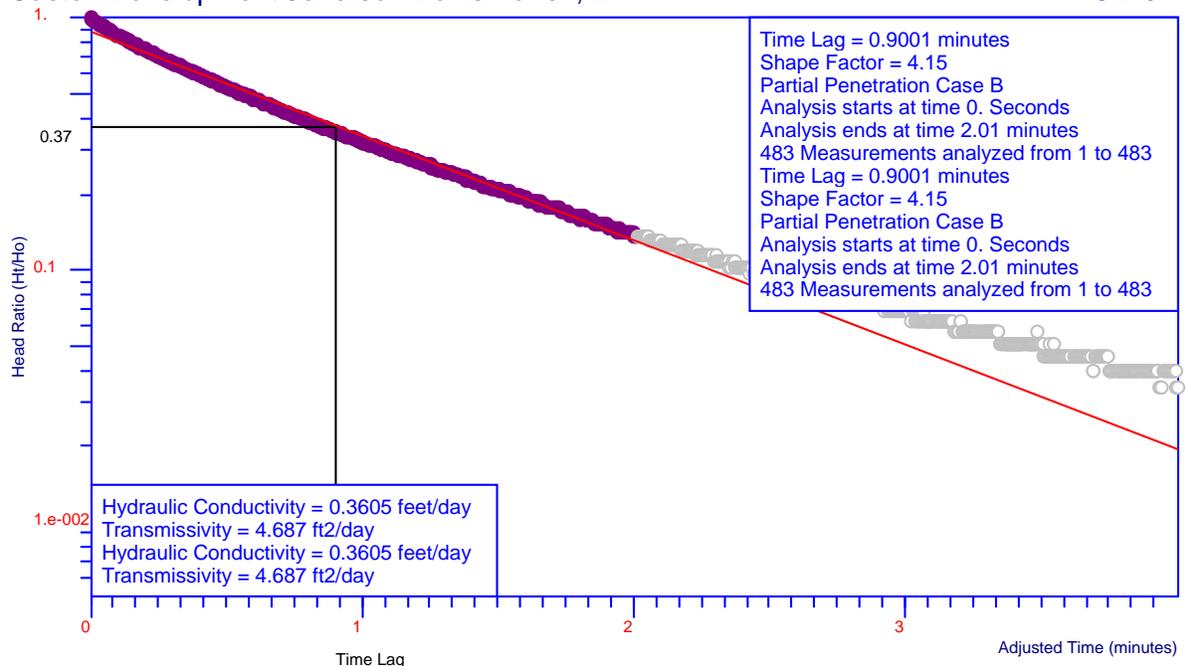
Adjusted Time (minutes)  
 $H_o$  is 1.22 feet at 0. Seconds

# Falling Head Test #1 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-3A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

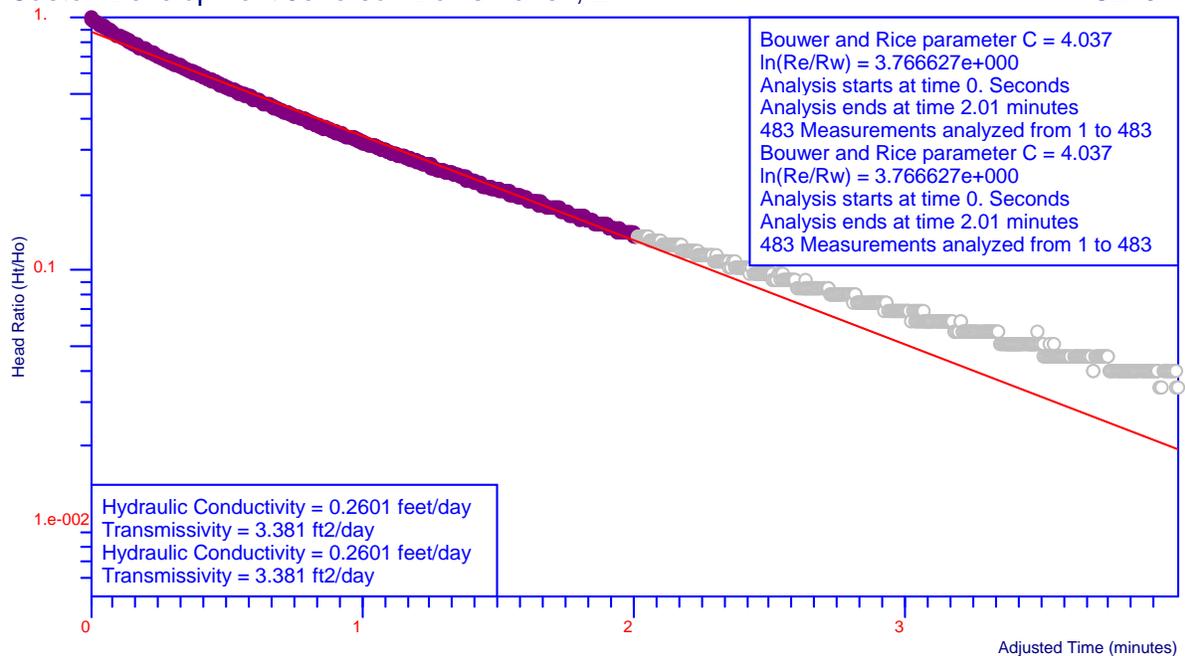
Ho is 1.76 feet at 0. Seconds

# Falling Head Test #1 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-3A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

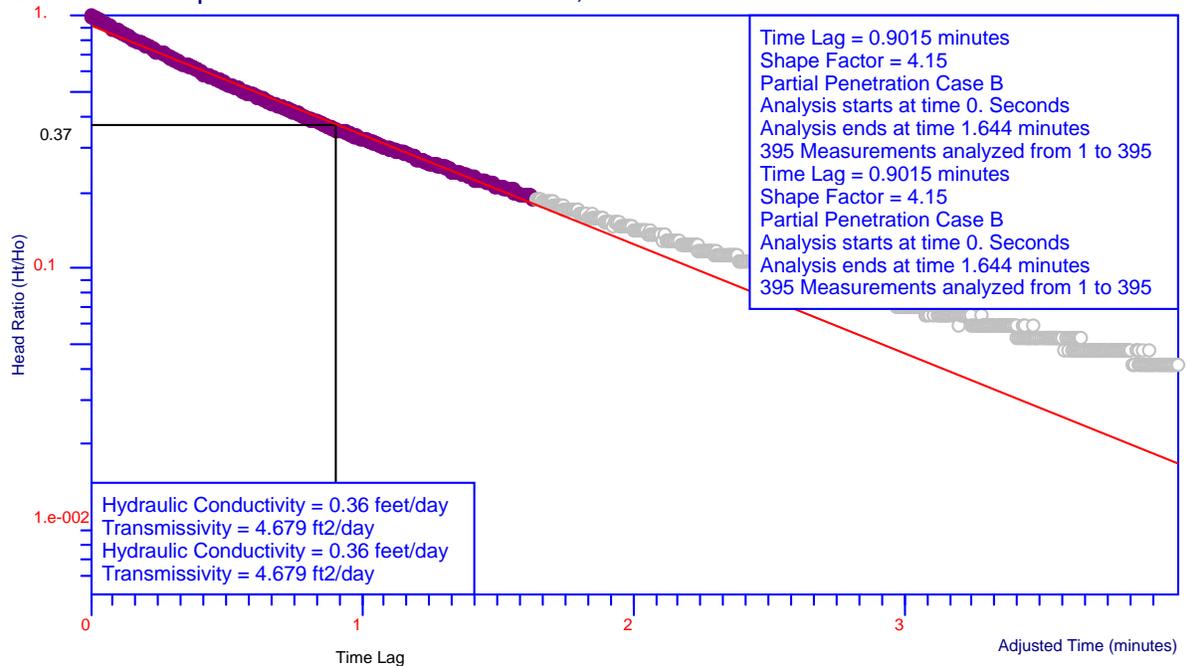
Ho is 1.76 feet at 0. Seconds

# Falling Head Test #2 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-3A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

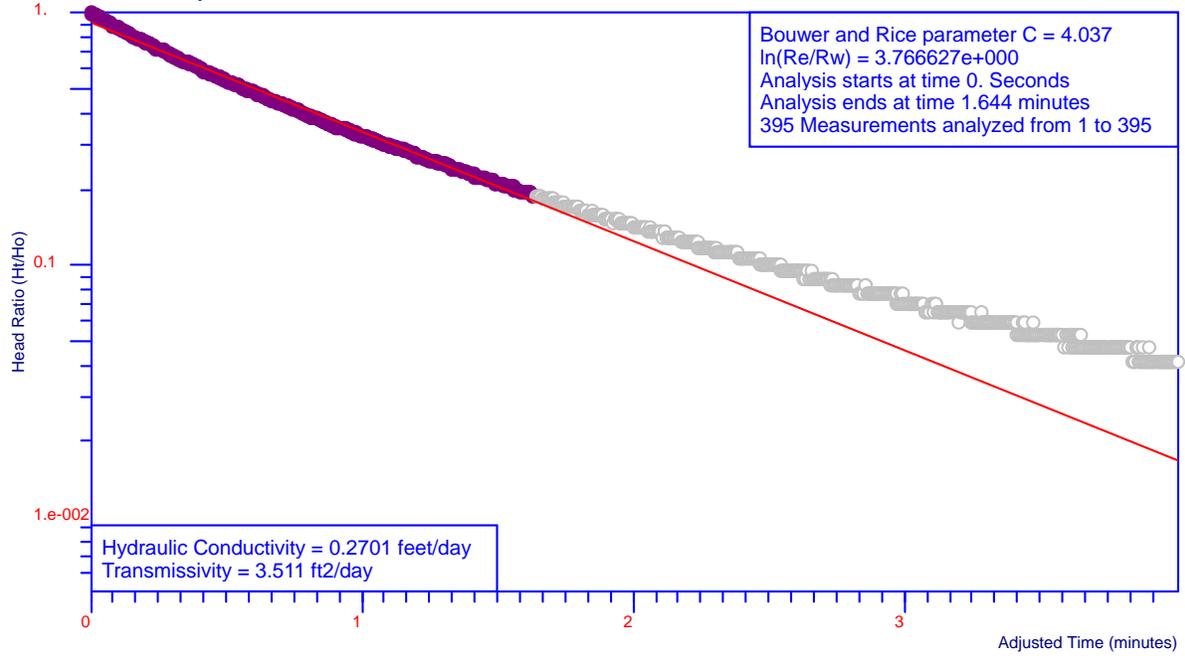
$H_o$  is 1.7 feet at 0. Seconds

# Falling Head Test #2 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-3A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

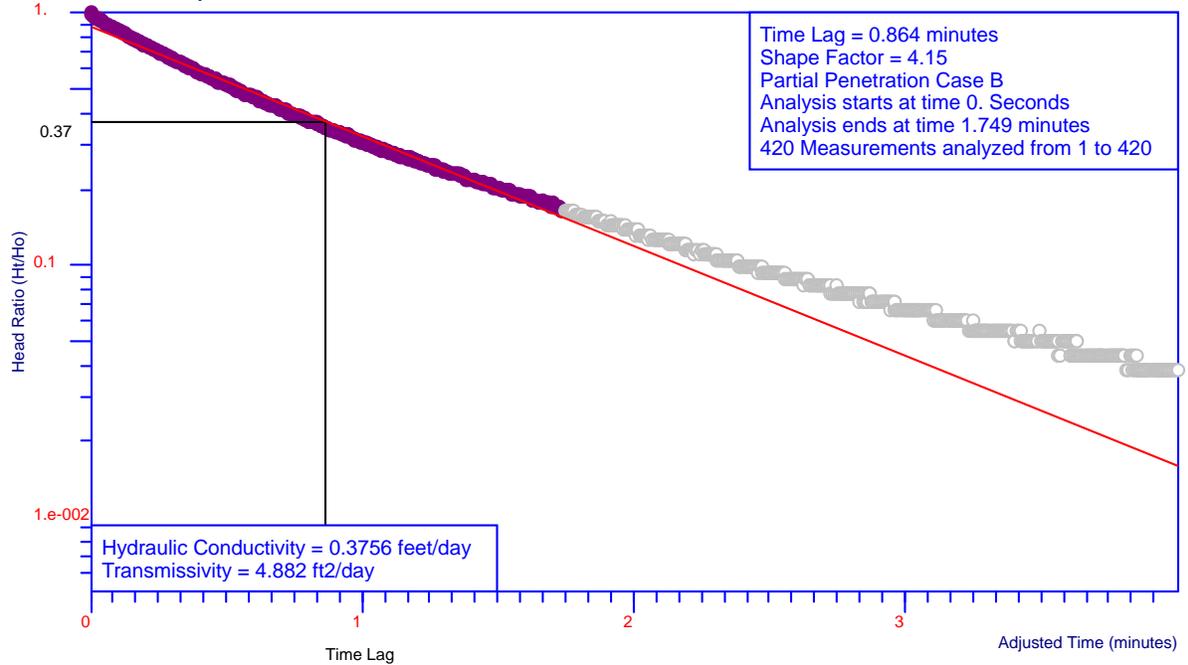
Ho is 1.7 feet at 0. Seconds

# Falling Head Test #3 6/28/2022

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-3A



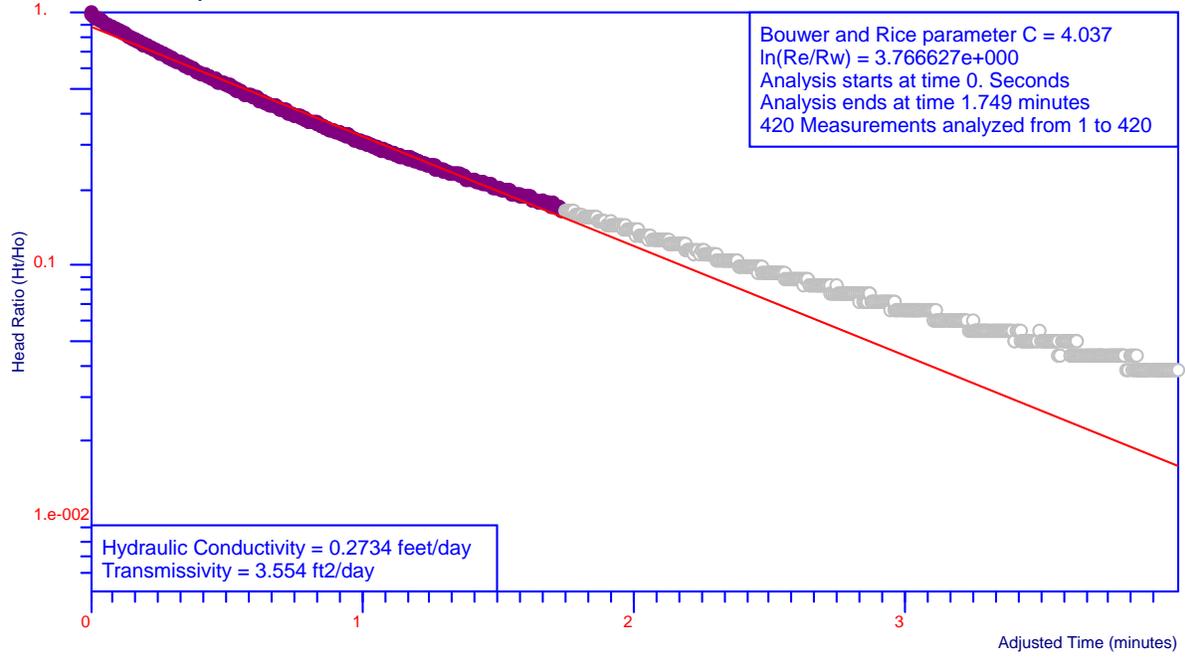
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #3 6/28/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-3A



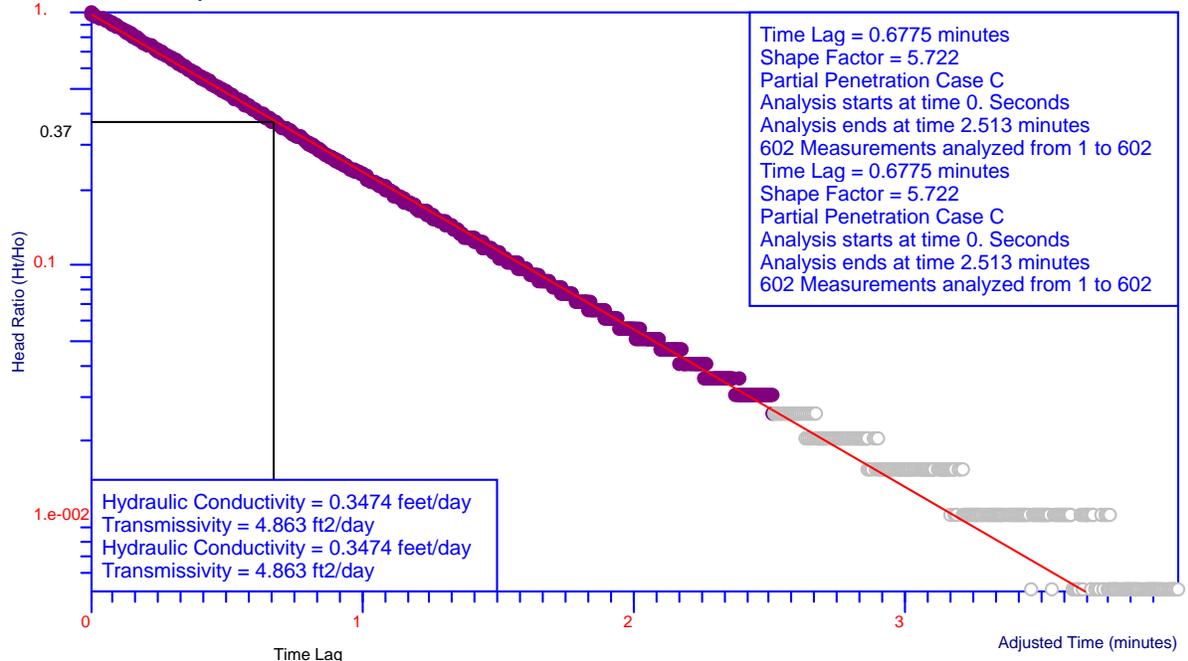
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #1 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-4A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

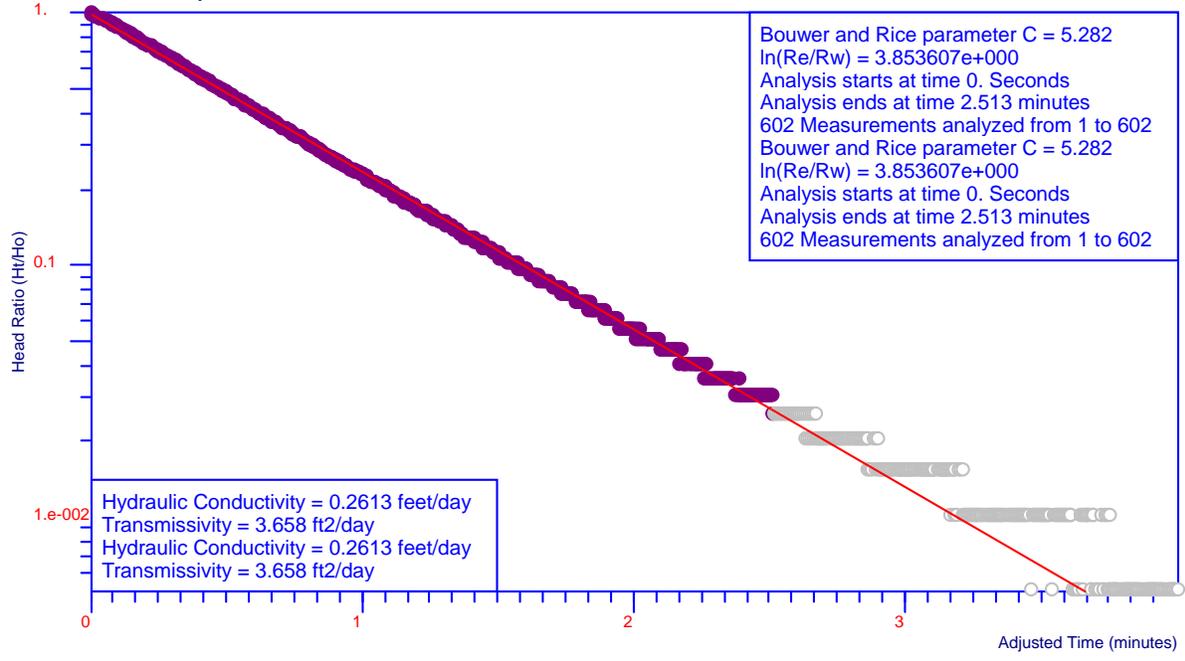
Ho is 1.96 feet at 0. Seconds

# Falling Head Test #1 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-4A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

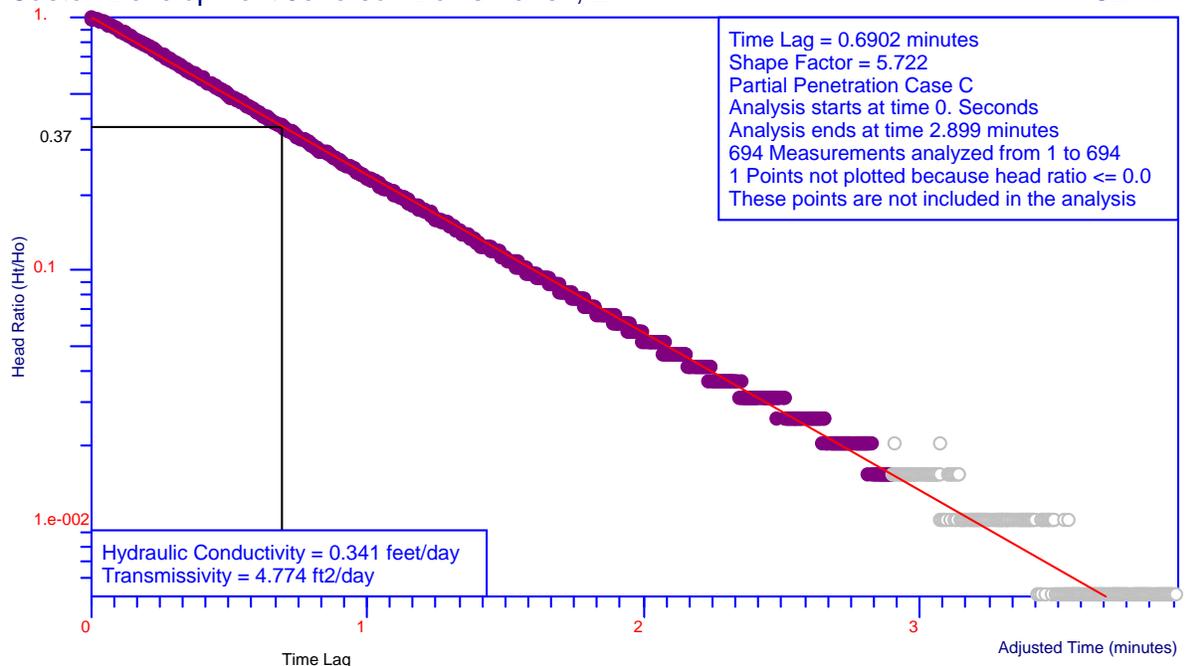
Ho is 1.96 feet at 0. Seconds

# Falling Head Test #2 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-4A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

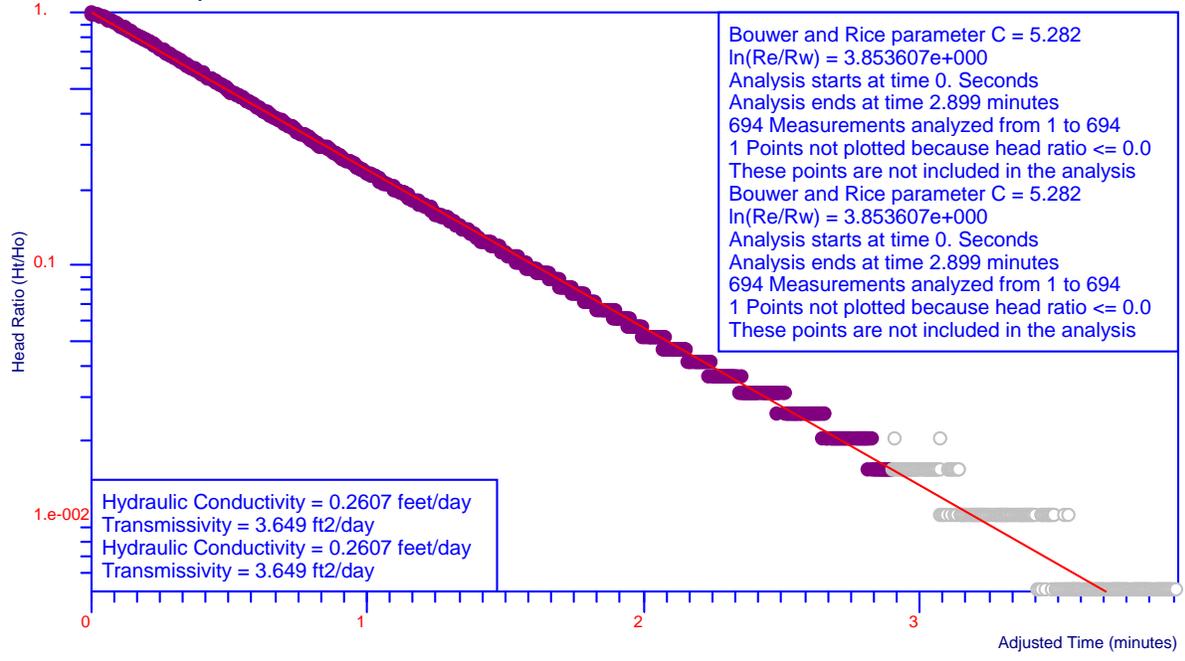
Ho is 1.95 feet at 0. Seconds

# Falling Head Test #2 6/29/2022

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-4A



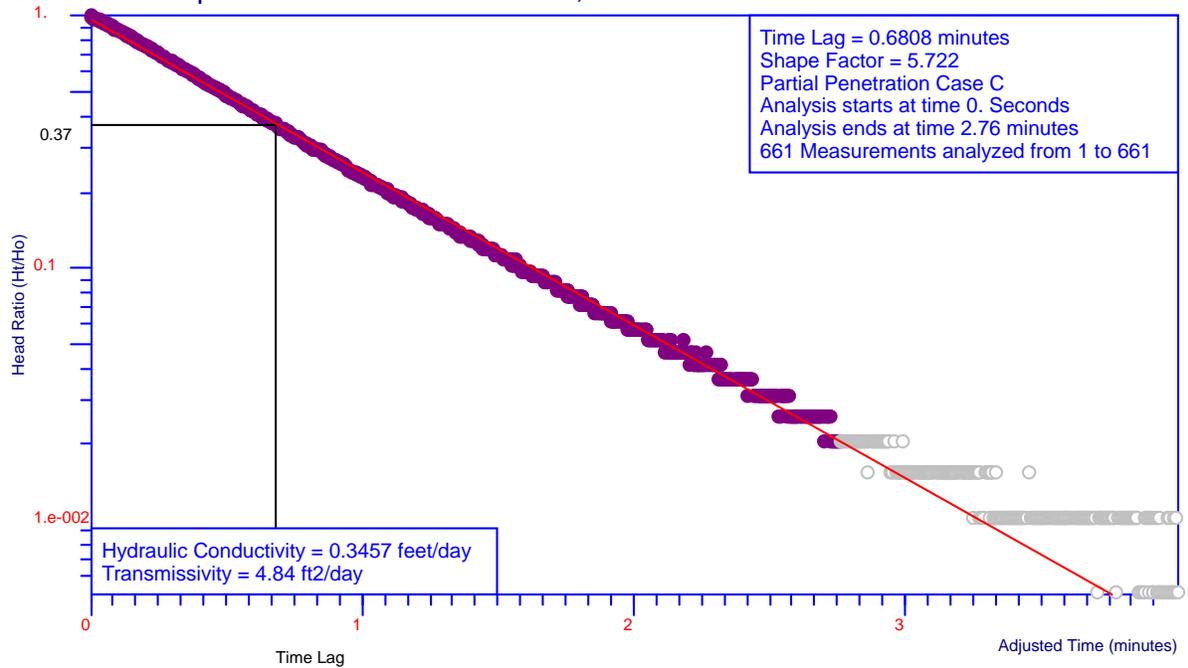
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #3 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-4A



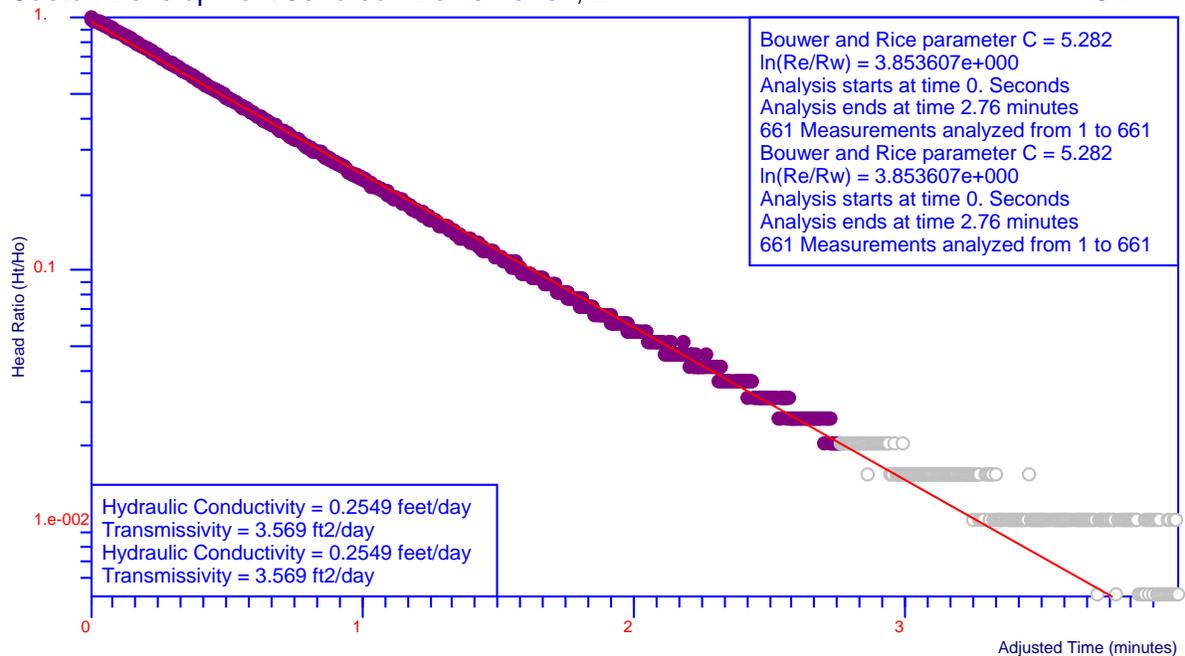
Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

# Falling Head Test #3 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-4A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

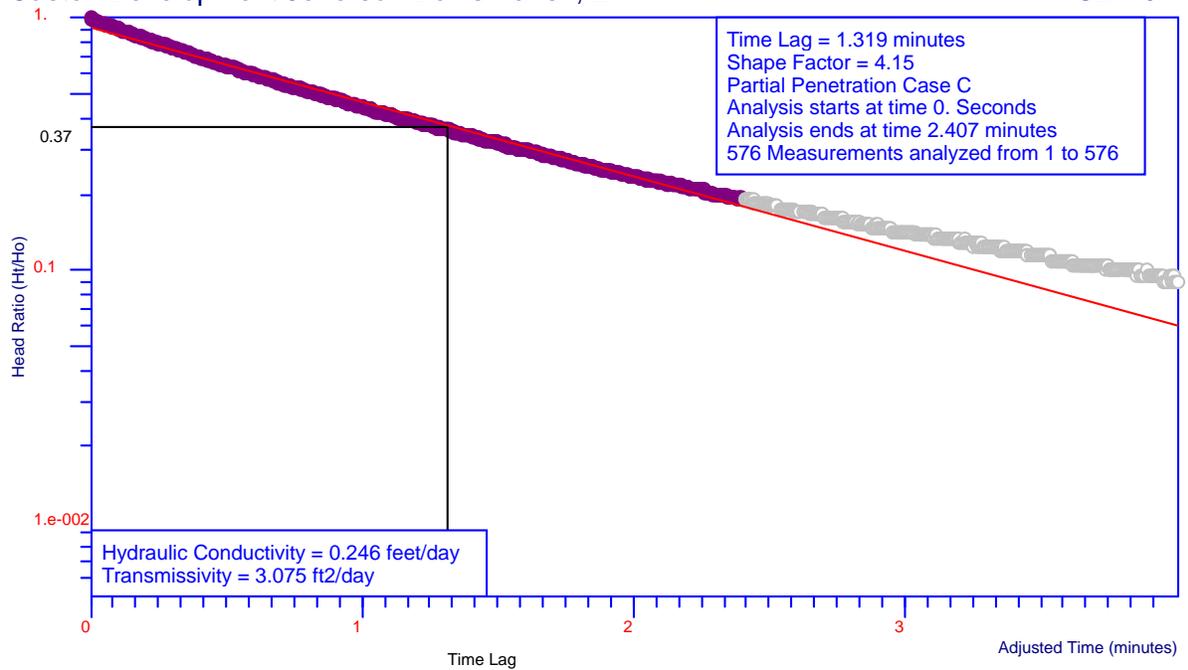
Adjusted Time (minutes)  
Ho is 1.95 feet at 0. Seconds

# Falling Head Test #1 6/29/2022

# Hvorslev Graph

Castex Development Jefferson Davis Parish, LA

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

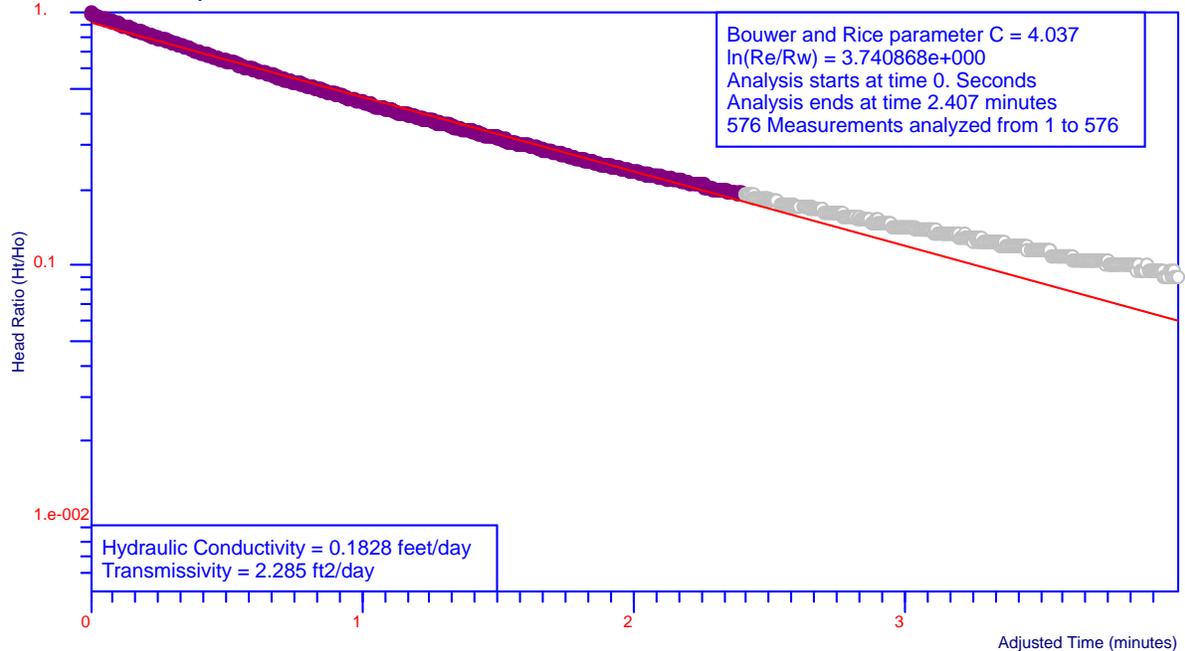
Ho is 2.11 feet at 0. Seconds

# Falling Head Test #1 6/29/2022

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

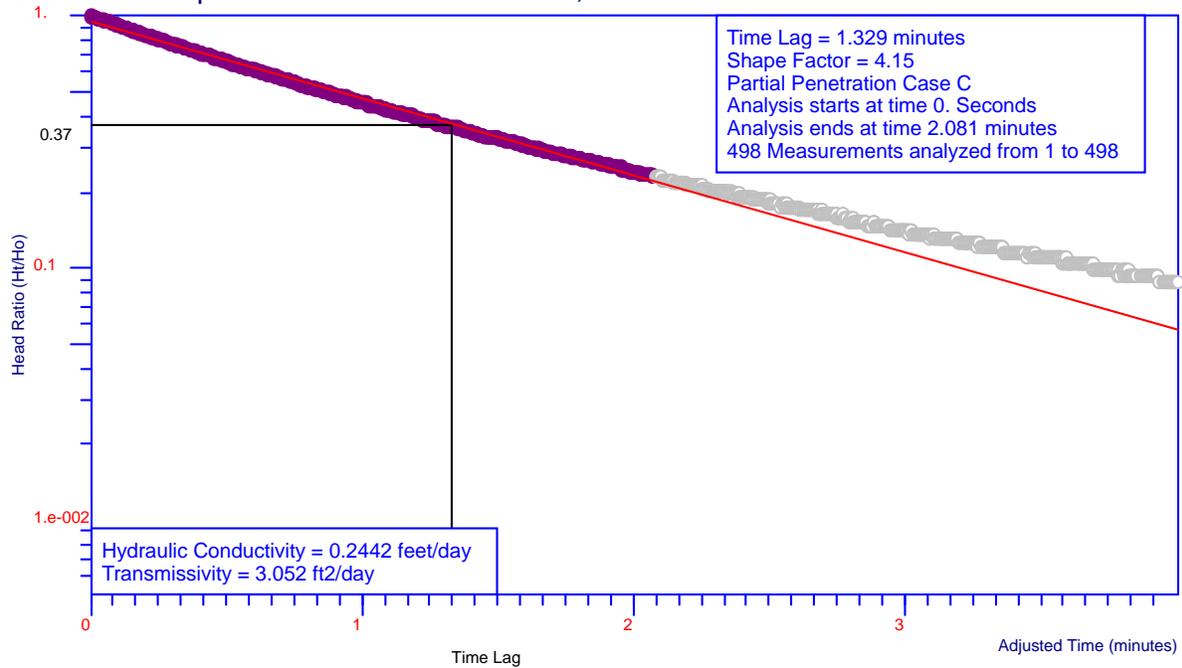
Ho is 2.11 feet at 0. Seconds

# Falling Head Test #2 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

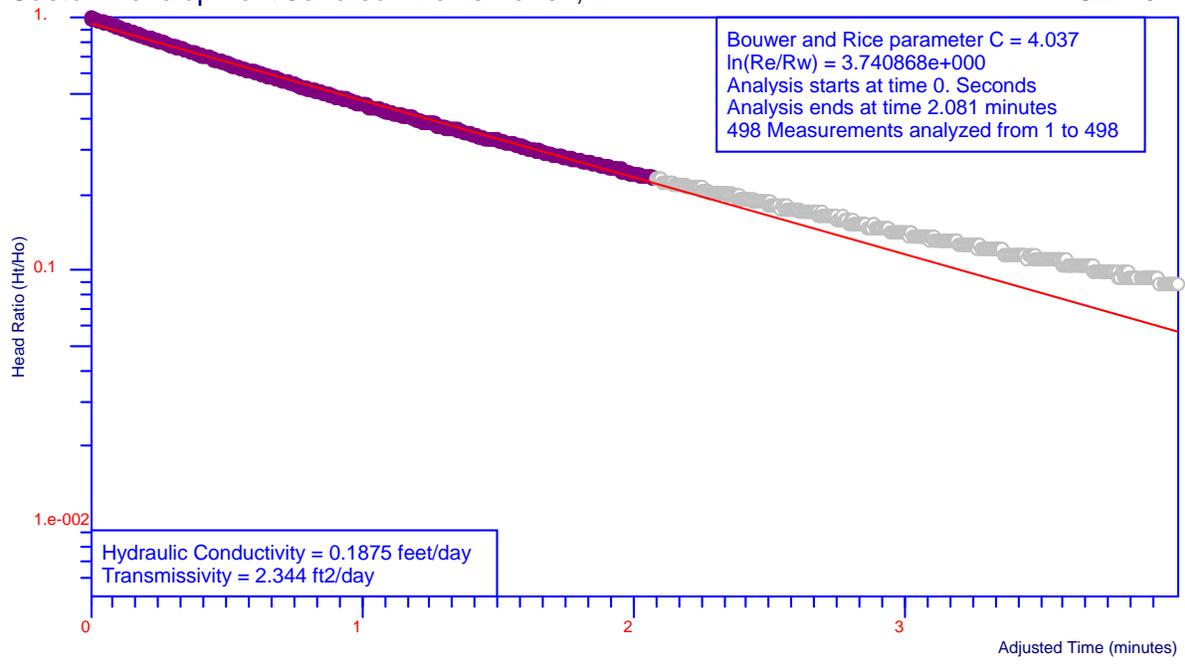
Ho is 1.83 feet at 0. Seconds

# Falling Head Test #2 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Bouwer and Rice Graph

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

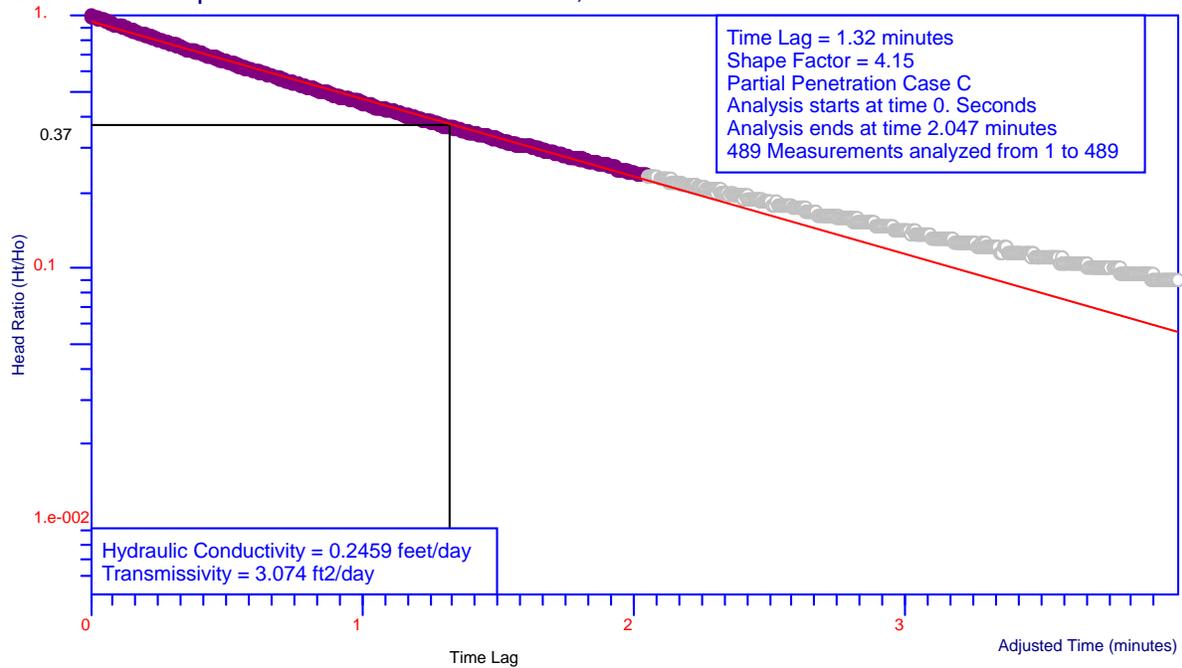
Adjusted Time (minutes)  
Ho is 1.83 feet at 0. Seconds

# Falling Head Test #3 6/29/2022

Castex Development Jefferson Davis Parish, LA

# Hvorslev Graph

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

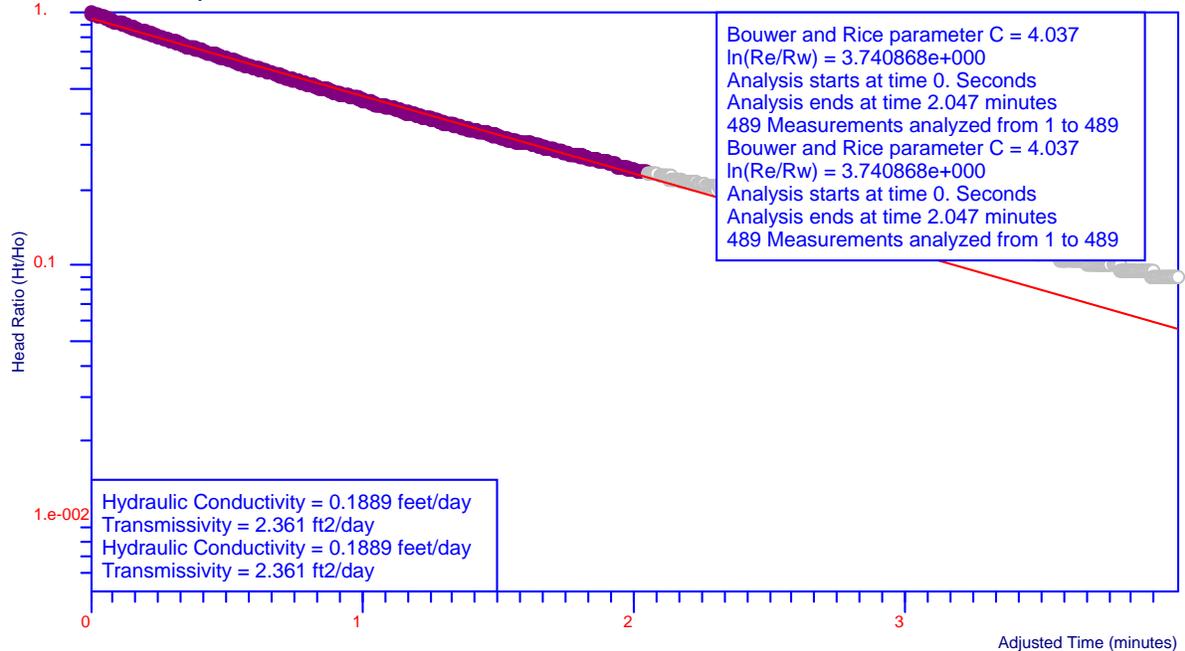
Ho is 1.91 feet at 0. Seconds

# Falling Head Test #3 6/29/2022

# Bouwer and Rice Graph

Castex Development Jefferson Davis Parish, LA

CD-10A



Project Number: 9403-016-0100 for Mudd & Bruchhaus  
Analysis by Starpoint Software

Adjusted Time (minutes)  
Ho is 1.91 feet at 0. Seconds

**APPENDIX I**  
**SURVEY DATA**



**S.J. LANGLINAI & ASSOCIATES, INC.**

Engineers & Land Surveyors  
2413 Veterans Memorial Dr.  
Abbeville, LA 70510  
337-893-7643 SJLCompany@aol.com

Calculated by: BTL  
Date: 6/6/2022

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Benjamin T. Langlinais, P.L.S.  
La. Surveyor's Reg. No. 5084



	SPC LA-S	SPC LA-S	Location: Mermentau, LA			UTM Z15N	UTM Z15N	Geodetic		Geodetic	
PT NO.	Northing (ft)	Easting (ft)	Elevation (ft)	Code	Annotation	Northing(meters)	Easting(meters)	Latitude (DMS)		Longitude (DMS)	Time of Observation
1	614,670.126	2,873,841.062	8.13	BASEL	Ref. Nail	3,339,227.307	536,435.953	30 11 2.155448 N	92 37 17.479290 W	6/6/2022 8:51:42	
2	614,633.861	2,873,789.671	10.37	MW	CD 5B	3,339,216.030	536,420.457	30 11 1.790760 N	92 37 18.060173 W	6/6/2022 9:04:51	
3	614,634.055	2,873,790.653	8.82	NG	CD 5B	3,339,216.094	536,420.755	30 11 1.792791 N	92 37 18.049001 W	6/6/2022 9:05:31	
4	614,632.915	2,873,786.401	10.54	MW	CD 5A	3,339,215.727	536,419.464	30 11 1.781036 N	92 37 18.097309 W	6/6/2022 9:06:13	
5	614,632.885	2,873,785.361	8.84	NG	CD 5A	3,339,215.714	536,419.148	30 11 1.780621 N	92 37 18.109150 W	6/6/2022 9:06:43	
6	614,632.760	2,873,781.710	10.72	MW	CD 5C	3,339,215.659	536,418.036	30 11 1.778976 N	92 37 18.150726 W	6/6/2022 9:07:35	
7	614,633.224	2,873,782.275	8.87	NG	CD 5C	3,339,215.803	536,418.206	30 11 1.783637 N	92 37 18.144354 W	6/6/2022 9:08:11	
8	614,623.460	2,874,184.262	8.05	MW	CD 4B	3,339,214.612	536,540.724	30 11 1.731705 N	92 37 13.563048 W	6/6/2022 9:19:21	
9	614,622.669	2,874,185.274	6.33	NG	CD 4B	3,339,214.376	536,541.036	30 11 1.723989 N	92 37 13.551420 W	6/6/2022 9:19:51	
10	614,628.776	2,874,184.168	7.95	MW	CD 4A	3,339,216.231	536,540.671	30 11 1.784309 N	92 37 13.564802 W	6/6/2022 9:20:23	
11	614,627.559	2,874,184.525	6.32	NG	CD 4A	3,339,215.862	536,540.786	30 11 1.772311 N	92 37 13.560578 W	6/6/2022 9:20:53	
12	615,123.184	2,875,018.073	5.29	MW	CD 9A	3,339,370.564	536,792.546	30 11 6.770766 N	92 37 4.126804 W	6/6/2022 9:27:06	
13	615,123.060	2,875,018.733	4.28	NG	CD 9A	3,339,370.529	536,792.747	30 11 6.769618 N	92 37 4.119279 W	6/6/2022 9:27:36	
14	615,124.753	2,875,019.665	6.61	MW	CD 9B	3,339,371.049	536,793.024	30 11 6.786482 N	92 37 4.108872 W	6/6/2022 9:28:09	
15	615,124.386	2,875,020.403	4.42	NG	CD 9B	3,339,370.941	536,793.250	30 11 6.782924 N	92 37 4.100414 W	6/6/2022 9:28:45	
16	616,523.693	2,874,732.325	12.39	MW	CD 1A	3,339,795.993	536,699.271	30 11 20.601795 N	92 37 7.561551 W	6/6/2022 9:35:44	
17	616,524.442	2,874,733.137	12.46	NG	CD 1A	3,339,796.225	536,699.515	30 11 20.609300 N	92 37 7.552396 W	6/6/2022 9:36:21	
18	616,525.635	2,874,729.880	12.51	MW	CD 1C	3,339,796.574	536,698.518	30 11 20.620747 N	92 37 7.589651 W	6/6/2022 9:37:01	
19	616,526.309	2,874,730.862	12.47	NG	CD 1C	3,339,796.783	536,698.814	30 11 20.627527 N	92 37 7.578549 W	6/6/2022 9:37:37	
20	616,527.732	2,874,726.925	12.52	MW	CD 1B	3,339,797.199	536,697.608	30 11 20.641181 N	92 37 7.623587 W	6/6/2022 9:38:31	
21	616,528.367	2,874,727.945	12.56	NG	CD 1B	3,339,797.397	536,697.916	30 11 20.647580 N	92 37 7.612056 W	6/6/2022 9:38:59	
22	616,311.449	2,875,972.892	9.73	MW	CD 2B	3,339,736.833	537,078.180	30 11 18.638472 N	92 36 53.399300 W	6/6/2022 9:45:21	
23	616,312.127	2,875,973.928	7.88	NG	CD 2B	3,339,737.044	537,078.492	30 11 18.645300 N	92 36 53.387584 W	6/6/2022 9:45:51	
24	616,307.667	2,875,970.619	9.71	MW	CD 2A	3,339,735.670	537,077.504	30 11 18.600785 N	92 36 53.424715 W	6/6/2022 9:46:23	
25	616,308.518	2,875,971.322	7.74	NG	CD 2A	3,339,735.933	537,077.715	30 11 18.609287 N	92 36 53.416806 W	6/6/2022 9:46:49	
26	616,259.678	2,875,683.133	8.31	MW	CD 3B	3,339,719.774	536,990.128	30 11 18.093936 N	92 36 56.694234 W	6/6/2022 9:52:38	
27	616,260.815	2,875,683.579	6.52	NG	CD 3B	3,339,720.122	536,990.259	30 11 18.105245 N	92 36 56.689296 W	6/6/2022 9:53:05	
28	616,261.581	2,875,685.220	8.48	MW	CD 3A	3,339,720.363	536,990.755	30 11 18.113003 N	92 36 56.670695 W	6/6/2022 9:53:43	
29	616,261.138	2,875,684.502	6.60	NG	CD 3A	3,339,720.225	536,990.539	30 11 18.108539 N	92 36 56.678819 W	6/6/2022 9:54:24	

30	616,579.821	2,876,203.575	9.77	MW	CD 11A	3,339,819.622	537,147.272	30 11 21.320449 N	92 36 50.805057 W	6/6/2022 10:07:09
31	616,579.264	2,876,203.122	8.68	NG	CD 11A	3,339,819.450	537,147.136	30 11 21.314881 N	92 36 50.810141 W	6/6/2022 10:07:55
32	616,582.287	2,876,204.077	10.65	MW	CD 11B	3,339,820.376	537,147.414	30 11 21.344912 N	92 36 50.799650 W	6/6/2022 10:08:50
33	616,581.913	2,876,204.224	8.84	NG	CD 11B	3,339,820.262	537,147.460	30 11 21.341231 N	92 36 50.797928 W	6/6/2022 10:09:34
34	614,467.547	2,872,538.526	14.57	MW	CD 10A	3,339,159.807	536,040.005	30 11 0.005067 N	92 37 32.293760 W	6/6/2022 10:26:18
35	614,466.931	2,872,538.209	13.62	NG	CD 10A	3,339,159.618	536,039.911	30 10 59.998937 N	92 37 32.297298 W	6/6/2022 10:26:47
36	614,469.386	2,872,541.437	15.86	MW	CD 10C	3,339,160.380	536,040.884	30 11 0.023592 N	92 37 32.260836 W	6/6/2022 10:27:31
37	614,468.704	2,872,541.993	13.57	NG	CD 10C	3,339,160.175	536,041.056	30 11 0.016909 N	92 37 32.254413 W	6/6/2022 10:28:06
38	614,188.231	2,875,892.143	10.22	MW	CD 6A	3,339,089.588	537,062.999	30 10 57.613142 N	92 36 54.048758 W	6/6/2022 10:39:14
39	614,188.705	2,875,891.642	7.89	NG	CD 6A	3,339,089.730	537,062.845	30 10 57.617774 N	92 36 54.054519 W	6/6/2022 10:39:46
40	614,191.967	2,875,889.220	10.26	MW	CD 6B	3,339,090.713	537,062.093	30 10 57.649797 N	92 36 54.082530 W	6/6/2022 10:40:21
41	614,191.449	2,875,888.904	7.79	NG	CD 6B	3,339,090.554	537,061.998	30 10 57.644635 N	92 36 54.086073 W	6/6/2022 10:40:52
42	614,194.937	2,875,887.196	8.19	MW	CD 6C (CAP)	3,339,091.609	537,061.463	30 10 57.678974 N	92 36 54.105976 W	6/6/2022 10:41:50
43	614,194.251	2,875,887.567	7.92	NG	CD 6C	3,339,091.402	537,061.579	30 10 57.672225 N	92 36 54.101658 W	6/6/2022 10:42:30
44	615,792.650	2,876,702.581	10.39	MW	CD 7A	3,339,582.007	537,302.798	30 11 13.583919 N	92 36 45.019165 W	6/6/2022 10:47:20
45	615,792.597	2,876,703.391	8.13	NG	CD 7A	3,339,581.995	537,303.045	30 11 13.583484 N	92 36 45.009933 W	6/6/2022 10:47:56
46	615,795.396	2,876,704.534	10.53	MW	CD 7B	3,339,582.852	537,303.381	30 11 13.611314 N	92 36 44.997267 W	6/6/2022 10:50:43
47	615,794.628	2,876,705.145	8.49	NG	CD 7B	3,339,582.621	537,303.571	30 11 13.603777 N	92 36 44.990206 W	6/6/2022 10:54:32
48	613,666.459	2,873,288.832	1.94	MW	CD 8A	3,338,919.067	536,272.157	30 10 52.159286 N	92 37 23.642417 W	6/6/2022 11:09:26
49	613,666.888	2,873,289.209	1.81	NG	CD 8A	3,338,919.199	536,272.270	30 10 52.163575 N	92 37 23.638175 W	6/6/2022 11:12:11
50	613,668.922	2,873,286.806	3.63	MW	CD 8B	3,338,919.809	536,271.529	30 10 52.183445 N	92 37 23.665815 W	6/6/2022 11:13:44
51	613,669.249	2,873,287.710	1.77	NG	CD 8B	3,338,919.912	536,271.803	30 10 52.186777 N	92 37 23.655565 W	6/6/2022 11:14:28
52	614,670.242	2,873,840.960	8.31	BASEL QC	Ref. Nail	3,339,227.342	536,435.922	30 11 2.156584 N	92 37 17.480462 W	6/6/2022 11:29:07
53	615,798.475	2,876,706.451	10.27	MW	CD 7C	3,339,583.799	537,303.951	30 11 13.642005 N	92 36 44.975815 W	6/6/2022 12:17:02
54	615,797.782	2,876,707.004	8.07	NG	CD 7C	3,339,583.590	537,304.123	30 11 13.635206 N	92 36 44.969421 W	6/6/2022 12:17:39
RTCM-Ref 2246	628,777.188	2,862,357.421	55.78	Ref. Tower	Jennigs, LA	3,343,474.369	532,874.613	30 13 20.495296 N	92 39 30.176976 W	6/6/2022 8:51:06

DATA WAS ACCURACY-CONFIRMED WITH AUTONOMOUS GPS STATIC OBSERVATION OF OVER 2 HOURS, 27 MINUTES.  
HORIZONTAL VARIANCES OF .05' OR LESS WERE OBSERVED.  
VERTICAL VARIANCES OF .11' WERE OBSERVED.  
(OPUS solution: 1\_\_1570.22o OP1654889887259)

BASE STATIONS USED  
PID DESIGNATION  
DG5390 OAKH OAKDALE HS CORS ARP  
DP7417 CALC CALCASIEU PASS CORS ARP  
DL8639 THHR T H HARRIS CAMPUS CORS ARP

KEY:  
MW - Monitor Well Casing  
NG - Normal Ground Elevation  
BASEL - Base Line Reference Station or Temporary Benchmark  
CD xx - Monitor Well Designations  
QC - Quality Control Observation

**S.J. LANGLINAI & ASSOCIATES, INC.**



Engineers & Land Surveyors  
 2413 Veterans Memorial Dr.  
 Abbeville, LA 70510  
 337-893-7643 SJLCompany@aol.com

Z:\ DWG2024B\ICON - CASTEX 2\ICON - CASTEX 2 FINAL.xlsx

Calculated by: BTL  
 Date: 7/3/2024

Benjamin T. Langlinais, P.L.S.  
 La. Surveyor's Reg. No. 5084

	SPC LA-S	SPC LA-S	Location: Mermentau, LA			UTM Z15N	UTM Z15N	Geodetic		Geodetic	
PT NO.	Northing (ft)	Easting (ft)	Elevation (ft)	Code	Annotation	Northing(meters)	Easting(meters)	Latitude (DMS)		Longitude (DMS)	Time of Observation
60	614,632.85	2,873,786.54	10.50	MW	QC CD5A	3,339,215.707	536,419.506	30 11 1.780361 N	92 37 18.095746 W	7/3/2024 8:39:51	
61	614,628.63	2,874,184.37	8.02	MW	QC CD4A	3,339,216.188	536,540.735	30 11 1.782895 N	92 37 13.562435 W	7/3/2024 8:47:31	
62	614,683.05	2,874,015.44	7.86	BASEL	80D NAIL	3,339,232.018	536,489.025	30 11 2.302756 N	92 37 15.494106 W	7/3/2024 8:54:26	
63	615,147.47	2,873,344.07	15.08	MW	CD12a	3,339,370.536	536,282.417	30 11 6.825055 N	92 37 23.202960 W	7/3/2024 9:06:33	
64	615,146.35	2,873,344.22	13.19	NG	CD 12a	3,339,370.194	536,282.465	30 11 6.813933 N	92 37 23.201188 W	7/3/2024 9:07:21	
65	615,144.53	2,873,343.98	14.82	MW	CD12b	3,339,369.638	536,282.400	30 11 6.795872 N	92 37 23.203702 W	7/3/2024 9:08:15	
66	615,144.56	2,873,345.36	13.33	NG	CD 12b	3,339,369.654	536,282.820	30 11 6.796359 N	92 37 23.187975 W	7/3/2024 9:09:12	
67	613,265.78	2,873,514.07	9.76	MW	CD13a	3,338,797.989	536,342.559	30 10 48.218272 N	92 37 21.024886 W	7/3/2024 9:21:06	
68	613,265.83	2,873,514.99	8.62	NG	CD 13a	3,338,798.011	536,342.838	30 10 48.218944 N	92 37 21.014445 W	7/3/2024 9:21:40	
69	613,263.89	2,873,511.16	9.92	MW	CD 13c	3,338,797.403	536,341.680	30 10 48.199322 N	92 37 21.057812 W	7/3/2024 9:23:02	
70	613,263.00	2,873,512.15	8.62	NG	CD 13c	3,338,797.136	536,341.988	30 10 48.190611 N	92 37 21.046330 W	7/3/2024 9:23:39	
71	613,261.68	2,873,507.70	9.77	MW	CD13b	3,338,796.712	536,340.636	30 10 48.176986 N	92 37 21.096938 W	7/3/2024 9:25:28	
72	613,260.88	2,873,508.72	8.30	NG	CD 13b	3,338,796.473	536,340.952	30 10 48.169194 N	92 37 21.085154 W	7/3/2024 9:26:01	
73	612,991.70	2,875,377.22	10.35	MW	CD 17 a1	3,338,722.753	536,911.425	30 10 45.712383 N	92 36 59.762843 W	7/3/2024 9:36:02	
74	612,992.72	2,875,377.63	8.60	NG	CD 17a1	3,338,723.066	536,911.548	30 10 45.722540 N	92 36 59.758217 W	7/3/2024 9:36:43	
75	612,989.19	2,875,375.68	11.11	MW	CD 17a2	3,338,721.983	536,910.966	30 10 45.687395 N	92 36 59.780093 W	7/3/2024 9:38:33	
76	612,990.05	2,875,376.40	8.47	NG	CD 17a2	3,338,722.247	536,911.185	30 10 45.695954 N	92 36 59.771891 W	7/3/2024 9:39:05	
77	612,987.32	2,875,373.97	8.94	MW	CD 17b	3,338,721.404	536,910.455	30 10 45.668648 N	92 36 59.799292 W	7/3/2024 9:55:55	
78	612,986.41	2,875,373.32	8.09	NG	CD 17b	3,338,721.123	536,910.260	30 10 45.659549 N	92 36 59.806625 W	7/3/2024 9:57:34	
79	614,731.77	2,875,844.53	10.55	MW	CD 16b	3,339,254.979	537,046.080	30 11 2.988045 N	92 36 54.660550 W	7/3/2024 10:05:08	
80	614,730.53	2,875,843.42	9.42	NG	CD 16b	3,339,254.594	537,045.749	30 11 2.975583 N	92 36 54.672991 W	7/3/2024 10:06:14	
81	614,733.90	2,875,846.63	10.54	MW	CD 16a2	3,339,255.636	537,046.713	30 11 3.009330 N	92 36 54.636799 W	7/3/2024 10:08:34	
82	614,734.96	2,875,845.53	9.14	NG	CD 16a2	3,339,255.953	537,046.372	30 11 3.019663 N	92 36 54.649520 W	7/3/2024 10:09:50	
83	614,736.20	2,875,848.91	10.09	MW	CD 16a1	3,339,256.346	537,047.395	30 11 3.032309 N	92 36 54.611204 W	7/3/2024 10:16:12	
84	614,738.13	2,875,848.31	8.59	NG	CD 16a1	3,339,256.933	537,047.205	30 11 3.051385 N	92 36 54.618232 W	7/3/2024 10:18:29	
85	615,992.43	2,877,027.37	9.73	MW	CD 14a	3,339,644.315	537,400.867	30 11 15.597261 N	92 36 41.343918 W	7/3/2024 10:29:49	
86	615,991.94	2,877,028.65	8.44	NG	CD14a	3,339,644.171	537,401.258	30 11 15.592544 N	92 36 41.329295 W	7/3/2024 10:30:21	
87	616,121.56	2,876,325.60	9.77	MW	CD15c	3,339,680.544	537,186.483	30 11 16.797913 N	92 36 49.356347 W	7/3/2024 11:14:27	
88	616,120.32	2,876,324.89	8.10	NG	CD 15c	3,339,680.163	537,186.273	30 11 16.785573 N	92 36 49.364216 W	7/3/2024 11:21:48	
89	616,125.73	2,876,323.49	9.75	MW	CD15a	3,339,681.805	537,185.821	30 11 16.838937 N	92 36 49.380936 W	7/3/2024 11:30:17	

**S.J. LANGLINAI & ASSOCIATES, INC.**



Engineers & Land Surveyors  
 2413 Veterans Memorial Dr.  
 Abbeville, LA 70510  
 337-893-7643 SJLCompany@aol.com

Z:\ DWG2024B\ICON - CASTEX 2\ICON - CASTEX 2 FINAL.xlsx

Calculated by: BTL  
 Date: 7/3/2024

Benjamin T. Langlinais, P.L.S.  
 La. Surveyor's Reg. No. 5084

	SPC LA-S	SPC LA-S	Location: Mermentau, LA			UTM Z15N	UTM Z15N	Geodetic	Geodetic	
PT NO.	Northing (ft)	Easting (ft)	Elevation (ft)	Code	Annotation	Northing(meters)	Easting(meters)	Latitude (DMS)	Longitude (DMS)	Time of Observation
90	616,124.55	2,876,323.06	7.84	NG	CD15a	3,339,681.444	537,185.695	30 11 16.827242 N	92 36 49.385670 W	7/3/2024 11:31:05
91	616,128.51	2,876,321.89	10.06	MW	CD 15b	3,339,682.644	537,185.321	30 11 16.866263 N	92 36 49.399513 W	7/3/2024 11:37:12
92	616,127.61	2,876,322.91	8.33	NG	CD 15b	3,339,682.376	537,185.638	30 11 16.857516 N	92 36 49.387701 W	7/3/2024 11:37:53
93	614,683.01	2,874,015.44	8.01	BASEL	80D NAIL QC(62)	3,339,232.006	536,489.026	30 11 2.302356 N	92 37 15.494101 W	7/3/2024 11:57:06
RTCM-Ref 2246	628,777.19	2,862,357.42	55.78	Ref. Tower	Jennings, LA	3,343,474.369	532,874.613	30 13 20.495296 N	92 39 30.176976 W	7/3/2024 8:33:32
RTCM-Ref 2248	634,900.65	2,713,146.40	31.27	Ref. Tower	Lake Charles, LA	3,344,678.460	487,387.685	30 14 0.979835 N	93 7 51.875347 W	7/3/2024 10:14:24

DATA COLLECTED AND COMPUTED IN REALTIME VIA LEICA SMARTNET GPS NETWORK OBSERVATIONS.

Horizontal data is based on Louisiana State Plane Coordinate System, NAD83 (CORS) Datum, Louisiana South Zone, Reference Station SJB1.

Vertical Datum for elevations shown is NAVD88 computed using GEOID18, (REF FRAME Epoch 2010.0000)

DATA WAS ACCURACY-CONFIRMED WITH AUTONOMOUS GPS REPEAT OBSERVATION .

HORIZONTAL VARIANCES OF .20' OR LESS WERE OBSERVED.

VERTICAL VARIANCES OF .07' OR LESS WERE OBSERVED.

KEY:

MW - Monitor Well Casing

NG - Normal Ground Elevation

BASEL - Base Line Reference Station or Temporary Benchmark

CD xx - Monitor Well Designations

QC - Quality Control Observation







Environmental Services, Inc

2049 Commercial Drive • Port Allen, LA 70767 • (225) 344-8490 • fax (225) 344-6654

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June 23, 2025

Mr. Matt Keating  
Mudd, Bruchhaus, & Keating, LLC  
422 E. College Street, Suite B  
Lake Charles, LA 70605

**Subject: Rebuttal Report  
Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC;  
Docket C-502-20; Mermentau West Oil Field, Jefferson Davis Parish, LA**

Dear Mr. Keating,

**ICON Environmental Services, Inc. (ICON)** has reviewed the defendants' reports in this matter, and disagree with their criticisms of the opinions stated in our original report for the reasons stated therein. Below is a list of the defense's reports ICON reviewed and some rebuttal opinions.

ICON Environmental Services, Inc. (ICON) is pleased to present this rebuttal report after reviewing the following Defendants' expert reports:

- Hydro-Environmental Technology, Inc (HET) Report of Matthew Greene, Craig Cormier P.G., Brent Pooler P.G. and Stewart Stover, P.G. dated May 27, 2025 prepared for Mr. George Arceneaux III concerning wells operated by Midwest and/or Amoco as predecessors of BP (Johnson Boudreaux SWD1 sn76164; Johnson Boudreaux #1 sn82022; Johnson Boudreaux #2 sn82706; and Johnson Boudreaux #1d sn139607).
- Hydro-Environmental Technology, Inc (HET) Report of Matthew Greene, Craig Cormier P.G., Brent Pooler P.G. and Stewart Stover, P.G. dated May 27, 2025 prepared for Ms. Meghan Smith concerning wells operated by Delta as predecessors of Anadarko (Johnson Boudreaux SWD1 sn28396; Castex Systems SWD sn34959).
- BKA Report of Dr. B.H. Kueper, PhD dated May 27, 2025.

#### **FIGURES AND ATTACHMENTS**

Figure 56a Soil Remediation Areas - Regulatory  
Figure 57 Isopach Map for the A-Zone  
Figure 58 Isopach Map for the B-Zone  
Table 2 Revised Soil Data Summary  
Table 6R Revised Slug Test Data Summary  
Table 8 Isopach summary for A-Zone and B-Zone

Attachment A Soil Remediation Calculations

## **1. General Comments**

Each of the defendants' reports listed above present evaluations to address compliance with regulations of the Louisiana Department of Environmental Quality (LDEQ) and/or Louisiana Department of Energy and Natural Resources (LDENR) or to defend variances from compliance with those regulations; and NONE present a plan to address lease restoration obligations which is the purpose of the upcoming civil trial (to restore the property to its original condition minus normal wear and tear, and/or to address all damages and to restore the plaintiffs as closely as possible to the position that they would have occupied had the damage never occurred).

In order to justify leaving the majority of the operator's waste, which is considered by the State of Louisiana to be Exploration and Production Waste (E&P Waste) on the plaintiff's properties, the defendants' reports evaluate the results of soil and groundwater sampling at the properties under pit closure standards in Chapter 3 of Statewide Order 29B, or using various tiers in LDEQ Risk Evaluation Corrective Action Program (RECAP). Neither Statewide Order 29B standards nor LDEQ RECAP standards were in existence at the time the mineral leases were signed, so the use of such standards to evaluate lease restoration obligations could not have been anticipated by any of the parties to the lease.

As stated in LAC 43:XIX.605.B, "*these rules shall in no way alter any other rights or claims, contractual or otherwise, which any person has or may have except as provided in R.S. 30:29 (Act 312 of 2006)*". None of the defendants' expert reports present a restoration plan to address these "*other claims, contractual or otherwise*" which is the subject of the upcoming civil trial.

## **2. All of the defendants' reports rely heavily on a theme that the shallow aquifers beneath the Castex Property are "discontinuous and isolated water-bearing zones" that are of low hydraulic conductivity and result in a RECAP groundwater classification GW3A.**

Both HET and BKA state that the supposed Chicot Aquifer confining unit (within which the groundwater-bearing zones identified by ICON as the A-Zone and B-Zone aquifers exist) is dominated by clay-rich sediments. The boring logs and the direct-measurements of the conductivity logs and HPT logs show that the confining unit is dominated by permeable silt-rich sediments, and the potentiometric data clearly show that this unit overlying the Chicot Aquifer does not function as a confining unit at all.

The numerous references to "discontinuous and isolated water-bearing zones" in both the HET and BKA reports are unsupported. Both HET and BKA present cross section diagrams that show zones of silt in all borings at similar depths, yet neither HET nor BKA made an effort to correlate the zones into a representative geologic conceptual site model, which is the fundamental initial step in performing a site assessment. BKA converted HET's boring logs into "hydrocodes" of generalized and arbitrary permeability categories that were imported into Rockworks 2025 program. BKA intentionally ignored ICON's boring log information (as summarized on their Figure 5c) which included site-specific direct-push continuous measurements of electrical

conductivity logs [EC] (indicative of relative clay content in non-contaminated zones) and Hydraulic Profiling Tool [HPT] logs (indicative of hydraulic conductivity).

The EPA lists the HPT system as useful for characterizing soil hydraulic properties using the continuous injection of water and measurement of flow and pressure, and the EC log to collect information on soil lithology as the probe advances (*“Expedited Site Assessment Tools for Underground Storage Tank Sites, A Guide for Regulators, EPA 510-B-16-004, October 2006”*). The Interstate Technology & Regulatory Council (ITRC) recommends the HPT system with the primary purpose to measure relative permeability or actual hydraulic conductivity and is capable of collecting a high density of quantitative groundwater data (*“Implementing Advanced Site Characterization Tools, ASCT-1, ITRC Advanced Site Characterization Tools Team, 2019”*). It is stated in the peer-reviewed article *“The Hydraulic Profiling Tool for Hydrogeologic Investigation of Unconsolidated Formations, McCall and Christy, Groundwater Monitoring & Remediation 40, No.3, Summer 2020”* that the HPT logs enable the investigator to evaluate vertical changes in relative formation permeability at high resolution. The USEPA listed the HPT as a technique included for performing High Resolution Site Characterization (HRSC) in the publication *“USEPA Office of Underground Storage Tanks EPA-510-R-25-001, March 2025”* with the advantages that include help to:

- Characterize subsurface conditions at a scale and resolution that conventional investigation methods are unable to attain.
- Identify and delineate the contaminant mass that is present.
- Assess whether contaminant mass is in a permeable zone (mobile porosity) or a low-permeability zone (immobile porosity or essentially “storage”).
- Enable more accurate estimating of contaminant mass and volume through more precise identification and delineation.
- Optimize the selection and design of viable remedy alternatives.
- Reduce the cost and improve performance of remedy monitoring by optimizing well placement.

The HPT logs obtained at the Castex property show that the bulk of the lithologies overlying the Chicot aquifer are permeable silts with very limited zones of impermeable clay, and that the permeable zones are laterally continuous. The HPT logs show permeable zones that are thicker (extend vertically over a greater distance) as compared to visual descriptions of clayey silt, silt, sandy silt and sand observed in core samples from the same borings.

**Figures 57** and **58** provide isopach maps depicting the cumulative saturated thickness of clayey-silt through coarser-grained lithologies for the A-Zone and B-Zone aquifers as logged in core samples and depicted on ICON’s boring logs. **Table 8** shows the sum of the cumulative thickness for the A-Zone and B-Zone aquifers that provided the basis for these values. The average of these observed saturated thicknesses was used in pore volume estimates for remediation presented in **Appendix G** of ICON’s expert report. The saturated thicknesses of both zones shown in **Figures 57** and **58** are much thicker than estimated by both HET and BKA. HET assumed an average thickness of the shallow water bearing zones between 5 and 10 feet (Section 6.5).

The thickness of the saturated zone influences the yield of the recovery wells. The Theis nonequilibrium equation was used to predict maximum yield to a well, with the following estimated yields based on observed thicknesses from core observations:

- A-Zone, Plume 1: 878 gallons per day (gpd)
- A-Zone, Plume 2: 634 gpd
- B-Zone Plume 3: 893 gpd
- B-Zone Plume 4: 662 gpd

The yields using HPT data would be even higher because the saturated thickness would be greater. The BKA report states that the shallow water-bearing zones cannot supply 800 gpd, so the water-bearing zones would not meet the industry accepted definition of an aquifer (page 16). The actual United States industry-accepted definition of a usable aquifer is 150 gallons per day, established by the USEPA in 1986 (*“Guidelines for Ground Water Classification under the EPA Ground-Water Protection Strategy, December 1986”*). While the RECAP threshold for a GW2 classification (groundwater within an aquifer that could potentially supply drinking water to a domestic water supply) is 800 gpd, the definition acknowledges that the 800 gpd standard is approximately the median yield for an underground source of drinking water as defined by EPA (150-1440 gpd, *“Assistance on Compliance of 40 CFR Part 191 with Groundwater Protection Standards, Memorandum, EPA, Office of Water, June 1993”*), page 14 of RECAP 2003. Because the owners of the Castex property are not a regulated party, the 150 gpd threshold for a usable aquifer, or Underground Source of Drinking Water (USDW) for potential future use is the appropriate value to consider.

**3. The defendants’ experts fail to properly evaluate potentiometric data which clearly shows the A-Zone and B-Zone aquifers are functioning as a recharge zone to the underlying Chicot Aquifer, indicating with no doubt that the B-Zone Aquifer is in direct hydraulic communication with the Chicot Aquifer.**

The BKA report completely ignores potentiometric data from three measuring events, a glaring omission for a hydrogeologist. The HET report acknowledges that both groundwater zones exhibit “abnormally steep gradients across a relatively short distance within zones that are purported to be the same unit”, but opines that these are not likely representative of actual groundwater flow and likely instead “a function of the laterally discontinuous water bearing zones”. HET provides no support for this claim. It is my experience that isolated discontinuous zones in Louisiana lithologies are a very rare occurrence, and when encountered, result in an anomalous potentiometric elevation that differs from the uniform hydraulic gradient measured in wells screened in close vertical proximity to the anomalous zone. All wells in the A-Zone and B-Zone aquifers exhibit potentiometric elevation that show a consistent and very uniform gradient on all three measurement events. The hydraulic gradients show:

- The A-Zone exhibits a steep gradient converging towards the center of the investigation area of the Castex Property. This is interpreted to reflect aquifer recharge from surface infiltration, and downward discharge into the B-Zone aquifer.

- The B-Zone exhibits a steep gradient to the west-southwest, with a localized much steeper gradient at the center of the investigation area of the Castex property consistent with localized downward recharge from the A-Zone, regional recharge from the Mermentau River to the east, and a dry well at CD10 indicating total downward seepage and depletion of groundwater storage from the B-Zone at this location to the underlying Chicot Aquifer. The potentiometric elevation at CD5 and CD8 in the B-Zone near this zone of depletion was ~ -54.8 feet NAVD, which compares favorably to the potentiometric head in the Chicot Aquifer of -47 at the site in 2001 shown on **Figure 16** and considering a regional decrease in groundwater levels in the Chicot Aquifer of over 10 feet from 1980 to 2015 at this location (*“The Spatial and Temporal Variability of the Potentiometric Surface in the Chicot Aquifer, Louisiana, Evaluated by a Compilation of Historical Water-Level Data, Fabiane Speyrer Thesis to ULL, Figure 21, 2017”*).
- ICON calculated a discharge of 13,690 gallons per day from the B-Zone into the Chicot in Opinion 7 of the Expert Report. This volume of water cannot simply disappear, but must be flowing downward into the Chicot Aquifer.
- ICON encountered subsurface fugitive gas at the property at a depth of 85-95 feet at CD2d, at a depth of 78-98 feet at CD15d, at a depth of 94-104 feet at CD14d, and at a depth of 65-70 feet at CD5b (Figure 52, Expert Report). These encounters were reported to the LDENR as required by LAC 56:I.323.C.4. The LDENR issued a Memo to all Louisiana Licensed Water Well Drillers on April 14, 2022 advising on recent reports of natural gas during the installation of monitoring wells at depths reported from approximately 70 feet to 95 feet below ground surface **in the upper Chicot Aquifer**. Thus, the LDENR’s interpretation that these wells penetrated the Upper Chicot Aquifer directly conflict with HET’s opinion that the Upper Sand of the Chicot Aquifer was not encountered in ICON’s or HET’s investigation (Section 2.5, page 16), and in BKA’s Opinion 6 wherein he states the upper 100 ft of the Site are part of the Chicot Aquifer confining unit, and are not in hydraulic communication with the underlying Chicot Aquifer.

It is stated in RECAP (page 14-15) in the definition of a Groundwater Classification 3, if a domestic or agricultural water supply well is located within one mile of the site property boundaries and is screened in the same stratum as the aquifer of concern or has a direct hydraulic connection, then the aquifer shall be classified as a Groundwater Classification 2 aquifer. The locations of existing registered and unregistered water supply wells are included in **Figure 7** of ICON’s Expert Report, and numerous domestic supply wells exist within a one-mile radius of the site property boundaries and are all screened in the Upper Chicot Aquifer.

**4. BKA claims in Opinion 7 that the chloride, barium and arsenic contours are overestimated and unreliable because they are extrapolated over large distances without any data to support such interpretations.**

The contaminant contours presented in ICON’s Expert Report are based on monitoring well spacing that is typical for assessments of oil and gas fields. ICON has performed hundreds of similar assessments. Neither BKA nor HET installed a single monitoring well at this property to

disprove the groundwater contaminant distribution. When extrapolations have been questioned in past projects, the defendant's subsequent installation and sampling of monitoring wells has practically always confirmed the ICON contours as originally drawn. Thus, ICON's depiction of contaminant distribution is informed by the results of hundreds of historical assessments of oilfield contaminant groundwater plumes, and ICON personnel possess unique knowledge of typical migration patterns of such contaminants resulting from historical oilfield operations.

**5. HET criticizes the use of published groundwater data from nearby wells as a basis for calculating background concentrations and suggests state-wide background values for soil are more appropriate than a background calculated from onsite sampling.**

HET claims the use of data from three nearby wells installed at similar depths and likely in similar lithology somehow results in an insufficient number of background samples that will result in the need for further background characterization. HET provides no analysis that ICON's background groundwater dataset is insufficient. ICON utilized two standard deviations above the arithmetic mean as background, as opposed to one standard deviation above the arithmetic mean proposed in RECAP, which results in a higher comparative standard.

HET states on page 53 of their report that site-specific background data is only to be used where there is an absence of Department-derived, State-specific, background calculations such as arsenic, and that regional or local background data from published sources shall not be used in a quantitative manner to evaluate site-specific background concentrations. This statement is scientifically nonsensical. The LDEQ arsenic standard is based on an original background standard of 7 mg/kg based on a dataset comprised of 83 soil samples collected from 21 parishes throughout the State (*Memorandum to Remediation Services Division from James Brent PhD, November 1, 2001*). The data ranged from non detected to 20.59 mg/kg with an arithmetic mean of 7.0 mg/kg and a standard deviation of 4.5. The current version of RECAP utilized the arithmetic mean plus one standard deviation, changing the original RS from 7 mg/kg to 12 mg/kg. The natural existence of arsenic is particularly linked to soil characteristics and redox conditions in the subsurface. It makes no scientific sense to argue that a statewide standard based on data from 21 parishes with highly variable soil types and various redox conditions results in a more accurate background remedial standard than one developed from onsite sampling in the site-specific lithology and redox conditions.

**6. Both BKA and HET propose to address groundwater contamination using Monitored Natural Attenuation for a period between one and three years.**

RECAP addresses Monitored Natural Attenuation (MNA) in Section 2.16.1 and states MNA may be allowed as a remedial alternative when it has been demonstrated that the COC under site-specific conditions will naturally attenuate to the appropriate RS without causing adverse impacts. Adequate evidence is needed to support that the constituents are susceptible to natural degradation processes and that conditions are favorable for degradation and/or natural attenuation of the COC. A contingency plan is required if the COC has the potential to migrate to a human or ecological receptor above the applicable RS or if the applicable RS will not be reached within a reasonable timeframe.

Chloride is a conservative ion in that it does not react with the aquifer matrix or chemically degrade. Chloride concentrations can only decrease through dilution that occurs during groundwater transport via advection and dispersion; thus, concentrations can only decrease through a very long time during groundwater transport. ICON's assessment of the Castex property found very high concentrations of chlorides, barium and radium in groundwater. Production activities began onsite in the 1960's, suggesting that groundwater contamination has been present in the shallow groundwater bearing zones for 65 years. It is impossible to expect that the COCs including chlorides in groundwater, will attenuate to the appropriate RS (250 mg/L) within a one to three year timeframe when the contamination has been present in the aquifer for 65 years.

A true monitored natural attenuation program involves demonstrating the remedial standard can be achieved in a predictable timeframe at the point of compliance, normally through transport modeling. Verification of progress involves statistical analysis of sampling events to identify increasing concentration trends (increasing, decreasing or stable) to map plume movement. As per ASTM-E1943-98 (Standard Guide for Remediation of Ground Water by Natural Attenuation at Petroleum Release Sites), the Mann Kendall analysis is recommended for trend analysis. Section 6.8.2 states if historical data demonstrates that the solute plume has stabilized or is shrinking, then MNA is occurring. If the solute plume is migrating at a rate significantly lower than expected based on groundwater velocity, then MNA is occurring to the extent that assumptions about the geology and groundwater conditions are correct. If remedial progress does not match estimates, remediation by MNA should be re-evaluated.

I am aware of numerous "MNA" programs that HET has employed under the approval of the LDENR. I have never seen any transport modeling, statistical trend analysis, nor verification that the appropriate remedial standard has been met. It has simply been three years of monitoring, a non-scientific observation that "nothing appears to be increasing", followed by abandonment of the program and plug and abandonment of monitoring wells.

A proper evaluation of MNA to address chlorides associated with produced water releases was written by USGS personnel and published by Elsevier ("*Predicting attenuation of salinized surface- and groundwater resources from legacy energy development in the Prairie Pothole Region, Preston, Anderson, Thamke, Hossack, Skalak, Cozzarelli, Science of the Total Environment 690 2019 522-533*"). The evaluation showed persistent salinization of aquatic resources, that natural attenuation of chloride to background levels will take another 150-250 years, and chloride emitted in 2018 will migrate nearly 1 km until dilution to background levels.

**7. Slight discrepancies were observed between ICON's slug test data summary and the results of slug test evaluation included in Appendix H.**

ICON acknowledges these discrepancies of very minor magnitude and is including herein a revised **Table 6R** that summarizes results consistent with the analysis. As stated in the Expert Report, the higher hydraulic conductivity value for CD2B using the pumping method was much higher as compared to the slug test result in the same well, suggesting the slug test result is

biased low due to testing within the compacted zone caused by the direct-push equipment used to install the wells. Thus, all results of the slug testing are expected to be biased low.

### **8. Revisions to ICON October 18, 2024 Expert Report**

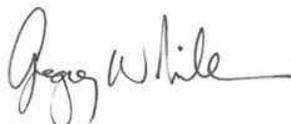
This rebuttal report includes revised costs for soil remediation of the site in accordance with Statewide Order 29B and RECAP MO-1. **Table 2** was revised with the addition of Regulatory Standards to compare the data to for an additional remedial option. ICON maintains that remediation to background is required to restore the site to its original condition, to meet expressed or implied lease obligations. The Statewide Order 29B and RECAP MO-1 costs are presented directly in response to the flawed Statewide Order 29B and RECAP remediation proposals submitted by the defense experts, and are applicable only in the event that the judge rules that presentation to and consideration of regulatory standards by the jury is appropriate at the trial of this matter.

#### REMEDIATION OF SOIL TO 29B AND RECAP MO-1

Soil Remediation	\$10,120,813
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These comments are not intended to rebut or comment on every aspect of the defendants' expert reports, but rather addressed the major issues that were discussed. The opinions and interpretations listed herein are based on the referenced sources and are subject to change upon receipt of additional data. We reserve the right to modify contaminant distribution maps and associated proposed remedial activities based on the additional data provided by defense sampling activities. If you have any questions concerning this report, please feel free to contact me at (225) 344-8490

Sincerely,  
**ICON Environmental Services, Inc.**

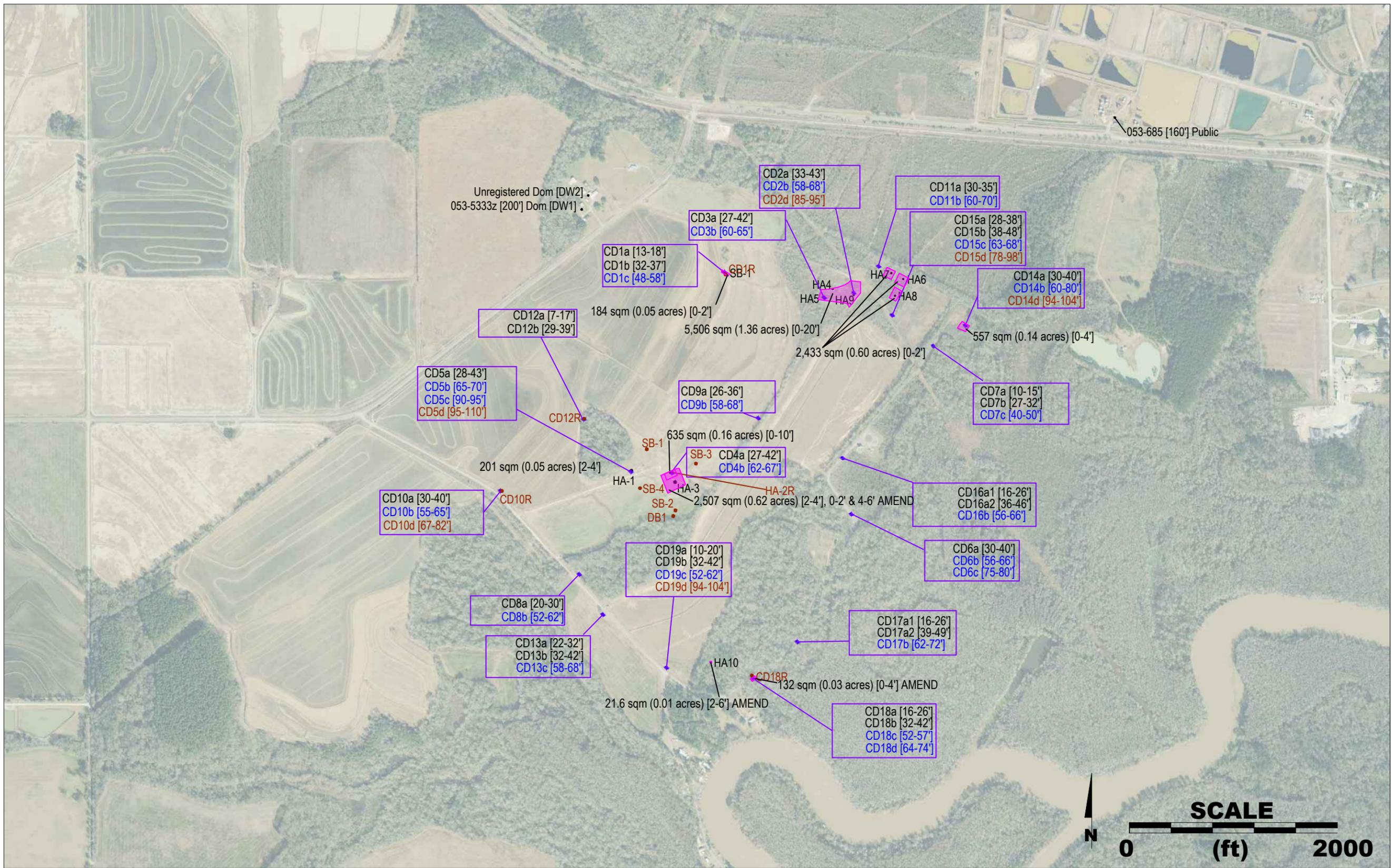


Gregory W. Miller  
Principal Hydrogeologist LBPG License #939



Jason S. Sills  
Senior Engineer EI No. 20568





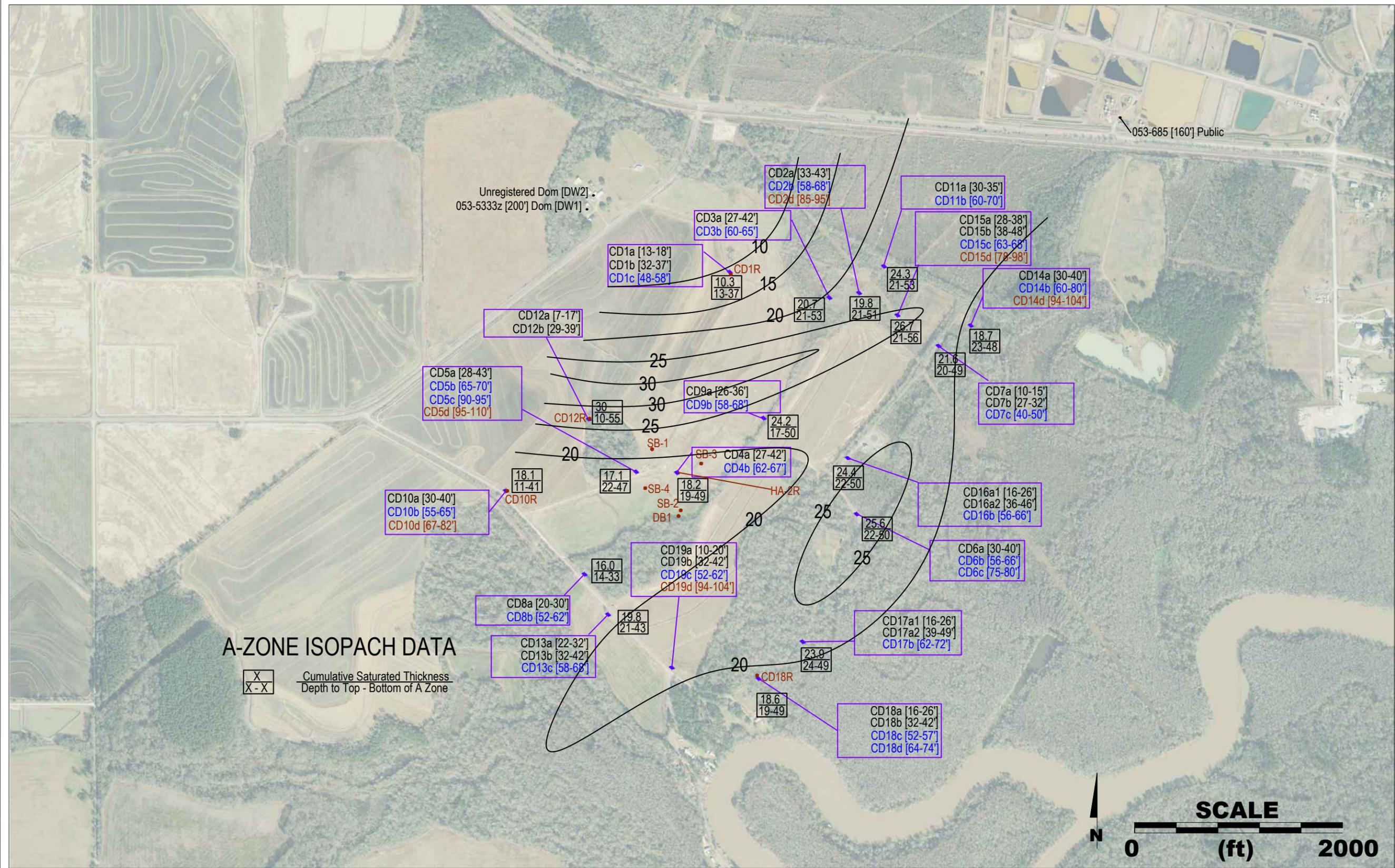
PREPARED BY:  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, LA 70767

PREPARED FOR:  
Talbot, Carmouche, Marcello Law Firm  
17405 Perkins Road  
Baton Rouge, la 70810

SOIL REMEDIATION AREAS - REGULATORY  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE June 2025
DIRECTORY	FIGURE NO. 56a

Castex - ICON rebuttal report - 000009



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ISOPACH MAP FOR THE A-ZONE  
Castex Development LLC v Anadarko Petroleum Corp, et al; Docket No. C-502-20; 31st JDC, Jefferson Davis Parish, LA  
Mermentau Field, Jefferson Davis Parish, LA

FILENAME	REV #
JOB NO.	DATE June 2025
DIRECTORY	FIGURE NO. 57

Castex - ICON rebuttal report - 000010



**Table 2**  
**Soil Data Summary (Rebuttal Report)**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
Calculated Background			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	7.17	-	-	-	-	65	180	-	-
29B Upland Pit Closure Std			10	-	40,000	10	500	500	10	-	500	10	-	4	15	-	-	12	-	-	-	-	-	-	1	-
LDEQ MO-1 RECAP Standard			-	1834 <sup>A</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217 <sup>A</sup>	600 <sup>A</sup>	-	-
HA-1 (CD-5)	0-2'	29-Jun-21	5.95	402	559	<0.460	13.2	18.0	<3.68	31.5	11.5	<0.107	22.8	0.30	2.03	na	na	2.05	1.02	0.31	1.66	na	na	na	na	15.7
HA-1 (CD-5)	2-4'	29-Jun-21	4.97	517	759	<0.494	12.4	13.7	<3.95	21.7	17.3	<0.105	34.7	0.34	6.04	na	na	3.08	0.50	0.57	2.25	na	na	na	na	18.5
HA-1 (CD-5)	4-6'	29-Jun-21	5.92	356	506	<0.458	14.3	13.5	<3.66	20.9	28.5	<0.0995	41.1	0.32	7.90	na	na	2.91	0.60	0.32	1.97	na	na	na	na	20.5
HA-2 (CD-4)	0-2'	29-Jun-21	6.90	4,640	39,100	<0.472	45.5	69.7	<3.78	218	33.2	<0.105	33.5	2.46	25.5	na	na	19.5	1.31	0.52	18.7	na	22.7	29.0	na	18.8
HA-2 (CD-4)	2-4'	29-Jun-21	5.64	4,180	30,800	<0.479	37.6	52.4	<3.83	162	30.1	<0.108	35.2	3.64	39.7	na	na	31.2	1.19	0.52	28.9	na	1,300	<100	na	19.9
HA-2 (CD-4)	4-6'	29-Jun-21	4.67	1,510	2,920	<0.492	13.4	15.5	<3.94	105	19.3	<0.101	40.2	4.42	33.2	na	na	36.5	1.31	0.64	36.0	na	123	<15.0	na	18.1
HA-3	0-2'	29-Jun-21	5.48	313	478	<0.461	11.1	10.2	<3.69	140	28.8	<0.104	39.8	0.91	22.5	na	na	8.94	0.740	0.45	6.89	na	na	na	na	20.4
HA-3	2-4'	29-Jun-21	7.31	365	621	<0.474	12.3	12.6	<3.79	163	41.5	<0.0983	36.5	5.24	29.8	na	na	67.4	0.620	<0.05	38.4	na	na	na	na	20.3
HA-3	4-6'	29-Jun-21	5.36	495	860	<0.456	11.6	12.2	<3.65	147	27.0	<0.0977	41.5	2.07	46.3	na	na	19.7	0.930	0.44	16.3	na	na	na	na	18.6
HA-4	0-2'	29-Jun-21	5.84	3,640	19,100	<0.472	29.1	22.6	<3.87	187	65.8	<0.102	34.8	2.36	12.2	na	na	12.0	3.14	0.94	17.1	na	na	na	na	24.2
HA-4	2-4'	29-Jun-21	5.43	1,330	2,330	<0.469	18.9	15.5	<3.76	101	36.9	<0.104	38.9	2.01	22.6	na	na	15.1	1.31	0.69	15.0	na	na	na	na	21.9
HA-4	4-6'	29-Jun-21	5.21	1,530	2,480	<0.476	18.5	14.6	<3.81	132	36.8	<0.0981	40.2	3.65	32.8	na	na	24.0	1.83	0.90	28.1	na	na	na	na	22.7
HA-5 (CD-3)	0-2'	29-Jun-21	7.46	3,320	4,850	<0.491	96.7	33.7	<3.93	511	173	0.186	43.4	1.28	4.30	na	na	4.72	3.16	1.10	6.89	na	na	na	na	29.7
HA-5 (CD-3)	2-4'	29-Jun-21	6.55	4,230	30,700	0.734	73.3	55.2	<3.96	354	187	0.233	33.1	1.14	3.40	na	na	4.75	2.55	1.32	6.60	na	768	545	0.920	27.1
HA-5 (CD-3)	4-6'	29-Jun-21	5.26	3,640	11,700	0.518	31.6	41.6	<3.90	112	99.9	0.189	38.1	5.40	13.0	na	na	12.9	14.2	0.65	35.2	na	2,310	258	3.27	37.0
HA-6	0-2'	30-Jun-21	6.99	3,460	13,700	0.586	102	38.8	<3.73	555	190	0.117	23.1	1.07	1.10	na	na	1.74	5.39	1.83	3.31	na	na	na	na	16.1
HA-6	2-4'	30-Jun-21	4.12	552	1,050	<0.469	10.9	12.6	<3.75	27.9	15.9	<0.0973	35.8	1.18	6.91	na	na	6.82	1.48	1.10	7.74	na	na	na	na	17.1
HA-6	4-6'	30-Jun-21	3.15	527	699	<0.485	9.90	12.5	<3.88	31.8	17.6	<0.103	33.1	0.700	9.05	na	na	5.25	1.07	0.62	4.83	na	na	na	na	13.9
HA-7	0-2'	30-Jun-21	5.12	3,080	12,600	<0.498	31.1	33.5	<3.99	113	92.6	0.109	32.3	0.710	1.06	na	na	2.05	3.37	1.33	3.14	na	na	na	na	17.4
HA-7	2-4'	30-Jun-21	4.22	454	823	<0.499	9.93	13.7	<3.99	23.9	15.0	<0.105	35.5	0.900	8.16	na	na	5.93	1.23	0.85	6.04	na	na	na	na	15.6
HA-7	4-6'	30-Jun-21	3.96	548	812	<0.489	9.62	11.8	<3.91	25.2	17.1	<0.102	31.4	0.860	8.28	na	na	5.68	1.19	0.82	5.69	na	na	na	na	16.7
HA-8	0-2'	30-Jun-21	5.33	4,620	22,200	0.625	63.4	50.3	<3.94	178	188	0.289	27.4	0.510	0.640	na	na	1.12	2.93	0.85	1.53	na	na	na	na	16.6
HA-8	2-4'	30-Jun-21	3.89	493	988	<0.470	9.88	10.5	<3.76	32.0	14.9	<0.104	29.2	0.570	4.55	na	na	3.37	1.19	0.70	3.27	na	na	na	na	17.8
HA-8	4-6'	30-Jun-21	3.36	355	451	<0.486	8.25	9.05	<3.88	23.9	15.9	<0.103	27.1	1.06	8.95	na	na	6.19	1.36	0.89	6.57	na	na	na	na	15.5
HA-9 (CD-2)	0-2'	30-Jun-21	4.95	2,630	4,240	<0.490	18.8	23.0	<3.92	129	92.3	<0.109	20.5	3.01	17.3	na	na	18.8	2.58	0.94	25.0	na	na	na	na	15.9
HA-9 (CD-2)	2-4'	30-Jun-21	4.27	2,420	4,280	<0.472	12.8	18.3	<3.77	93.0	15.7	<0.102	33.9	3.31	28.9	na	na	21.8	1.60	0.79	23.8	na	na	na	na	16.4
HA-9 (CD-2)	4-6'	30-Jun-21	2.57	183	342	<0.475	6.97	14.6	<3.80	39.1	13.3	<0.0974	31.7	3.80	44.0	na	na	25.5	1.72	0.94	29.4	na	na	na	na	15.7
HA-10	0-2'	2-Aug-24	3.67	1,050	1,760	<0.492	13.9	11.2	na	31.4	19.6	<0.0979	37.4	0.51	7.26	na	75.4	7.47	0.51	0.39	5.01	na	<20.0	<20.0	na	17.4
HA-10	2-4'	2-Aug-24	3.52	248	421	<0.488	12.7	10.5	na	21.8	20.9	<0.107	25.8	1.36	23.9	na	256	15.2	0.75	0.89	13.7	na	<20.0	<20.0	na	15.7
HA-10	4-6'	2-Aug-24	2.94	268	351	<0.488	12.5	10.7	na	21.9	20.5	<0.0952	30.1	1.08	23.4	na	251	12.0	0.69	0.64	9.77	na	<19.9	<19.9	na	14.1
CD-1	0-2'	23-Feb-22	4.54	5,590	13,000	<0.463	9.53	15.6	na	38.1	12.8	<0.0962	14.5	0.33	0.52	na	31.9	0.81	1.50	0.60	0.83	na	na	na	na	9.50
CD-1R	0-2'	30-Apr-25	na	3,580	15,300	na	na	na	na	na	na	na	na	1.60	na	na	na	na	na	na	na	na	na	na	na	8.00
CD-1	4-6'	23-Feb-22	3.77	172	1,050	<0.492	10.6	9.27	na	14.5	12.7	<0.107	27.2	0.58	4.49	na	117	4.57	0.660	0.46	3.43	na	na	na	na	13.7
CD-1	10-12'	23-Feb-22	7.74	325	1,460	<0.472	15.5	13.1	na	28.2	43.7	<0.102	36.6	0.37	2.50	na	34.6	2.02	0.940	0.630	1.79	na	na	na	na	19.1
CD-1	22-24'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.38	na	2.81	34.0	na	na	na	na	na	na	na	na	24.0
CD-1	36-38'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.34	na	3.16	18.7	na	na	na	na	na	na	na	na	22.2
CD-1	46-48'	23-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.59	na	na	39.1	na	na	na	na	na	na	na	na	26.1
CD-1	56-58'	24-Feb-22	na	na	na	na	na	na	na	na	na	na	na	0.62	na	4.06	60.0	na	na	na	na	na	na	na	na	22.3
CD-2	14-16'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	16.3	na	na	7,120	na	na	na	na	na	na	na	na	21.9
CD-2	28-30'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	20.5	na	na	3,680	na	na	na	na	na	na	na	na	22.5
CD-2	38-40'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	27.1	na	na	3,860	na	na	na	na	na	na	na	na	21.7
CD-2	46-48'	3-Mar-22	na	na	na	na	na	na	na	na	na	na	na	12.0	na	na	1,550	na	na	na	na	na	na	na	na	20.1
CD-2	52-54'	4-Mar-22	na	na	na	na	na	na	na	na	na	na	na	5.72	na	na	1,560	na	na	na	na	na	na	na	na	29.7
CD-2	60-62'	4-Mar-22	na	na	na	na	na	na	na	na	na	na	na	4.44	na	na	694	na	na	na	na	na	na	na	na	26.1
CD-3	18-20'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	4.92	na	na	2,440	na	na	na	na	na	na	na	na	22.3

**Table 2**  
**Soil Data Summary (Rebuttal Report)**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
<b>Calculated Background</b>			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	7.17	-	-	-	-	65	180	-	-
<b>29B Upland Pit Closure Std</b>			10	-	40,000	10	500	500	10	-	500	10	-	4	15	-	-	12	-	-	-	-	-	-	1	-
<b>LDEQ MO-1 RECAP Standard</b>			-	1834 <sup>A</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217 <sup>A</sup>	600 <sup>A</sup>	-	-
CD-3	28-30'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	28.7	na	na	4,170	na	na	na	na	na	na	na	na	20.6
CD-3	44-46'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	24.9	na	na	7,470	na	na	na	na	na	na	na	na	30.0
CD-3	52-54'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	24.1	na	na	4,850	na	na	na	na	na	na	na	na	25.9
CD-3	60-62'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	4.31	na	na	620	na	na	na	na	na	na	na	na	23.2
CD-3	64-66'	8-Mar-22	na	na	na	na	na	na	na	na	na	na	na	2.35	na	na	365	na	na	na	na	na	na	na	na	23.2
CD-4	8-10'	9-Mar-22	3.60	329	424	<0.478	8.15	5.47	na	28.8	18.0	<0.106	18.4	23.9	28.4	1,210	4,320	25.4	44.7	24.0	149	na	na	na	na	17.9
CD-4	22-24'	9-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.54	na	na	704	na	na	na	na	na	na	na	na	22.7
CD-4	32-34'	9-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.60	na	na	76.6	na	na	na	na	na	na	na	na	21.9
CD-4	46-48'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	3.79	na	na	812	na	na	na	na	na	na	na	na	24.0
CD-4	56-58'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	6.35	na	na	1,880	na	na	na	na	na	na	na	na	30.7
CD-4	66-68'	10-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.810	na	na	77.1	na	na	na	na	na	na	na	na	27.7
CD-5	26-28'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.820	na	na	155	na	na	na	na	na	na	na	na	28.7
CD-5	38-40'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	1.08	na	na	186	na	na	na	na	na	na	na	na	20.9
CD-5	52-54'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	0.830	na	na	145	na	na	na	na	na	na	na	na	19.9
CD-5	56-58'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	9.34	na	na	2,500	na	na	na	na	na	na	na	na	17.3
CD-5	60-62'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	18.3	na	na	5,340	na	na	na	na	na	na	na	na	24.5
CD-5	68-70'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	17.9	na	na	5,290	na	na	na	na	na	na	na	na	25.6
CD-5	70-72'	14-Mar-22	na	na	na	na	na	na	na	na	na	na	na	8.26	na	na	2,190	na	na	na	na	na	na	na	na	28.9
CD-5	72-74'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	3.16	na	na	782	na	na	na	na	na	na	na	na	25.2
CD-5	88-90'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.680	na	na	20.7	na	na	na	na	na	na	na	na	25.8
CD-5	94-96'	26-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.610	na	na	15.5	na	na	na	na	na	na	na	na	25.5
CD-6	0-4'	13-Apr-22	4.86	263	418	<0.500	12.8	11.7	na	24.3	19.6	<0.107	37.1	0.300	5.20	na	7.75	4.29	0.37	0.28	2.45	na	na	na	na	19.0
CD-6	6-8'	13-Apr-22	4.41	262	417	<0.483	16.6	12.0	na	50.4	46.6	<0.109	40.7	0.370	5.95	na	18.9	4.94	0.47	0.33	3.12	na	na	na	na	17.4
CD-6	10-12'	13-Apr-22	9.02	229	389	<0.497	19.2	14.3	na	55.8	58.6	<0.0928	55.7	0.320	5.63	na	31.1	3.93	0.47	0.51	2.74	na	na	na	na	21.7
CD-6	28-30'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.730	na	na	26.2	na	na	na	na	na	na	na	na	23.1
CD-6	52-54'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.620	na	na	10.1	na	na	na	na	na	na	na	na	20.6
CD-6	76-78'	13-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.510	na	na	na	na	na	na	na	na	na	na	na	17.4
CD-7	2-4'	19-Apr-22	3.02	403	417	<0.499	10.8	11.8	na	25.5	19.5	<0.106	34.4	0.980	12.0	na	193	9.55	0.68	0.50	7.32	na	na	na	na	14.7
CD-7	4-6'	19-Apr-22	3.21	296	388	<0.500	11.2	12.6	na	24.7	23.4	<0.0979	35.7	1.06	11.5	na	252	11.0	0.71	0.57	8.79	na	na	na	na	14.6
CD-7	8-10'	19-Apr-22	5.51	226	296	<0.500	14.2	15.5	na	30.5	40.2	<0.0961	42.8	0.720	10.6	89.9	156	7.72	0.53	0.57	5.72	na	na	na	na	19.9
CD-7	26-28'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.250	na	na	7.20	21.8	na	na	na	na	na	na	na	23.4
CD-7	36-38'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.350	na	na	9.28	21.4	na	na	na	na	na	na	na	22.7
CD-7	58-60'	19-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.630	na	na	28.5	na	na	na	na	na	na	na	na	26.5
CD-8	2-4'	21-Apr-22	4.30	266	351	<0.498	14.0	14.9	na	23.4	19.2	<0.0992	46.5	0.280	0.49	na	24.4	0.740	1.55	0.55	0.76	na	na	na	na	22.6
CD-8	4-6'	21-Apr-22	4.98	527	544	<0.499	9.94	12.5	na	25.5	23.9	<0.105	44.0	0.430	0.71	na	63.6	1.03	2.10	0.65	1.21	na	na	na	na	15.5
CD-8	8-10'	21-Apr-22	5.79	349	435	<0.499	10.3	7.64	na	24.4	37.3	<0.104	30.9	0.270	0.90	na	18.2	1.08	1.25	0.52	1.01	na	na	na	na	16.2
CD-8	18-20'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.230	na	na	3.81	9.03	na	na	na	na	na	na	na	25.2
CD-8	48-50'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.530	na	na	12.6	16.5	na	na	na	na	na	na	na	25.3
CD-8	62-64'	21-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.570	na	na	40.0	na	na	na	na	na	na	na	na	25.0
CD-9	2-4'	27-Apr-22	3.63	257	590	<0.477	10.5	10.2	na	21.4	16.5	<0.0992	30.3	0.330	3.41	na	7.99	3.00	0.73	0.43	2.29	na	na	na	na	17.2
CD-9	6-8'	27-Apr-22	3.19	187	481	<0.500	10.0	8.09	na	20.8	16.8	<0.100	24.0	0.160	2.99	na	14.8	2.32	0.26	0.20	1.11	na	na	na	na	91.7
CD-9	10-12'	27-Apr-22	6.86	260	389	<0.498	11.9	8.55	na	28.3	33.5	<0.0988	29.5	0.290	1.94	na	34.6	2.32	0.55	0.40	1.60	na	na	na	na	14.9
CD-9	22-24'	27-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.260	na	na	3.23	14.3	na	na	na	na	na	na	na	26.4
CD-9	56-58'	28-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.610	na	na	9.41	38.7	na	na	na	na	na	na	na	30.8
CD-9	58-60'	28-Apr-22	na	na	na	na	na	na	na	na	na	na	na	0.490	na	na	22.2	na	na	na	na	na	na	na	na	23.3

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**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
Calculated Background			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	7.17	-	-	-	-	65	180	-	-
29B Upland Pit Closure Std			10	-	40,000	10	500	500	10	-	500	10	-	4	15	-	-	12	-	-	-	-	-	-	1	-
LDEQ MO-1 RECAP Standard			-	1834 <sup>A</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217 <sup>A</sup>	600 <sup>A</sup>	-	-
CD-10	2-4'	4-May-22	3.77	240	305	<0.500	12.2	16.3	na	13.5	15.8	<0.101	26.2	0.330	1.88	na	10.8	2.97	0.67	0.39	2.17	na	na	na	na	12.6
CD-10	6-8'	4-May-22	2.15	184	351	<0.495	10.5	8.05	na	18.4	20.5	<0.0986	28.1	0.390	2.96	na	28.8	3.16	0.70	0.42	2.37	na	na	na	na	16.6
CD-10	8-10'	4-May-22	4.84	265	425	<0.501	17.0	10.1	na	31.1	41.4	<0.0956	44.8	0.210	2.90	na	34.3	2.47	0.30	0.20	1.23	na	na	na	na	21.3
CD-10	28-30'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.320	na	3.51	13.1	na	na	na	na	na	na	na	na	22.2
CD-10	52-54'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.630	na	4.23	17.2	na	na	na	na	na	na	na	na	24.4
CD-10	60-62'	4-May-22	na	na	na	na	na	na	na	na	na	na	na	0.410	na	na	17.4	na	na	na	na	na	na	na	na	21.0
CD-11	2-4'	2-May-22	2.54	185	265	<0.500	14.6	13.0	na	17.7	16.9	<0.101	34.7	0.850	2.78	na	125	6.07	0.90	0.63	5.30	na	na	na	na	15.8
CD-11	4-6'	2-May-22	3.19	260	467	<0.497	13.5	12.4	na	23.7	19.9	<0.101	35.9	0.960	7.00	na	208	7.92	0.74	0.54	6.35	na	na	na	na	13.4
CD-11	10-12'	2-May-22	6.51	304	694	<0.502	24.5	15.5	na	61.9	61.1	<0.0997	46.1	0.840	5.91	na	181	6.05	0.92	0.63	5.32	na	na	na	na	21.8
CD-11	28-30'	2-May-22	na	na	na	na	na	na	na	na	na	na	na	1.08	na	21.0	110	na	na	na	na	na	na	na	na	21.7
CD-11	58-60'	3-May-22	na	na	na	na	na	na	na	na	na	na	na	0.740	na	9.72	47.5	na	na	na	na	na	na	na	na	34.9
CD-11	64-66'	3-May-22	na	na	na	na	na	na	na	na	na	na	na	0.780	na	na	53.9	na	na	na	na	na	na	na	na	25.1
CD-14	2-4'	10-Jun-22	5.46	457	3,400	<0.466	17.2	14.7	na	34.0	22.8	<0.108	44.6	5.20	14.8	na	1260	17.4	5.18	3.68	36.7	na	na	na	na	21.0
CD-14	4-6'	10-Jun-22	4.22	595	751	<0.500	16.0	11.5	na	30.8	35.6	<0.108	48.6	3.97	5.50	na	963	5.49	9.63	8.13	16.4	na	na	na	na	16.9
CD-14	6-8'	10-Jun-22	3.76	294	715	<0.497	14.5	10.5	na	31.4	37.0	<0.107	48.8	2.39	2.63	na	440	2.51	8.58	5.75	6.71	na	na	na	na	17.4
CD-14	8-10'	10-Jun-22	4.49	649	11,500	<0.500	22.8	15.4	na	54.3	59.2	<0.107	60.9	1.97	3.32	na	558	3.91	5.69	3.36	8.32	na	na	na	na	23.0
CD-14	26-28'	10-Jun-22	na	na	na	na	na	na	na	na	na	na	na	2.69	na	181	694	na	na	na	na	na	na	na	na	21.9
CD-14	64-66'	10-Jun-22	na	na	na	na	na	na	na	na	na	na	na	7.85	na	na	1100	na	na	na	na	na	na	na	na	25.3
CD-16	10-12'	10-Jun-24	7.06	722	4,450	<0.481	22.1	12.9	na	52.6	53.6	<0.107	36.2	0.77	6.1	na	114	3.43	1.61	1.04	3.95	na	na	na	na	20.0
CD-16	14-16'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	0.44	na	5.50	36.9	na	na	na	na	na	na	na	na	20.5
CD-16	54-56'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	0.97	na	8.13	64.3	na	na	na	na	na	na	na	na	26.6
CD-17	8-10'	14-Jun-24	3.25	397	942	<0.496	15.5	10.8	na	31.3	32.6	<0.107	33.4	1.57	18.8	na	289	12.8	0.680	0.800	11.00	na	na	na	na	16.2
CD-17	14-16'	10-Jun-24	na	na	na	na	na	na	na	na	na	na	na	1.53	na	69.7	255	na	na	na	na	na	na	na	na	19.8
CD-17	60-62'	17-Jun-24	na	na	na	na	na	na	na	na	na	na	na	1.02	na	55.7	130	na	na	na	na	na	na	na	na	25.0
CD-18	0-4'	23-Jul-24	5.09	479	868	<0.494	14.1	11.2	na	43.4	39.9	<0.103	33.0	0.53	16.5	na	75.3	6.45	0.510	0.420	4.40	na	na	na	na	16.1
CD-18	6-8'	23-Jul-24	3.91	845	1,580	<0.488	13.1	10.7	na	74.7	29.2	<0.107	28.6	0.44	3.37	na	16.5	1.87	2.05	0.740	2.21	na	na	na	na	18.0
CD-18	10-12'	23-Jul-24	9.85	475	809	<0.495	17.8	15.6	na	57.1	55.4	<0.0988	39.5	1.21	13.4	na	233	7.34	1.67	1.29	8.96	na	na	na	na	18.7
CD-18	14-16'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.50	na	32.9	79.3	na	na	na	na	na	na	na	na	22.7
CD-18	26-28'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.66	na	na	49.0	na	na	na	na	na	na	na	na	21.1
CD-18	56-58'	23-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.52	na	16.1	27.7	na	na	na	na	na	na	na	na	21.7
CD-19	0-4'	29-Jul-24	4.74	212	243	<0.458	11.6	14.7	na	13.1	63.8	<0.0993	32.2	0.49	3.43	na	42.2	5.46	0.68	0.44	4.09	na	na	na	na	19.5
CD-19	6-8'	29-Jul-24	3.77	298	377	<0.493	14.4	14.2	na	29.2	33.7	<0.101	39.2	0.33	14.5	na	59.7	4.29	0.43	0.55	2.99	na	na	na	na	16.9
CD-19	8-10'	29-Jul-24	<1.97	203	192	<0.493	11.7	7.46	na	26.5	29.9	<0.102	30.6	0.52	11.2	na	41.5	5.94	0.67	0.56	4.64	na	na	na	na	16.8
CD-19	22-24'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	1.13	na	na	186	na	na	na	na	na	na	na	na	20.1
CD-19	30-32'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.84	na	49.2	115	na	na	na	na	na	na	na	na	23.7
CD-19	46-48'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.49	na	25.5	28.9	na	na	na	na	na	na	na	na	30.2
CD-19	66-68'	29-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.66	na	na	30.6	na	na	na	na	na	na	na	na	27.4
CD-19	78-80'	30-Jul-24	na	na	na	na	na	na	na	na	na	na	na	0.47	na	6.63	15.2	na	na	na	na	na	na	na	na	24.0

HET SOIL SAMPLING																											
SB-1	0-2'	24-Apr-25	4.58	206	207	<0.498	11.9	13.2	na	11.9	13.0	<0.104	na	0.180	na	na	8.05	na	13.8								
SB-1	2-4'	24-Apr-25	4.82	298	318	<0.498	12.7	11.3	na	16.8	19.3	<0.109	na	0.250	na	na	15.5	na	17.5								
SB-1	6-8'	24-Apr-25	5.97	289	394	<0.497	13.2	10.6	na	25.1	38.8	<0.0945	na	0.250	na	na	8.30	na	20.2								
SB-1	8-10'	24-Apr-25	3.97	179	202	<0.500	10.3	7.72	na	17.4	27.7	<0.0965	na	0.270	na	na	10.3	na	18.5								

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**Prepared for Mudd, Bruchhaus, & Keating, LLC**

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluble Chloride (mg/kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
Calculated Background			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	7.17	-	-	-	-	65	180	-	-
29B Upland Pit Closure Std			10	-	40,000	10	500	500	10	-	500	10	-	4	15	-	-	12	-	-	-	-	-	-	1	-
LDEQ MO-1 RECAP Standard			-	1834 <sup>A</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217 <sup>A</sup>	600 <sup>A</sup>	-	-
SB-1	13-15'	24-Apr-25	7.65	173	254	<0.0495	14.6	12.5	na	52.0	57.0	<0.0938	na	0.190	na	na	9.91	na	na	na	na	na	na	na	na	23.8
SB-1	15-16'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.270	na	na	18.5	na	na	na	na	na	na	na	na	25.1
SB-1	20-22'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.180	na	na	6.78	na	na	na	na	na	na	na	na	20.9
SB-1	22-24'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.250	na	na	8.72	na	na	na	na	na	na	na	na	20.4
SB-2	0-2'	24-Apr-25	4.13	179	142	<0.499	10.8	12.7	na	20.3	12.3	<0.101	na	0.610	na	na	16.4	na	na	na	na	na	na	na	na	26.8
SB-2	2-4'	24-Apr-25	4.04	243	254	<0.498	11.1	11.7	na	25.1	16.2	<0.103	na	1.07	na	na	166	na	na	na	na	na	na	na	na	22.6
SB-2	6-8'	24-Apr-25	2.52	134	85.6	<0.496	8.65	7.18	na	18.7	20.3	<0.0987	na	1.13	na	na	166	na	na	na	na	na	na	na	na	16.8
SB-2	8-10'	24-Apr-25	5.48	284	254	<0.498	11.9	9.04	na	29.4	39.2	<0.103	na	6.11	na	na	1,170	na	na	na	na	na	na	na	na	21.7
SB-2	12-14'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.850	na	na	154	na	na	na	na	na	na	na	na	19.2
SB-2	16-18'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.210	na	na	25.9	na	na	na	na	na	na	na	na	21.4
SB-2	22-24'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.540	na	na	30.8	na	na	na	na	na	na	na	na	19.9
SB-3	0-2'	25-Apr-25	5.59	208	155	<0.499	12.5	15.3	na	19.9	13.8	<0.0942	na	0.370	na	na	24.2	na	na	na	na	na	na	na	na	15.4
SB-3	2-4'	25-Apr-25	3.55	189	197	<0.499	10.9	12.8	na	23.0	15.6	<0.0926	na	0.330	na	na	25.9	na	na	na	na	na	na	na	na	17.8
SB-3	4-6'	25-Apr-25	6.89	330	334	<0.496	12.2	12.7	na	33.1	32.1	<0.0950	na	0.210	na	na	12.6	na	na	na	na	na	na	na	na	20.3
SB-3	8-10'	25-Apr-25	8.80	309	294	<0.498	12.0	9.37	na	36.5	39.5	<0.0927	na	0.220	na	na	11.3	na	na	na	na	na	na	na	na	21.7
SB-3	12-14'	25-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.150	na	na	7.19	na	na	na	na	na	na	na	na	19.3
SB-3	16-18'	25-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.260	na	na	18.3	na	na	na	na	na	na	na	na	22.7
SB-3	22-24'	25-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.300	na	na	19.3	na	na	na	na	na	na	na	na	19.7
SB-4	0-2'	24-Apr-25	7.05	275	222	<0.499	12.4	21.9	na	11.4	12.0	<0.0991	na	0.340	na	na	2.70	na	na	na	na	na	na	na	na	14.2
SB-4	2-4'	24-Apr-25	6.31	345	332	<0.500	13.8	21.0	na	17.7	17.6	<0.101	na	0.150	na	na	3.69	na	na	na	na	na	na	na	na	16.8
SB-4	7-9'	24-Apr-25	4.08	204	198	<0.499	10.1	6.82	na	15.5	19.1	<0.105	na	0.180	na	na	6.43	na	na	na	na	na	na	na	na	13.9
SB-4	8-10'	24-Apr-25	4.91	120	130	<0.496	7.87	5.22	na	11.8	17.2	<0.101	na	0.240	na	na	3.96	na	na	na	na	na	na	na	na	17.2
SB-4	12-14'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.150	na	na	10.80	na	na	na	na	na	na	na	na	39.1
SB-4	18-20'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.150	na	na	10.9	na	na	na	na	na	na	na	na	23.3
SB-4	22-24'	24-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.250	na	na	12.9	na	na	na	na	na	na	na	na	19.7
CD-12R	8-10'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.67	na	na	88.3	na	na	na	na	na	na	na	na	18.1
CD-12R	16-18'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.18	na	na	7.09	na	na	na	na	na	na	na	na	24.6
CD-12R	26-28'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.19	na	na	7.10	na	na	na	na	na	na	na	na	21.0
CD-12R	46-48'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.38	na	na	20.9	na	na	na	na	na	na	na	na	21.0
CD-12R	60-62'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.48	na	na	11.3	na	na	na	na	na	na	na	na	24.2
CD-12R	78-80'	22-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.48	na	na	17.8	na	na	na	na	na	na	na	na	17.5
DB-1	8-10'	16-Apr-25	na	na	na	na	na	na	na	na	na	na	na	5.55	na	na	1,350	na	na	na	na	na	na	na	na	na
DB-1	23-25'	16-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.53	na	na	90.2	na	na	na	na	na	na	na	na	na
DB-1	43-45'	17-Apr-25	na	na	na	na	na	na	na	na	na	na	na	1.50	na	na	339	na	na	na	na	na	na	na	na	na
DB-1	58-60'	17-Apr-25	na	na	na	na	na	na	na	na	na	na	na	1.60	na	na	278	na	na	na	na	na	na	na	na	na
DB-1	60-62'	17-Apr-25	na	na	na	na	na	na	na	na	na	na	na	1.05	na	na	198	na	na	na	na	na	na	na	na	na
DB-1	70-72'	17-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.32	na	na	19.5	na	na	na	na	na	na	na	na	na
DB-1	78-80'	17-Apr-25	na	na	na	na	na	na	na	na	na	na	na	0.61	na	na	24.5	na	na	na	na	na	na	na	na	na
HA-2R	6-8'	23-Apr-25	6.24	1,330	1,730	<0.500	19.7	24.3	na	192	23.0	<0.0981	na	5.82	na	na	1,690	na	na	na	na	na	na	na	na	22.8
HA-2R	8-10'	23-Apr-25	5.77	2,300	3,260	<0.500	29.1	35.0	na	321	22.1	<0.953	na	13.6	na	na	3,990	na	na	na	na	na	5,230	2,800	na	26.9
HA-2R	10-12'	23-Apr-25	7.11	367	490	<0.497	15.5	13.9	na	199	30.6	<0.0936	na	3.67	na	na	2,150	na	na	na	na	na	na	na	na	20.9
HA-2R	14-16'	23-Apr-25	na	na	na	na	na	na	na	na	na	na	na	4.52	na	na	1,410	na	na	na	na	na	<19.9	36.4	na	19.4
HA-2R	18-20'	23-Apr-25	na	na	na	na	na	na	na	na	na	na	na	1.40	na	na	656	na	na	na	na	na	na	na	na	21.6
HA-2R	22-24'	23-Apr-25	na	na	na	na	na	na	na	na	na	na	na	1.16	na	na	353	na	na	na	na	na	na	na	na	21.6
HA-2R	28-30'	23-Apr-25	na	na	na	na	na	na	na	na	na	na	na	2.03	na	na	275	na	na	na	na	na	na	na	na	22.3

**Table 2**  
**Soil Data Summary (Rebuttal Report)**  
 Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;  
 Mermentau West; Jefferson Davis Parish  
 Prepared for Mudd, Bruchhaus, & Keating, LLC

Boring ID	Depth	Date	Metals (mg/kg)										CEC (meq/100g)	EC (mmhos/cm)	ESP (%)	Leachate Chloride (mg/L)	Soluable Chloride (mg/Kg)	SAR (meq)	Soluble Calcium (meq)	Soluble Magnesium (meq)	Soluble Sodium (meq)	pH (S.U.)	Hydrocarbons		HEM Oil & Grease (%)	Moisture (%)
			Arsenic	Barium	True Total Barium	Cadmium	Chromium	Lead	Selenium	Strontium	Zinc	Mercury											TPH-DRO	TPH-ORO		
Calculated Background			8.21	497	721	-	21.2	18.3	-	55.6	58.3	-	-	0.849	8.27	-	-	7.17	-	-	-	-	65	180	-	-
29B Upland Pit Closure Std			10	-	40,000	10	500	500	10	-	500	10	-	4	15	-	-	12	-	-	-	-	-	-	1	-
LDEQ MO-1 RECAP Standard			-	1834 <sup>A</sup>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	217 <sup>A</sup>	600 <sup>A</sup>	-	-	
HA-10R	0-2'	25-Apr-25	3.99	1,210	2,400	<0.499	13.0	11.9	na	33.7	17.2	<0.0963	na	0.260	na	na	29.5	na	na	na	na	na	na	na	na	16.9

Notes: A - Value adjusted for additivity of 3.

Table 6R

Slug Test Data Summary

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

Well	Hvorslev k (ft/day)	Bouwer & Rice k (ft/day)	Arithmetic Average k (cm/sec)	Arithmetic Average k (ft/day)	Arithmetic Average k (m/day)
<b>A-ZONE</b>					
CD-2A Falling Head Test #1	0.3233	0.2443			
CD-2A Falling Head Test #2	0.3334	0.2562			
CD-2A Falling Head Test #3	0.3361	0.2588			
Arith Avg:	<b>0.3309</b>	<b>0.2531</b>	<b>1.03E-04</b>	<b>0.2920</b>	<b>0.089</b>
CD-3A Falling Head Test #1	0.3605	0.2601			
CD-3A Falling Head Test #2	0.3600	0.2701			
CD-3A Falling Head Test #3	0.3756	0.2734			
Arith Avg:	<b>0.3654</b>	<b>0.2679</b>	<b>1.12E-04</b>	<b>0.3166</b>	<b>0.097</b>
CD-4A Falling Head Test #1	0.3474	0.2613			
CD-4A Falling Head Test #2	0.3410	0.2607			
CD-4A Falling Head Test #3	0.3457	0.2549			
Arith Avg:	<b>0.3447</b>	<b>0.2590</b>	<b>1.07E-04</b>	<b>0.3018</b>	<b>0.092</b>
CD-10A Falling Head Test #1	0.2460	0.1828			
CD-10A Falling Head Test #2	0.2442	0.1875			
CD-10A Falling Head Test #3	0.2459	0.1889			
Arith Avg:	<b>0.2454</b>	<b>0.1864</b>	<b>7.62E-05</b>	<b>0.2159</b>	<b>0.066</b>
<b>Geometric Mean:</b>			<b>9.83E-05</b>	<b>0.2786</b>	<b>0.085</b>
<b>B-ZONE</b>					
CD-1C Falling Head Test #1	0.4216	0.3314			
CD-1C Falling Head Test #2	0.4199	0.3320			
CD-1C Falling Head Test #3	0.4287	0.3389			
Arith Avg:	<b>0.4234</b>	<b>0.3341</b>	<b>1.34E-04</b>	<b>0.3788</b>	<b>0.115</b>
CD-2B Falling Head Test #1	0.2310	0.1760			
CD-2B Falling Head Test #2	0.2310	0.1733			
CD-2B Falling Head Test #3	0.2220	0.1716			
Arith Avg:	<b>0.2280</b>	<b>0.1736</b>	<b>7.09E-05</b>	<b>0.2008</b>	<b>0.061</b>
CD-2B Constant Pumping Half Ellipsoid Hydraulic Conductivity 6/28/22 Pumped 65 minutes			<b>1.45E-04</b>	<b>0.4113</b>	<b>0.125</b>
CD-6B Constant Pumping Half Ellipsoid Hydraulic Conductivity 6/28/22 Pumped 42 minutes			<b>3.23E-05</b>	<b>0.0914</b>	<b>0.028</b>
CD-9B Constant Pumping Half Ellipsoid Hydraulic Conductivity 6/29/22 Pumped 55 minutes			<b>4.06E-04</b>	<b>1.1504</b>	<b>0.351</b>
<b>Geometric Mean:</b>			<b>9.73E-05</b>	<b>0.3187</b>	<b>0.084</b>

**Table 8**  
**Isopach Summary for A and B Zones**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	A	B	A	Wells	Cum b
CD1	2.8		A	1 CD1, CD2, CD3, CD7, CD9, CD11, CD14, CD15, CD16	21.2
	0.8			2 CD4, CD5, CD6, CD8, CD13, CD17, CD18, CD19	20.5
	1.3		B		
	1.4			3 CD1, CD2, CD3, CD7, CD9, CD11, CD14, CD15, CD16	12.1
	4			4 CD4, CD5, CD6, CD8, CD13, CD17, CD18, CD19	12.9
		13			
		2.2			
		1			
		<b>10.3</b>	<b>16.2</b>		
	CD2	1.9			
0.8					
0.8					
2.8					
1.3					
1.2					
3.4					
1.3					
6.3					
		3.6			
	6				
	1.9				
	0.4				
	<b>19.8</b>	<b>11.9</b>			
CD3	1.9				
	0.2				
	3.8				
	1.4				
	0.7				
	6.8				
	0.5				
	3.7				
	1.7				
		0.9			
	3.9				
	1				
	<b>20.7</b>	<b>5.8</b>			

**Table 8**  
**Isopach Summary for A and B Zones**  
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**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	A	B
CD4	2.3	
	0.8	
	0.4	
	6.7	
	0.4	
	5.4	
	0.4	
	1.8	
		4.8
		5.6
	<b>18.2</b>	<b>10.4</b>

CD5	0.9	
	1.7	
	7.6	
	4.7	
	0.4	
	0.3	
	1.5	
		0.5 top unsaturated
		3
		1.3
		2.4
		1.9
		2.7
		1.5
	<b>17.1</b>	<b>13.3</b>

CD6	5.7	
	16.5	
	3.4	
		0.4
		0.4
		9.2
		1
		2.1 gas
		4
	<b>25.6</b>	<b>17.1</b>

**Table 8**  
**Isopach Summary for A and B Zones**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	A	B
CD7	2.4	
	0.8	
	1.3	
	1	
	1.5	
	0.7	
	13.9	
		0.7
		10.6
		5.1
	<b>21.6</b>	<b>16.4</b>

CD8	1.9		
	1.7		
	0.3		
	0.2		
	11.9		
		10.1	Top unsaturated
		3.3	
		3.6	
	<b>16.0</b>	<b>17.0</b>	

CD9	0.5		
	4.2		
	6		
	4.4		
	6.4		
	1.5		
	1.2		
		3.4	
		2.4	
		1.5	
		5.2	
		1.3	
	<b>24.2</b>	<b>13.8</b>	

**Table 8**  
**Isopach Summary for A and B Zones**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	A	B
CD10	0.8	
	1.8	
	2.5	
	1	
	0.4	
	0.6	
	4.7	
	4.8	
	1.5	
		dry
	<b>18.1</b>	<b>0</b>

top unsaturated

CD11	4.6	
	9	
	0.3	
	2.9	
	0.3	
	7.2	
		9.9
		2.3
	<b>24.3</b>	<b>12.2</b>

CD12	7.1	
	15	
	7.9	
	<b>30</b>	

Bzone not cored, all looks permeable to Chicot

CD13	4.8	
	15	
		3.7
		6.4
	<b>19.8</b>	<b>10.1</b>

CD14	1.9	
	1	
	3.8	
	12	
		11.4
		4
	<b>18.7</b>	<b>15.4</b>

**Table 8**  
**Isopach Summary for A and B Zones**  
**Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;**  
**Mermentau West; Jefferson Davis Parish**  
**Prepared for Mudd, Bruchhaus, & Keating, LLC**

	A	B
CD15	2.9	
	18.3	
	0.5	
	5	
		4.3
		3.3
	<b>26.7</b>	<b>7.6</b>

CD16	5.3	
	3.1	
	16	
		8.6
		1.3
	<b>24.4</b>	<b>9.9</b>

CD17	4.2	
	19.7	
		1.1
		1.2
		2.8
	<b>23.9</b>	<b>5.1</b>

CD18	4		top unsaturated
	4.3		
	1.1		
	11.3		
	4		
		4.7	
		1.6	
		0.8	
		4.3	
		2.8	
	<b>24.7</b>	<b>14.2</b>	

CD19	4.6	
	14	
		8.7
		3.5
		4.1
	<b>18.6</b>	<b>16.3</b>

ATTACHMENT A  
SOIL REMEDIATION CALCULATIONS



**COST ESTIMATE FOR REMEDIATION OF SOIL CONTAMINATION TO RUGULATORY STANDARDS**

Castex Development, LLC vs Anadarko Petroleum Corp et al; 31st JDC; Docket C-502-20;

Mermentau West; Jefferson Davis Parish

Prepared for Mudd, Bruchhaus, & Keating, LLC

RS Means Reference Number	Quantity	Unit	Description	Unit Cost	Total
<i>Excavation, Disposal, Backfilling</i>					
31 23 16.42 0300 31 23 23.15 6070	53,390	yd <sup>3</sup>	Excavation (equip & labor)	\$2.74	\$146,485
	65,782	yd <sup>3</sup>	Transportation	\$7.80	\$513,100
	374,922	bbl	Disposal (Soil < 5pCi/g)	\$22.00	\$8,248,289
	36	bbl	Disposal (Soil > 5pCi/g)	\$27.00	\$963
31 23 23.20 4102 31 23 23.16 0200	51,392	yd <sup>3</sup>	Offsite backfill material and transportation	\$19.25	\$989,121
31 23 23.14 5420	53,390	yd <sup>3</sup>	Backfilling of excavation	\$1.64	\$87,453
<i>Chemical Amendment</i>					
31 23 16.42 0300	4,258	yd <sup>3</sup>	Excavation (equipment & labor)	\$1.47	\$6,278
	2.66	gal	Liq. Chemical Amendment (material and transportation)	\$11.10	\$30
32 92 19.14 0100	115	MSF	Amendment application	\$11.30	\$1,294
31 23 23.15 6070	4,241	yd <sup>3</sup>	Soil Mixing	\$1.27	\$5,384
31 23 23.14 5420	4,258	yd <sup>3</sup>	Backfilling of excavation (equipment & labor)	\$1.64	\$6,975
<i>Confirmatory Sampling</i>					
	70	sample	Personnel and equipment	\$140	\$9,800
	70	sample	Laboratory analysis (includes 20% markup)	\$300	\$21,000
<i>Project Management</i>					
	53,390	yd <sup>3</sup>	Excavation oversight (geologist/engineer)	\$0.58	\$30,802
	53,390	yd <sup>3</sup>	Backfilling oversight (geologist/engineer)	\$1.01	\$53,839

Project Total: **\$10,120,813**

Notes

Heavy Construction Costs With RSMeans Data, 36th Edition, 2022

RS Means Location Factor for Lafayette, LA = 81.9

## Jason Sills

---

**From:** Drew Campbell <acampbell@iconenv.com>  
**Sent:** Thursday, October 17, 2024 10:23 AM  
**To:** ICON-Jason  
**Subject:** FW: Cost Proposal request

Drew Campbell  
Staff Geologist  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, LA 70767  
o.(225)344-8490  
c.(225)290-4455  
f.(225)344-6654



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**From:** Kevin Juneau [mailto:kjuneau@customecology.com]  
**Sent:** Thursday, October 17, 2024 9:54 AM  
**To:** Drew Campbell <acampbell@iconenv.com>  
**Subject:** RE: Cost Proposal request

Good morning,

The rate to provide end dumps for this project is \$7.80 per cubic yard ( Truck measure). Rate includes fuel surcharges.

Any questions give me a call.

Thanks

Kevin Juneau  
Director Of Industrial Waste



P.O. Box 69  
Walker, LA 70785  
[Kjuneau@customecology.com](mailto:Kjuneau@customecology.com)  
Office 225-667-1707 Ext. 145  
Cell 225-324-6001

---

**From:** Drew Campbell <[acampbell@iconenv.com](mailto:acampbell@iconenv.com)>  
**Sent:** Thursday, October 17, 2024 9:39 AM

**To:** Kevin Juneau <[kjuneau@customecology.com](mailto:kjuneau@customecology.com)>

**Subject:** Cost Proposal request

Hi Kevin,

We are looking for a proposed cost to haul excavated soil with end dumps from our Castex Development site in Jefferson Davis Parish to the Mermentau waste facility. We estimate a volume of 80,000 cubic yards. The site is directly southwest of Mermentau, as shown on the attached image. Please let me know if you need any other information.

Thanks,

Drew Campbell  
Staff Geologist  
ICON Environmental Services, Inc.  
2049 Commercial Drive  
Port Allen, LA 70767  
o.(225)344-8490  
c.(225)290-4455  
f.(225)344-6654



## April 2022 South Louisiana Gate Pricing

Disposal Products		Mermentau	Bourg	Marine Transfer Stations	Unit
		Saltwater	<1% solids	\$ 6.00	\$ 6.00
Saltwater	≥1%<5% solids	\$ 13.00	\$ 13.00	NA	bbl
Oil Base Drilling waste		\$ 19.00	\$ 25.00	\$ 39.00	bbl
Water Base Drilling waste	20,000 ppm Chlorides & <5% oil	\$ 18.00	\$ 25.00	\$ 39.00	bbl
Water Base Drilling waste - elevated levels of CL or oils	20,000 ppm Chlorides or ≥5% oil	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Flowback Water (injectable)	<1% solids	job specific	job specific	job specific	bbl
Flowback Water (non-injectable)	>1% solids	job specific	job specific	job specific	bbl
Completion Fluids		\$ 25.00	\$ 25.00	\$ 39.00	bbl
Production Pit Sludges		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Storage Tank Sludges		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Production Sands and Solids		\$ 22.00	\$ 25.00	\$ 39.00	bbl
(NORM pricing may apply to any product)	NORM ≥5 pci/gr	Gate plus \$1.50 per pci/gr over 5	Gate plus \$1.50 per pci/gr over 5	Gate plus \$1.50 per pci/gr over 5	bbl
Freshwater	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Washout Water	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Washout Pit Water	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Pipeline water/waste	<20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Rainwater	< 20,000 ppm Cl & <5% solids	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Freshwater	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Water	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Pit Water	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Pipeline water/waste	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Rainwater	≥20,000 ppm Cl or ≥5% solids	\$ 19.00	\$ 25.00	\$ 39.00	bbl
Washout Water	R360 Facility Water	\$ 13.00	\$ 25.00	\$ 39.00	bbl
Commercial Facility Waste		\$ 22.00	\$ 25.00	\$ 39.00	bbl
Oil Spill Waste	(True oil spill waste, not remediation)	\$ 24.00	\$ 25.00	\$ 39.00	bbl
Wash Rack and Pumping Equipment		\$ 185.00	\$ 185.00	\$ 185.00	hr

**Marine deliveries to Mermentau will be billed at \$25/bbl**

**Facility Services and Extras quoted seperately**

Castex - ICON rebuttal report - 000028



# LIQUID GYPSUM

*Liquid Gypsum* is a liquid formulation of calcium chloride, surfactants, penetrants, humectants, and a water soluble polymeric material.

**Important:** Water soluble polymer is not the same product as the superabsorbant polymer gels which swell up when in the presence of water. Water soluble polymer does not swell in the presence of water; it is dissolved in the water and is left behind attached to soil particles when the water evaporates.

## Benefits of Liquid Gypsum

1. *Liquid Gypsum* reacts with clay in soil with synergistic effects from organic matter in soil to give stable soil particles which do not form a crust on the surface after an irrigation. Water then runs into the soil (infiltration) instead of running off into streets and gutters. A larger percentage of rain water will penetrate the soil surface when it is treated with *Liquid Gypsum*.
2. Roots grow deeper into soil treated with *Liquid Gypsum* due to the creation of stable soil particles. The spaces between these soil particles (aggregates) are called pore spaces which store water, nutrients, and air. Roots move easily through these pore spaces.
3. A crumbly soil mulch, much like large grains of sand, become visible after the use of *Liquid Gypsum* and acts like other mulches to retain soil moisture below the surface.
4. Turf and other groundcovers grown in soil treated with *Liquid Gypsum* are less likely to form thatch. Improved pore structure in *Liquid Gypsum* treated soil allows roots to penetrate the soil much easier.
5. Treating soil and plant material already planted on slopes will permit applied water to penetrate the soil surface much easier eliminating most water runoff.
6. Where salts are a soil problem (saline) treatment of the soil with *Liquid Gypsum* will improve the ability of the soil to be irrigated to carry away (leach) salts away from the root zone.
7. Use of *Liquid Gypsum* makes it possible to more easily use reclaimed water for landscape irrigation without it causing compaction of clay soil. Damage to plant leaves from the salts in reclaimed water is also reduced.
8. Erosion of soil is reduced and the soil is stabilized.

**Liquid Gypsum Safety:** Liquid Gypsum leaves no toxic residues in soil or on plant leaves when it is applied and as it decomposes.

**How Long Will a Treatment Last?:** At the recommended application rate it is estimated that monthly treatments for 6 to 12 months will result in a flocculated soil capable of sustaining plant growth for about 5 years. This is, of course, dependent upon the initial condition of the soil when treatments began.

**How Does Liquid Gypsum Compare to Regular Dry Gypsum?** In order for dry gypsum to work properly it must be tilled into the soil. *Liquid Gypsum* can be sprayed over the top of bare soil or over the top of landscape plants and once it contacts soil it begins to work immediately. The response to an application of dry gypsum is counted in months and years. Dry gypsum, when spread over turf, groundcover, or ornamental plants is comparatively ineffective. The calcium content of a one quart bottle of LG is equivalent to the soluble content of gypsum in 4 – 50 pound bags of dry gypsum.

**What problems will Liquid Gypsum solve?** Sodium and/or saline problems, clay and compacted soils, soggy soils and water drainage issues, soil erosion, problems associated with poor or reclaimed water, and will reduce thatch.

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## LIQUID “GYPSUM” PRODUCT PERFORMANCE

Liquid Gypsum contains three primary ingredients intended to attack the monovalent sodium cations binding clay platelets together. The liquid calcium chloride in it contains 120,000 ppm of free exchangeable divalent calcium cations (compare to about 1,000 ppm in dry gypsum.) This cation exchange is based on the Law of Mass Action, which states that in order to drive this chemical reaction in a soil environment one must apply an overwhelming number of calcium cations to displace the large numbers of sodium cations attached to the negative exchange sites on clay platelets. This reaction is instantaneous, which is why Liquid Gypsum works quickly. It is also reversible, which means that if a water source is used for irrigation a constant source of sodium and other salts are constantly being reapplied. That is the reason there are two other ingredients.

To enhance this rapid reaction with sodium Liquid Gypsum also contains a high quality soil penetrant/humectant to help it penetrate resistant soils. The third ingredient is a water soluble mucilage which, after the soil aggregate structure is flocculated, imparts a permanent status to the new aggregates, similar to gluing tiny clay particles into larger sand-size particles. This permanent status will last one to two years and prevents the clay cation exchange sites from being made available to passing sodium ions. Eventually, microorganism activity decomposes this aggregate structure, so period applications should be made based on percolation rate testing.

When the soil aggregate structure is stabilized into a better condition sodium and other salts, especially where recycled irrigation water is used, are more easily moved through the soil profile and past the root zone. Air is more easily drawn into the soil matrix enhancing macro and microorganism activity. Soil matter is more easily decomposed and humus formation moves forward.

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## LIQUID GYPSUM CALCIUM EQUIVALENTS

### LIQUID GYPSUM

vs.

### DRY GYPSUM

1 GAL.

800 LBS.

2.5 GAL.

2000 LBS. (1 TON)

55 GAL.

44,000 LBS. (22 TONS)

Based on the amount of usable calcium

## RATES AND COVERAGE

### AMOUNT

### AREA COVERED

1 GAL.

4000 sq.ft.

2.5 GAL.

10,000 sq.ft.

11 GAL.

1 acre

55 GAL.

5 acres

At the recommended application rate of 32 oz. / 1000 sq.ft. which is equivalent to 200 lbs. dry gypsum / 1000 sq.ft.

For faster results or severe sodium problems, the rate can be doubled or tripled without any harm to plants or soil.