

# ANALYTICAL RESULTS

PERFORMED BY

**GULF COAST ANALYTICAL LABORATORIES, INC.**

7979 GSRI Avenue  
Baton Rouge, LA 70820

**Report Date** 12/02/2012

**GCAL Report** 212112007



**Deliver To** Shaw Environmental  
4171 Essen Lane  
Baton Rouge, LA 70809  
987-7335

**Attn** Lisa Pultz

**Project** LDNR Bayou Come 147497

## CASE NARRATIVE

**Client:** Shaw Environmental      **Report:** 212112007

Gulf Coast Analytical Laboratories received and analyzed the sample(s) listed on the sample cross-reference page of this report. Receipt of the sample(s) is documented by the attached chain of custody. This applies only to the sample(s) listed in this report. No sample integrity or quality control exceptions were identified unless noted below.

### **VOLATILES GAS CHROMATOGRAPHY**

In the RSK 175 analysis, sample 21211200701 (007-095-111912) had to be diluted to bracket the concentrations within the calibration range of the instrument. The recoveries for the surrogates are not applicable for those analyses performed at a 10 or higher dilution.

In the RSK 175 analysis for analytical batch 494958, the MS/MSD recoveries and RPDs are not applicable for Methane and Ethane because the spike was diluted out of the samples. The LCS/LCSD recoveries are acceptable.

# Laboratory Endorsement

Sample analysis was performed in accordance with approved methodologies provided by the Environmental Protection Agency or other recognized agencies. The samples and their corresponding extracts will be maintained for a period of 30 days unless otherwise arranged. Following this retention period the samples will be disposed in accordance with GCAL's Standard Operating Procedures.

## Common Abbreviations Utilized in this Report

<b>ND</b>	Indicates the result was Not Detected at the specified RDL
<b>DO</b>	Indicates the result was Diluted Out
<b>MI</b>	Indicates the result was subject to Matrix Interference
<b>TNTC</b>	Indicates the result was Too Numerous To Count
<b>SUBC</b>	Indicates the analysis was Sub-Contracted
<b>FLD</b>	Indicates the analysis was performed in the Field
<b>PQL</b>	Practical Quantitation Limit
<b>MDL</b>	Method Detection Limit
<b>RDL</b>	Reporting Detection Limit
<b>00:00</b>	Reported as a time equivalent to 12:00 AM

## Reporting Flags Utilized in this Report

<b>J</b>	Indicates the result is between the MDL and RDL
<b>U</b>	Indicates the compound was analyzed for but not detected
<b>B</b>	Indicates the analyte was detected in the associated Method Blank

Sample receipt at GCAL is documented through the attached chain of custody. In accordance with [NELAC](#), this report shall be reproduced only in full and with the written permission of GCAL. The results contained within this report relate only to the samples reported. The documented results are presented within this report.

This report pertains only to the samples listed in the Report Sample Summary and should be retained as a permanent record thereof. The results contained within this report are intended for the use of the client. Any unauthorized use of the information contained in this report is prohibited.

I certify that this data package is in compliance with the NELAC standard and terms and conditions of the contract and Statement of Work both technically and for completeness, for other than the conditions in the case narrative. Release of the data contained in this hardcopy data package and in the computer-readable data submitted has been authorized by the Quality Assurance Manager or his/her designee, as verified by the following signature.

Estimated uncertainty of measurement is available upon request. This report is in compliance with the DOD QSM as specified in the contract if applicable.

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Robyn Miguez  
Technical Director  
**GCAL REPORT 212112007**

# Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21211200701	007-095-111912	Water	11/19/2012 19:45	11/20/2012 09:30

# Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21211200701	007-095-111912	Water	11/19/2012 19:45	11/20/2012 09:30

## SM 4500S H Hydrogen Sulfide

CAS#	Parameter	Result	RDL	REG LIMIT	Units
C-011	Specific Conductance	8120	10		umhos/cm
Temp	Temperature	20.0			Deg C
pH	pH	7.41	1.00		pH unit

## RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-97-8	Butane	35.6	5.50		ug/L

## RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-98-6	Propane	634	100		ug/L

## RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-84-0	Ethane	1620	600		ug/L
74-82-8	Methane	29000	3000		ug/L

<b>GCAL ID</b> 21211200701	<b>Client ID</b> 007-095-111912	<b>Matrix</b> Water	<b>Collect Date/Time</b> 11/19/2012 19:45	<b>Receive Date/Time</b> 11/20/2012 09:30
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**RSK 175**

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b> 1	<b>Analyzed</b> 11/20/2012 10:41	<b>By</b> JAR	<b>Analytical Batch</b> 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-97-8	Butane	35.6	5.50		ug/L
74-85-1	Ethene	<1.00	1.00		ug/L

CAS#	Surrogate	Conc. Spiked	Conc. Rec	Units	% Recovery	Rec Limits
115-07-1	Propene	40.5	20.2	ug/L	50	40 - 143

**RSK 175**

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b> 10	<b>Analyzed</b> 11/20/2012 11:15	<b>By</b> JAR	<b>Analytical Batch</b> 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-98-6	Propane	634	100		ug/L

**RSK 175**

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b> 600	<b>Analyzed</b> 11/20/2012 11:37	<b>By</b> JAR	<b>Analytical Batch</b> 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-84-0	Ethane	1620	600		ug/L
74-82-8	Methane	29000	3000		ug/L

**SM 4500S H Hydrogen Sulfide**

<b>Prep Date</b>	<b>Prep Batch</b>	<b>Prep Method</b>	<b>Dilution</b> 1	<b>Analyzed</b> 11/20/2012 16:00	<b>By</b> CALC	<b>Analytical Batch</b> 495014
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
7783-06-4	Hydrogen Sulfide, Unionized	<2.00	2.00		mg S/L
C-011	Specific Conductance	8120	10		umhos/cm
18496-25-8	Sulfide	<2.00	2.00		mg/L
Temp	Temperature	20.0			Deg C
pH	pH	7.41	1.00		pH unit

# General Chromatography Quality Control Summary

<b>Analytical Batch</b> 494958 <b>Prep Batch</b> N/A	<b>Client ID</b> MB494958 <b>GCAL ID</b> 1130121 <b>Sample Type</b> Method Blank <b>Analytical Date</b> 11/19/2012 15:28 <b>Matrix</b> Water	LCS494958 1130122 LCS 11/19/2012 15:38 Water	LCSD494958 1130123 LCSD 11/19/2012 15:50 Water								
<b>RSK 175</b>		<b>Units</b> <b>Result</b>	<b>ug/L</b> <b>RDL</b>	<b>Spike</b> <b>Added</b>	<b>Result</b>	<b>% R</b>	<b>Control</b> <b>Limits % R</b>	<b>Result</b>	<b>% R</b>	<b>RPD</b>	<b>RPD</b> <b>Limit</b>
74-82-8	Methane	<5.00	5.00	17.5	14.6	83	39 - 120	14.8	85	1	27
74-85-1	Ethene	<1.00	1.00	3.06	2.68	88	45 - 134	2.71	89	1	25
74-84-0	Ethane	<1.00	1.00	3.28	2.79	85	45 - 128	2.84	87	2	29
74-98-6	Propane	<10.0	10.0	50.7	35.4	70	30 - 170	35.5	70	0.3	40
106-97-8	Butane	<5.50	5.50	81.2	58.0	71	30 - 170	58.3	72	0.5	40
<b>Surrogate</b>											
115-07-1	Propene	28.4	70	40.5	24.3	60	40 - 143	24.4	60		

<b>Analytical Batch</b> 494958 <b>Prep Batch</b> N/A	<b>Client ID</b> 007-089-111312 <b>GCAL ID</b> 21211140309 <b>Sample Type</b> SAMPLE <b>Analytical Date</b> 11/19/2012 21:21 <b>Matrix</b> Water	007-089-111312-MS 21211140310 MS 11/19/2012 21:29 Water	007-089-111312-MSD 21211140311 MSD 11/19/2012 21:46 Water								
<b>RSK 175</b>		<b>Units</b> <b>Result</b>	<b>ug/L</b> <b>RDL</b>	<b>Spike</b> <b>Added</b>	<b>Result</b>	<b>% R</b>	<b>Control</b> <b>Limits % R</b>	<b>Result</b>	<b>% R</b>	<b>RPD</b>	<b>RPD</b> <b>Limit</b>
74-85-1	Ethene	0.00	1.00	3.06	2.53	83	45 - 134	2.37	77	7	25
74-98-6	Propane	42.7	10.0	50.7	73.4	61	30 - 170	73.4	61	0	40
106-97-8	Butane	8.64	5.50	81.2	68.2	73	30 - 170	60.7	64	12	40
<b>Surrogate</b>											
115-07-1	Propene			40.5	24.6	61	40 - 143	23	57		

<b>Analytical Batch</b> 494958 <b>Prep Batch</b> N/A	<b>Client ID</b> 007-089-111312 <b>GCAL ID</b> 21211140309 <b>Sample Type</b> SAMPLE <b>Analytical Date</b> 11/19/2012 22:03 <b>Matrix</b> Water	007-089-111312-MS 21211140310 MS 11/19/2012 22:11 Water	007-089-111312-MSD 21211140311 MSD 11/19/2012 22:20 Water								
<b>RSK 175</b>		<b>Units</b> <b>Result</b>	<b>ug/L</b> <b>RDL</b>	<b>Spike</b> <b>Added</b>	<b>Result</b>	<b>% R</b>	<b>Control</b> <b>Limits % R</b>	<b>Result</b>	<b>% R</b>	<b>RPD</b>	<b>RPD</b> <b>Limit</b>
74-84-0	Ethane	441	300	3.28	474	1010*	45 - 128	456	457*	4	29

# General Chromatography Quality Control Summary

<b>Analytical Batch</b> 494958 <b>Prep Batch</b> N/A		<b>Client ID</b> 007-089-111312 <b>GCAL ID</b> 21211140309 <b>Sample Type</b> SAMPLE <b>Analytical Date</b> 11/19/2012 22:37 <b>Matrix</b> Water			007-089-111312-MS 21211140310 MS 11/19/2012 22:52 Water			007-089-111312-MSD 21211140311 MSD 11/19/2012 23:07 Water			
<b>RSK 175</b>		<b>Units</b> <b>Result</b>	ug/L <b>RDL</b>	<b>Spike</b> <b>Added</b>	<b>Result</b>	<b>% R</b>	<b>Control</b> <b>Limits % R</b>	<b>Result</b>	<b>% R</b>	<b>RPD</b>	<b>RPD</b> <b>Limit</b>
		17100	3000	17.5	12900	-20000*	39 - 120	15500	-9000*	18	27



# General Chemistry Quality Control Summary

<b>Analytical Batch</b> 495014 <b>Prep Batch</b> N/A	<b>Client ID</b> 007-095-111912 <b>GCAL ID</b> 21211193001 <b>Sample Type</b> SAMPLE <b>Analytical Date</b> 11/20/2012 09:10 <b>Matrix</b> Water	1130263DUP 1130375 DUP 11/20/2012 09:10 Water			
<b>SM 4500S H Hydrogen Sulfide</b>	<b>Units</b> <b>Result</b>	<b>pH unit</b> <b>RDL</b>	<b>Result</b>	<b>RPD</b>	<b>RPD Limit</b>
pH	7.46	1.00	7.48	0.3	6
18496-25-8 Sulfide	0.000	2.00	0.000	0	25
C-011 Specific Conductance	8020	10	8050	0.4	25
Temp Temperature	24.0		24.0	0.00	
7783-06-4 Hydrogen Sulfide, Unionized	0.000	2.00	0.000	0	25



7979 GSRI Avenue  
 Baton Rouge, LA  
 70820-7402

(225) 769-4900 • Fax (225) 767-5717

### CHAIN OF CUSTODY RECORD

Lab use only

Shaw | 0270 | 21212007 | 11/23/12  
 Client Name | Client # | Group # | Due Date

<b>Report to:</b> Client: <u>Shaw E+I</u> Address: <u>4171 Essen Ln.</u> <u>B.R., LA.</u> Contact: <u>Lisa Pultz/Hugh Adams</u> Phone: <u>225-987-7335</u> Fax: _____	<b>Bill to:</b> Client: _____ Address: <u>Same</u> Contact: _____ Phone: _____ Fax: _____	<b>Analytical Requests &amp; Method</b>  Dissolved Gas by RSK-175 Hydrogen Sulfide in Water	<b>Lab use only:</b> Custody Seal used <input type="checkbox"/> yes <input checked="" type="checkbox"/> no in tact <input type="checkbox"/> yes <input type="checkbox"/> no Temperature °C <u>4.1</u>
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P.O. Number \_\_\_\_\_ Project Name/Number LDNR-Bayan Come (Texas Brine - Indust. water well #3 Sampling)

Sampled By: Ferrell Brunet

Matrix <sup>1</sup>	Date	Time (2400)	C	O	D	G	R	A	B	Sample Description	Preservatives	No Con-tainers	Remarks:	Lab ID	
<u>water</u>	<u>11/19/12</u>	<u>1945</u>								<u>clean water 007-095-111912</u>	<u>—</u>	<u>4</u>	<u>X</u>	<u>X</u>	<u>/</u>

Turn Around Time:  24-48 hrs.  3 days  1 week  Standard  Other \_\_\_\_\_

Relinquished by: (Signature) <u>Ferrell Brunet</u>	Received by: (Signature) _____	Date: <u>11/19/12</u>	Time: <u>2115</u>	Note:  By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date: <u>11/21/12</u>	Time: <u>0905</u>	
Relinquished by: (Signature) _____	Received by: (Signature) _____	Date: <u>11/20/12</u>	Time: <u>930</u>	

Matrix<sup>1</sup>: W = water, S = soil, SD = solid, L = liquid, SL = sludge, o = oil, CT = charcoal tube, A = air bag

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT



### SAMPLE RECEIVING CHECKLIST

<b>SAMPLE DELIVERY GROUP 212112007</b>		<b>CHECKLIST</b>	
<b>Client</b> 0270 - Shaw Environmental	<b>Transport Method</b> CUST	Were all samples received using proper thermal preservation? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
<b>Profile</b> 235534 - LDNR Bayou Corne 147497	<b>Received By</b> Saucier, Charlotte	When used, were all custody seals intact? <span style="float:right"><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</span>	
<b>Line Item(s)</b> 1 - Rush TAT Waters	<b>Receive Date(s)</b> 11/20/12	Were all samples received in proper containers? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Were all samples received using proper chemical preservation? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Was preservative added to any container at the lab? <span style="float:right"><input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Were all containers received in good condition? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Were all VOA vials received with no head space? <span style="float:right"><input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA</span>	
		Do all sample labels match the Chain of Custody? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Did the Chain of Custody list the sampling technician? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
		Was the COC maintained i.e. all signatures, dates and time of receipt included? <span style="float:right"><input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA</span>	
<b>COOLERS</b>		<b>DISCREPANCIES</b>	
<b>Airbill</b>	<b>Temp(oC)</b>	None	
	4.1		
<b>LABORATORY PRESERVATIONS</b>		None	
<b>NOTES</b>			