

ANALYTICAL RESULTS

PERFORMED BY

GULF COAST ANALYTICAL LABORATORIES, INC.

7979 GSRI Avenue
Baton Rouge, LA 70820

Report Date 12/02/2012

GCAL Report 212111930



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:** 212111930

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 21211193001 (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

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

Reporting Flags Utilized in this Report

J	Indicates the result is between the MDL and RDL
U	Indicates the compound was analyzed for but not detected
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.

Robyn Miguez
Technical Director
GCAL REPORT 212111930

Report Sample Summary

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21211193001	007-095-111912	Water	11/19/2012 07:45	11/19/2012 15:10

Summary of Compounds Detected

GCAL ID	Client ID	Matrix	Collect Date/Time	Receive Date/Time
21211193001	007-095-111912	Water	11/19/2012 07:45	11/19/2012 15:10

RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
106-97-8	Butane	41.1	5.50		ug/L

SM 4500S H Hydrogen Sulfide

CAS#	Parameter	Result	RDL	REG LIMIT	Units
C-011	Specific Conductance	8020	10		umhos/cm
Temp	Temperature	24.0			Deg C
pH	pH	7.46	1.00		pH unit

RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-84-0	Ethane	1670	600		ug/L
74-82-8	Methane	27100	3000		ug/L

RSK 175

CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-98-6	Propane	755	500		ug/L

GCAL ID 21211193001	Client ID 007-095-111912	Matrix Water	Collect Date/Time 11/19/2012 07:45	Receive Date/Time 11/19/2012 15:10
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RSK 175

Prep Date	Prep Batch	Prep Method	Dilution 1	Analyzed 11/19/2012 23:45	By JAR	Analytical Batch 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units	
106-97-8	Butane	41.1	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	19	ug/L	47	40 - 143

RSK 175

Prep Date	Prep Batch	Prep Method	Dilution 50	Analyzed 11/19/2012 23:53	By JAR	Analytical Batch 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-98-6	Propane	755	500		ug/L

RSK 175

Prep Date	Prep Batch	Prep Method	Dilution 600	Analyzed 11/20/2012 00:02	By JAR	Analytical Batch 494958
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CAS#	Parameter	Result	RDL	REG LIMIT	Units
74-84-0	Ethane	1670	600		ug/L
74-82-8	Methane	27100	3000		ug/L

SM 4500S H Hydrogen Sulfide

Prep Date	Prep Batch	Prep Method	Dilution 1	Analyzed 11/20/2012 09:10	By CALC	Analytical Batch 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	8020	10		umhos/cm
18496-25-8	Sulfide	<2.00	2.00		mg/L
Temp	Temperature	24.0			Deg C
pH	pH	7.46	1.00		pH unit

General Chromatography Quality Control Summary

Analytical Batch 494958 Prep Batch N/A	Client ID MB494958 GCAL ID 1130121 Sample Type Method Blank Analytical Date 11/19/2012 15:28 Matrix Water	LCS494958 1130122 LCS 11/19/2012 15:38 Water	LCSD494958 1130123 LCSD 11/19/2012 15:50 Water								
RSK 175		Units Result	ug/L RDL	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
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
Surrogate											
115-07-1	Propene	28.4	70	40.5	24.3	60	40 - 143	24.4	60		

Analytical Batch 494958 Prep Batch N/A	Client ID 007-089-111312 GCAL ID 21211140309 Sample Type SAMPLE Analytical Date 11/19/2012 21:21 Matrix 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								
RSK 175		Units Result	ug/L RDL	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
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
Surrogate											
115-07-1	Propene			40.5	24.6	61	40 - 143	23	57		

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

General Chromatography Quality Control Summary

Analytical Batch 494958 Prep Batch N/A		Client ID 007-089-111312 GCAL ID 21211140309 Sample Type SAMPLE Analytical Date 11/19/2012 22:37 Matrix 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			
RSK 175		Units	ug/L	Spike Added	Result	% R	Control Limits % R	Result	% R	RPD	RPD Limit
		Result	RDL								
74-82-8	Methane	17100	3000	17.5	12900	-20000*	39 - 120	15500	-9000*	18	27

General Chemistry Quality Control Summary

Analytical Batch 495014 Prep Batch N/A	Client ID 007-095-111912 GCAL ID 21211193001 Sample Type SAMPLE Analytical Date 11/20/2012 09:10 Matrix Water	1130263DUP 1130375 DUP 11/20/2012 09:10 Water			
SM 4500S H Hydrogen Sulfide	Units Result	pH unit RDL	Result	RPD	RPD Limit
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, Louisiana 70820-7402
Phone 225.769.4900 • Fax 225.767.5717

Lab use only

Shaw Env

Client Name

0270

Client #

21211930

Workorder #

11/21/12

Due Date

Report to:

Client: Shaw E&I
Address: 4121 Essen Ln
Baton Rouge, LA
Contact: Lisa Pultz / Hugh Adams
Phone: _____
Fax: _____

Bill to:

Client: Shaw E&I
Address: _____
Contact: Same
Phone: _____
Fax: _____

Analytical Requests & Method

Hydrogen Sulfide in water
Diss. Gas by RSK-175

Lab use only:

Custody Seal
used yes no
intact yes no
Temperature °C 13.6
on ice

P.O. Number _____ Project Name/Number LDNR-Bayou Corne (Texas Brine Indust. water well sampling)

Sampled By: Ferrell Bruner

Matrix ¹	Date	Time (2400)	Comp	Grab	Sample Description	Preservatives	No Containers	Remarks:	Lab ID
V	11/19/12	0745		X	007-095-111912	—	4		1

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

Relinquished by: (Signature) <u>Ferrell Bruner</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>11/19/12</u>	Time: <u>11:55</u>
Relinquished by: (Signature) <u>[Signature]</u>	Received by: (Signature) <u>[Signature]</u>	Date: <u>11.19.12</u>	Time: <u>15:10</u>
Relinquished by: (Signature)	Received by: (Signature)	Date:	Time:

Note:
By submitting these samples, you agree to the terms and conditions contained in our most recent schedule of services.

Matrix¹: W = water, S = soil, SD = solid, L = liquid, SL = sludge, o = oil, CT = charcoal tube, A = air bag

We cannot accept verbal changes. Please fax written changes to (225) 767-5717

WHITE: CLIENT FINAL REPORT — CANARY: LABORATORY — PINK: CLIENT
G CAL 06 11/98



SAMPLE RECEIVING CHECKLIST

SAMPLE DELIVERY GROUP 212111930		CHECKLIST	
Client 0270 - Shaw Environmental	Transport Method CUST	Were all samples received using proper thermal preservation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
Profile 235534 - LDNR Bayou Corne 147497	Received By Saucier, Charlotte	When used, were all custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
Line Item(s) 1 - Rush TAT Waters	Receive Date(s) 11/19/12	Were all samples received in proper containers? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
		Were all samples received using proper chemical preservation? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
		Was preservative added to any container at the lab? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	
		Were all containers received in good condition? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
		Were all VOA vials received with no head space? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	
		Do all sample labels match the Chain of Custody? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
		Did the Chain of Custody list the sampling technician? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
		Was the COC maintained i.e. all signatures, dates and time of receipt included? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	
COOLERS		DISCREPANCIES	LABORATORY PRESERVATIONS
Airbill	Temp(oC)	None	None
	13.6		
NOTES	SAMPLES COLLECTED AND RECEIVED AT LAB SAME DAY ON ICE		