

APPENDIX L – DOCUMENTATION OF FACILITY DESIGN COMPLIANCE

Documentation that the facility and/or disposal well(s) will comply with design criteria of Section 509; e.g. limited access, storage tank containment, offloading area spill containment, etc. (Section 519.C.12)

Documentation that the facility and/or disposal well(s) will comply with design criteria of Section 509; e.g. limited access, storage tank containment, offloading area spill containment, etc. is as follows:

- A. The Defiance Energy Services, LLC (Defiance) Class II Commercial Saltwater Disposal Well Facility (The Facility) and its disposal well are designed and constructed in accordance with LAC 43:XIX.509 in such a manner as to prevent the movement of E&P Waste into soil, groundwater aquifers or underground sources of drinking water (USDWs) and to prevent the discharge of E&P Waste materials or E&P Waste byproducts into man-made or natural drainage or directly into state waters. The attached Detailed Schematic Diagram demonstrates the proposed construction of The Facility (Attachment 3) and details of the well's construction can be seen on Attachment 4A and 4B of the UIC-2 Com SWD well application, located in Appendix F. The design of this facility and well also provides for protection of public health, safety, and welfare of the environment.
- B. As required by LAC 43:XIX.Chapter 5, §509, The Facility is designed and constructed in a manner which is protective of public health, safety and welfare of the environment, surface waters, groundwater aquifers and underground sources of drinking water in accordance with, but not limited to, the following requirements:
 1. All applicable construction and operational standards of this Chapter, as well as Chapter 2, Chapter 3, and Chapter 4 of LAC 43:XIX, Subpart 1, Statewide Order No. 29-B.
 2. The Facility design provides for the segregation, separation, and containment of free oil, where appropriate.
 3. Retaining walls (levees) will be built at The Facility around all above-ground storage tanks in the form of a 49-in. high steel repairable sealed/lined containment wall integrated into the repairable sealed/lined tank battery floor, to a level that will provide sufficient capacity to retain the contents of all tanks (>100% containment of all of the tanks), and prevent the release of stored E&P Wastes due to tank leakage, or some other cause. The 49-in. high steel wall will be constructed of 12 gauge steel panels (ASTM A653 SS, Grade 55) that are 8-ft. in length and are connected by overlapping 1-ft. of the panels on each end to ensure the panel joints are adequately sealed. The panels are secured to and supported by posts (H 8.25' x D 2.5", 8 gauge ASTM A653 SS, Grade 55), the panels will be bolted (7/16", SAE J429 Grade 8.2) with gaskets to the posts, and each post will be set on 56.25-ft. centers and set 2.5-ft. deep into the ground in concrete to help support the tank containment integrity in case it becomes full. A civil engineer will be consulted with to ensure adequate ground/soil strength to reinforce the in-ground posts used in the containment system. The metal panels will not be buried below ground, instead they will be sprayed with 40 mils of repairable polyurea on each side of the panel. The panels will then be sealed/lined against the floor by attaching a chemical/abrasion resistant polyurea sprayed 12 oz. repairable geotextile liner (60 mils thick) at 2-ft. above the wall base and then encapsulating the walls again with another 40 mils of repairable polyurea to integrate

the geotextile liner and completely seal the containment. Polyurea is formed by reaction of diisocyanates and diamines, and it is one of the toughest synthetic polymer materials. Polyurea sealants are high strength with tensile strength over 5,000 psi and tear strength higher than 500 lbs/in, 100% solid with no volatile organic compounds (VOC), provides rust protection, chemical resistance, abrasion resistance, environmental resistance, water tight capabilities, and is repairable. The geotextile liner will be integrated into the polyurea sealant, will be installed over the soil, will have the sumps integrated into the liner/sealant, and will cover the entire containment floor. With this design no fluid will be able to drain under the geotextile liner. <https://www.gantrade.com/blog/fast-setting-polyurea-spray-coatings>). The polyuria sealants that will be used in the construction of this facility are Chemline 6900 PT A Neutral and Chemline 6900 PT B Tan, the MSDS sheets are attached. The Containment System will be installed, maintained, and repaired to the manufactures specifications. The integrity of the concrete unloading containment area and the repairable steel sealed/lined containment wall, and the repairable sealed/lined floor will be visually inspected once every hour on a daily basis for any cracks, tears, or problems which might compromise proper containment and for any evidence of unauthorized discharge. See the WMOP (Appendix K) for the attached Letter of Engineering certifying that this containment system is capable of maintaining integrity and holding all tankage in case of a catastrophic release. In accordance with the attached Letter of Engineering, the waste handled at this facility will not exceed the maximum allowable fluid density of 69 lb/cu. ft.

4. Spill containment systems at The Facility will be built around unloading areas in the form of 6-in. roll over berms on four sides to prevent the escape of any E&P Wastes spilled during off-loading or hydrocarbons during off-loading; The unloading area is slightly sloped towards an integrated seamless concrete sump, equipped with a float actuated sump that will automatically collect any fluids from the unloading pad and transfer them back into the process flow and ultimately be disposed in the permitted SWD well.

E&P WASTE UNLOADING AREA:

When a transporter arrives on-site to deliver a load of E&P Waste fluid, a trained Defiance Employee will log the truck in and acquire proper documentation to determine that the acceptance of all such material is in accordance with LAC 43:XIX.545.A-G. The trained employee will be present during the loading process to monitor, assist and assure the unloading is conducted according to policy to prevent spills. Drivers are required to comply with warning signs and to remain on the unloading site while off-loading operations are underway. Drivers are also required to inspect tank drains and outlets before and after loading operations and to notify facility personnel of any potential problems. The seamless concrete unloading pad contains 6-in. roll over berms on four sides to prevent the escape of any E&P Wastes spilled during off-loading. The unloading pad will be constructed of seamless/sealed concrete. Any spilled fluids travel downslope towards a seamless integrated concrete sump, equipped with a float actuated sump pump to prevent the offsite release or accumulation of any fluids on the unloading pad in

compliance with LAC 43:XIX.509.B.4. The driver will connect a four inch (4-in.) connection with to the tail end of the tank truck, and the valve opened to allow the contents to be pumped by centrifugal pumps through screen baskets to a manifold where it is directed through two (2) 700-barrel fiberglass settling tanks. Absorbent pads will be in place to absorb any minor amounts of E&P Waste fluid that may be spilled. The unloading process will be monitored for any problems, and if such a problem occurs onsite personnel will immediately cease unloading operations, until such problem is resolved.

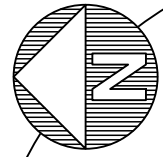
OIL UNLOADING AREA:

The Oil Load-out & Containment is located along the southern containment wall as shown on the attached facility diagram. Once the oil is deemed in condition to be sold, an approved transporter will be notified to pick up the oil. When the transporter arrives on-site, he will be directed to the oil load out unloading area by a trained Defiance Employee, who will log the truck in and acquire proper documentations to determine that the disposition of the oil is in accordance with the required regulations. The trained employee will be present during the loading process to monitor, assist and assure the loading is conducted according to policy to prevent spills. A sample of the oil will be collected and the water percentage will be determined. If the oil is deemed acceptable, the driver will gauge the tank to determine the volume of oil in the tank. The driver will then connect the suction hose to the loading valve in the polypropylene containment. The loading valve will be opened, the tank valve will be opened and the valve at the truck will be opened with the vacuum pump running. The driver will monitor the truck compartment with the site gauge and the tank the driver is pulling from with the gauge line. Once the tanker is near capacity the driver will slow the vacuum pump down and reducing the vacuum being pulled to move oil. The tank valve will be closed then the loading valve in the polyethylene container will be closed. The valve at the truck will be closed and disconnected. A five-gallon bucket will be placed beneath the hose and truck connection. The hose will then be disconnected at the loading valve in the polypropylene containment. Any spilled product in the five-gallon bucket or the polypropylene containment at the loading valve will be returned to the oil storage tank. Absorbent pads will be in place to absorb any minor amounts of oil that may splash or spill.

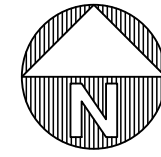
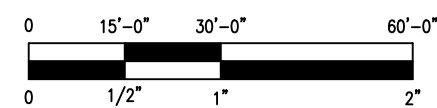
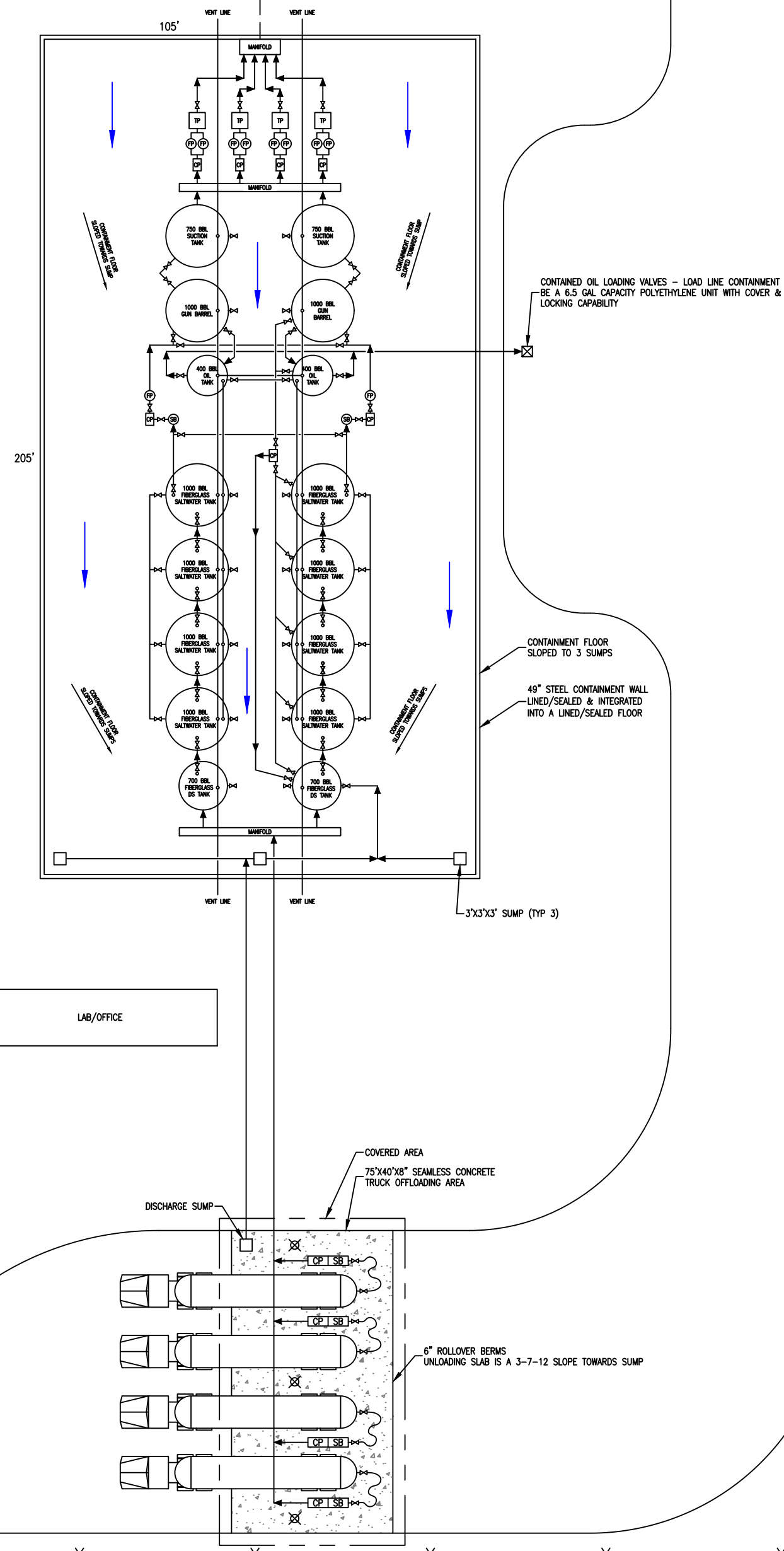
5. The proposed injection well will be designed, and permitted in accordance with the provisions of the regulations of the rules of the Office of Conservation, and reviewed by the Injection and Mining Division for proper compliance before being authorized for construction. Once the well is constructed, another review will take place by the Office of Conservation, Injection and Mining Division to assure that the well has been constructed as authorized and has passed the testing requirements to assure that it safe for injection, prior to an authorization to inject being issued. The USDW will be protected by two (2) separately cemented casing strings to isolate the USDW from

the injection zone and additionally by a 3rd steel tubing string with a packer that isolates the injection zone below confining shales and is tested for integrity or the possibility of leakage by annular and injection pressure gauges.

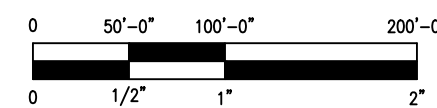
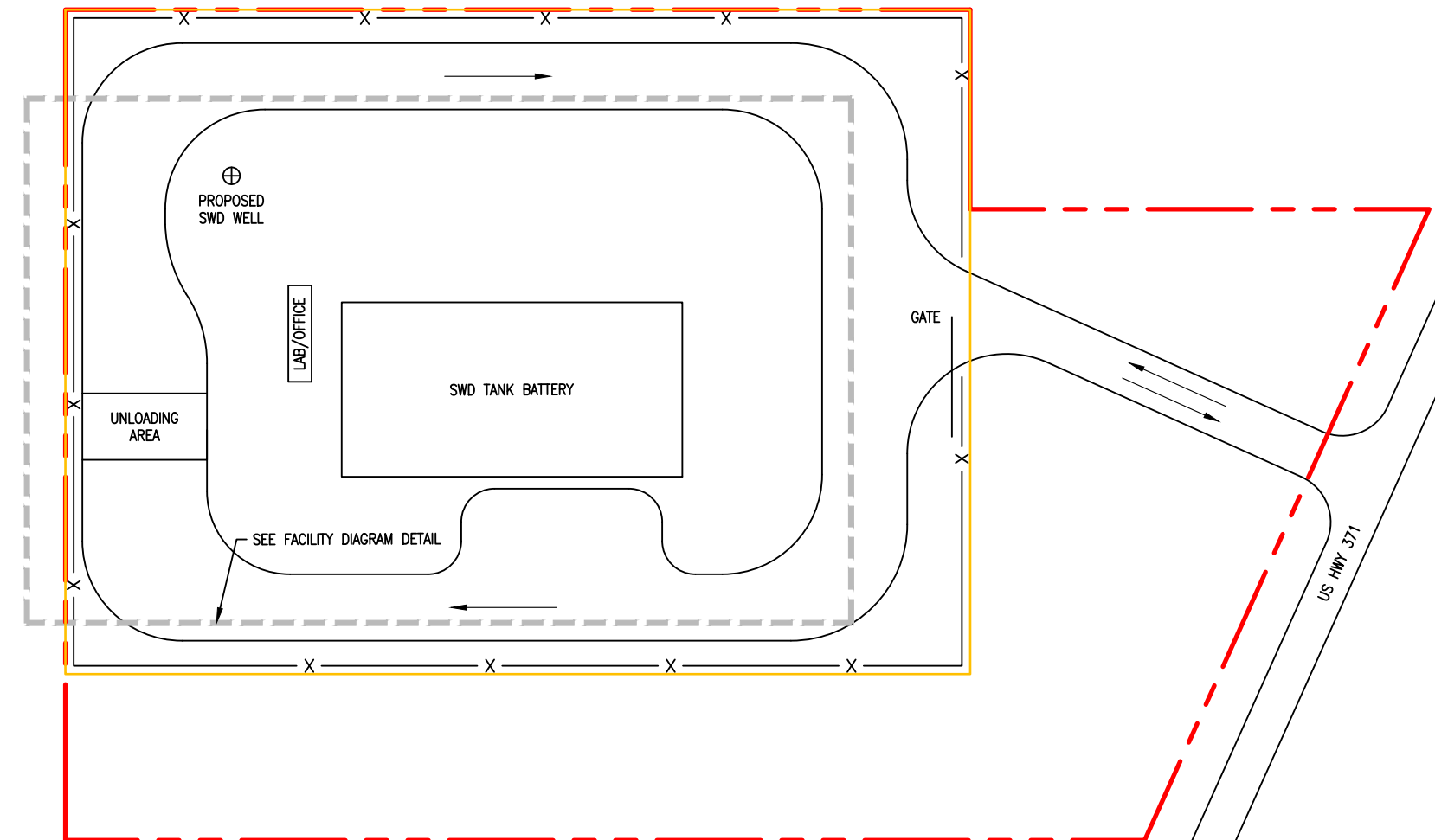
6. Limited access to E&P Waste transported on land will be provided by a lockable gate system around The Facility. A 6-foot chain-link fence around the entire facility will be installed and the gates shall remain locked except during the hours that the facility is manned and operating to receive E&P Waste.
- C. The Facility has no land treatment cells and therefore the maximum 5 acres size requirement is not applicable.
- D. No earthen or artificially lined pits will be constructed or used for storage of E&P Waste at The Facility.



FACILITY DIAGRAM DETAIL



FACILITY DIAGRAM



LEGEND	
	PROPERTY BOUNDARY
	PERMITTED BOUNDARY
	6' CHAIN LINK FENCE
	UNDERGROUND FLOWLINE
	DRAINAGE DIRECTION
	CENTRIFUGAL PUMP
	TRIPLEX PUMP
	CONCRETE
	LEL MONITOR

PROJECT NO.		SCALE	TITLE
SA03994		AS SHOWN	ATTACHMENT 3 FACILITY DIAGRAM
PAGE		DRAWN BY	LOCATION
1		JKW	DEFIANCE ENERGY SERVICES, LLC. PROPOSED COMMERCIAL SWD FACILITY SECTION 20 T13N R5W RED RIVER PARISH, LOUISIANA
SHEET		REVISED DATE	
C - 17" X 22"		07/08/20	