



DEEP GULF ENERGY II, LLC  
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Suite 350  
Houston, Texas 77079  
Phone: 281.596.0933  
Facsimile: 281.596.0939

August 21, 2015

FedEx Tracking No. 803457848589

Mr. Isaac Chen  
U.S. Environmental Protection Agency, Region 6  
Regional Oil & Gas Coordinator  
1445 Ross Avenue – Mail Code-6WQ-PP  
Dallas, Texas 75202-2733

Subject: GMG290000 Permit –Water Based Drilling Mud Characterization Study  
Deep Gulf Energy II, LLC – GMG290356

Dear Mr. Chen:

Per the permit requirements in Part I.B.1.d – Water Based Drilling Mud Characterization Study Deep Gulf Energy II, LLC (DGE II) has conducted an individual study and has collected one sample from each lease block for which they are the designated operator and conducted drilling operations within the 3-year study time frame - one at Mississippi Canyon 215 Well #001 and one at Mississippi Canyon 727 Well #SS002.

The water based mud (WBM) samples were analyzed for the required metals, including:

Dissolved arsenic, dissolved cadmium, dissolved chromium (VI), dissolved copper, cyanide, dissolved lead, dissolved mercury, dissolved nickel, dissolved selenium, dissolved silver, and dissolved zinc

As noted on the summary of analytical data, the WBM sample results for MC215 are provided as dissolved metals, but the sample results at MC727 are provided as total metals, not dissolved as requested in Part 1.B.1.d, for the reasons described below.

As discussed in detail in Appendix D of the Sampling and Analysis Plan for the Mud and Produced Water Characterization Study (MPWCS) prepared for the Offshore Operator Committee (OOC) Joint Study Group, numerous group locations had issues with WBM samples not yielding enough water for dissolved phase metals analyses. Attempts to dilute the drilling mud and then extract water raised concerns about the interpretation of the results. The use of alternate methods for separating more water from the water based mud was studied and rejected. Per an agreement at a February 15, 2014 meeting between OOC representatives and EPA Region 6, the Sampling and Analysis Plan was revised (March 24, 2014) to allow samples that do not yield adequate water to perform analysis of dissolved metals and cyanide to instead analyze for total metals, hexavalent chromium, and cyanide. Samples that do yield enough water will also be analyzed for dissolved constituents, in order of priority: (1) metals; (2) hexavalent chromium; (3) cyanide.

The sample collected at MC727 did not yield enough water to conduct dissolved phase metals analyses. As an individual study participant, DGE II is following the same protocol approved for the joint study operators and is reporting total metals, hexavalent chromium and cyanide for that location. Please note that the Chain-of-Custody form indicated the sample location as MC771. MC771 is the lease block at the well's bottom hole location and MC727 is the lease block at the drilling rig's surface location which is what is used for NPDES permit reporting.

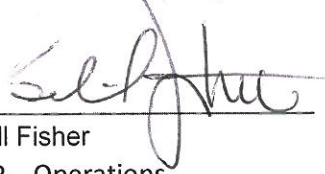
Also, the data for the two blocks in Mississippi Canyon are not compared for minimum, maximum and average concentrations, because one sample was reported as dissolved concentrations while the other was total metals. The results between these two methods are widely different and the unit of measure is different.

A summary of the analytical results are presented in the attached Excel table and summary page of the laboratory report. This report is being submitted via hard copy, as well as by email to chen.isaac@epa.gov. The emailed report also contains the Electronic Data Deliverable (EDD) from ALS Laboratory which is an

Should you have any questions, please call me or our consultant, Ms. Marsha Lutz, of J. Connor Consulting, Inc. at 281-698-8557.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**DEEP GULF ENERGY III, LLC**

A handwritten signature in black ink, appearing to read "Bill Fisher", written over a horizontal line.

Bill Fisher

VP – Operations

Attachment

**REF: DT5519/04952**

**Water Based Mud Characterization Study - Sampling Results**

**Deep Gulf Energy II, LLC - GMG290356**

Lease Block/Area	Lease No.	Sampling Date	
Mississippi Canyon 215	OCS-G: 24060	11/11/2014	
Parameter *All metals analyzed for <b>dissolved phase</b> concentrations.	Conc. mg/L	MDL mg/L	RL mg/L
Arsenic	< 0.250	0.250	1.25
Cadmium	< 0.200	0.200	0.500
Chromium, VI	< 0.040	0.0400	0.100
Copper	< 0.250	0.250	1.25
Cyanide	<b>0.200</b>	<b>0.200</b>	<b>0.200</b>
Lead	<b>1.50</b>	<b>0.175</b>	<b>1.25</b>
Mercury	<b>0.00472</b>	<b>0.000168</b>	<b>0.00080</b>
Nickel	< 0.250	0.250	<b>1.25</b>
Selenium	< 0.250	0.250	<b>1.25</b>
Silver	< 0.200	0.200	<b>1.25</b>
Zinc	< 0.625	0.625	<b>1.25</b>

Lease Block/Area	Lease No.	Sampling Date	
Mississippi Canyon 727	OCS-G: 24102	11/22/2014	
Parameter *All metals analyzed for total concentrations in the <b>solid phase</b> .	Conc. mg/kg	MDL mg/kg	RL mg/kg
Arsenic	<b>8.90</b>	<b>0.101</b>	<b>0.507</b>
Cadmium	<b>0.236 J</b>	<b>0.0507</b>	<b>0.507</b>
Chromium, VI	< 0.699	0.699	2.000
Copper	<b>21.1000</b>	<b>0.101</b>	<b>0.507</b>
Cyanide	< 0.568	0.568	1.890
Lead	<b>39.0</b>	<b>0.0507</b>	<b>0.507</b>
Mercury - * Units are ug/kg	<b>110</b>	<b>0.477</b>	<b>3.380</b>
Nickel	<b>2.56</b>	<b>0.0913</b>	<b>0.507</b>
Selenium	<b>0.5560</b>	<b>0.183</b>	<b>0.507</b>
Silver	<b>0.109 J</b>	<b>0.0812</b>	<b>0.507</b>
Zinc	<b>27.9</b>	<b>0.254</b>	<b>0.507</b>

The data for the two blocks in Mississippi Canyon are not compared for minimum, maximum and average concentrations, because one sample was reported as dissolved concentrations while the other was total metals. The results between these two methods are widely different and the unit of measure is different.

MDL - Minimum Detection Limit

RL/MRL - Method Reporting Limit. Also known as LOQ Limit of Quantitation (LOQ)

Values between the MDL and MRL are estimated (see J qualifier).

J - Analyte Detected Below Quantitation Limit

U - Analyzed but not detected above the MDL. Shown as < MDL value.

Client: Tetra Tech EM, Inc.  
 Project: Gulf of Mexico MPWCS  
 Sample ID: DGE-MC-215-OCSG24060 #1-Water  
 Collection Date: 11-Nov-2014 16:35

**ANALYTICAL REPORT**  
 WorkOrder:HS14110476  
 Lab ID:HS14110476-02  
 Matrix:Water

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>DISSOLVED METALS BY SW6020A</b>		<b>Method:SW6020</b>		Prep.SW3010A / 03-Dec-2014		Analyst: RPM	
Arsenic	U		0.250	1.25	mg/L	50	04-Dec-2014 20:08
Cadmium	U		0.200	0.500	mg/L	50	04-Dec-2014 20:08
Copper	U		0.250	1.25	mg/L	50	04-Dec-2014 20:08
Lead	1.50		0.175	1.25	mg/L	50	04-Dec-2014 20:08
Nickel	U		0.250	1.25	mg/L	50	04-Dec-2014 20:08
Selenium	U		0.250	1.25	mg/L	50	04-Dec-2014 20:08
Silver	U		0.200	1.25	mg/L	50	04-Dec-2014 20:08
Zinc	U		0.625	1.25	mg/L	50	04-Dec-2014 20:08
<b>HEXAVALENT CHROMIUM, DISSOLVED BY SW7196A</b>		<b>Method:SW7196</b>				Analyst: KHT	
Chromium, Hexavalent	U		0.0400	0.100	mg/L	10	22-Nov-2014 14:46
<b>CYANIDE - SW9014</b>		<b>Method:SW9014</b>		Prep.SW9010C / 25-Nov-2014		Analyst: KHT	
Cyanide, Dissolved	0.200		0.200	0.200	mg/L	1	25-Nov-2014 15:36
<b>DISSOLVED MERCURY BY SW7470A</b>		<b>Method:SW7470</b>		Prep.SW7470 / 08-Dec-2014		Analyst: OFO	
Mercury	0.00472		0.000168	0.000800	mg/L	1	08-Dec-2014 15:54

Note: See Qualifiers Page for a list of qualifiers and their explanation.





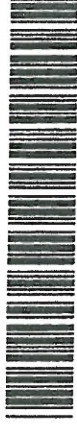
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Houston, Texas 77099  
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(Fax) 281.530.5887

# Chain of Custody Form

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HS14110476

Tetra Tech, Inc.  
Gulf of Mexico MPWCS



Customer Information		ALS Project Manager: Kristin Brown																	
Project Information		Parameter/Method Request for Analysis																	
Purchase Order	1097177	Project Name	Gulf of Mexico MPWCS																
Work Order		Project Number	212C-HN-00030																
Company Name	Tetra Tech-GA	Bill To Company	Tetra Tech-GA																
Send Report To	June Mire	Invoice Attn.	June Mire																
Address	1408 Pasadena Avenue	Address	1408 Pasadena Avenue																
City/State/Zip	Metairie, LA 70001	City/State/Zip	Metairie, LA 70001																
Phone	504-273-9186	Phone	504-273-9186																
Fax		Fax																	
e-Mail Address	june.mire@tetratech.com	e-Mail Address	june.mire@tetratech.com																
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold		
1	DGE-MC-215-DCSG-24060 #1	11/11/14	1635	WGM		2	Y	X	Y										
2																			
3																			
4																			
5																			
6																			
7																			
8																			
9																			
10																			
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:													
Mitchell Walfarth		6-NaHSO4		STD 10 Wk Days		24 Hour													
Relinquished by:		Received by:		Notes:															
Michelle Walfarth		Michelle Walfarth																	
Date: 11/11/14		Date: 11/11/14																	
Time: 1650		Time: 1650																	
Lodged by (Laboratory):		Received by (Laboratory):		Checked by (Laboratory):		Cooler Temp:													
Michelle Walfarth		Michelle Walfarth		Michelle Walfarth		20													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035		QC Package: (Check Box Below)		Level II: Standard QC		Level III: Std QC + Raw Data		Level IV: SW846 CLP-Like											
		X						Other:											

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group.

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**Client:** Tetra Tech, Inc.  
**Project:** Gulf of Mexico MPWCS 212-HN-00030  
**Work Order:** HS14110905

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**CASE NARRATIVE**

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**Work Order Comments**

- For sample DGE-MC-771-OCSSG241107 #2 (HS14110905-02) the lab was unable to centrifuge sufficient volume of water to perform dissolved analysis.

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**Metals by Method SW7471A**

**Batch ID: 88634**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**Metals by Method SW6020**

**Batch ID: 88438**

- Sample ID: **HS14120031-02**
- MS, MSD, PDS and SD are for an unrelated sample.

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**WetChemistry by Method SW9014**

**Batch ID: 88400**

- The test results meet requirements of the current NELAP standards, state requirements or programs where applicable.

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**WetChemistry by Method SW7196**

**Batch ID: 88399**

- Sample ID: **HS14110868-01**
- MS and MSD are for an unrelated sample.
- 



Client: Tetra Tech, Inc. **ANALYTICAL REPORT**  
 Project: Gulf of Mexico MPWCS 212-HN-00030 WorkOrder:HS14110905  
 Sample ID: DGE-MC-771-OCSG241107 #2 *MC727-Surface Lease Area* Lab ID:HS14110905-01  
 Collection Date: 22-Nov-2014 17:15 Matrix:Sludge

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
<b>METALS BY SW6020A</b>		Method:SW6020		Prep:SW3050A / 02-Dec-2014		Analyst: JDE	
Arsenic	8.90		0.101	0.507	mg/Kg	1	02-Dec-2014 19:44
Cadmium	0.236	J	0.0507	0.507	mg/Kg	1	02-Dec-2014 19:44
Copper	21.1		0.101	0.507	mg/Kg	1	02-Dec-2014 19:44
Lead	39.0		0.0507	0.507	mg/Kg	1	02-Dec-2014 19:44
Nickel	2.56		0.0913	0.507	mg/Kg	1	02-Dec-2014 19:44
Selenium	0.556		0.183	0.507	mg/Kg	1	02-Dec-2014 19:44
Silver	0.109	J	0.0812	0.507	mg/Kg	1	02-Dec-2014 19:44
Zinc	27.9		0.254	0.507	mg/Kg	1	02-Dec-2014 19:44
<b>HEXAVALENT CHROMIUM BY SW7196A</b>		Method:SW7196		Prep:SW3060A / 29-Nov-2014		Analyst: KHT	
Chromium, Hexavalent	U		0.699	2.00	mg/kg	1	29-Nov-2014 14:50
<b>CYANIDE</b>		Method:SW9014		Prep:SW9010C / 29-Nov-2014		Analyst: KHT	
Cyanide	U		0.568	1.89	mg/Kg	1	29-Nov-2014 15:43
<b>MERCURY BY SW7471B</b>		Method:SW7471A		Prep:SW7471A / 08-Dec-2014		Analyst: OFO	
Mercury	110		0.477	3.38	ug/Kg	1	08-Dec-2014 15:44

Note: See Qualifiers Page for a list of qualifiers and their explanation.







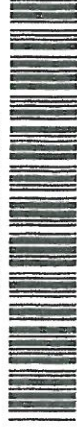
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(Fax) 281.530.5887

### Chain of Custody Form

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HS14110905

Tetra Tech EM, Inc.  
Gulf of Mexico MPWCS



Customer Information		ALS Project Manager: Kristin Brown																
Project Information																		
Purchase Order	1097177	Project Name	Gulf of Mexico MPWCS															
Work Order		Project Number	212C-HN-00030															
Company Name	Tetra Tech-GA	Bill To Company	Tetra Tech-GA															
Send Report To	June Mire	Invoice Attn.	June Mire															
Address	1408 Pasadena Avenue	Address	1408 Pasadena Avenue															
City/State/Zip	Metairie, LA 70001	City/State/Zip	Metairie, LA 70001															
Phone	504-273-9186	Phone	504-273-9186															
Fax		Fax																
e-Mail Address	june.mire@tetratech.com	e-Mail Address	june.mire@tetratech.com															
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	DGE-MC-771-DCSG-241107#3	11/22/2014	17:15	WBM		2	X	X	X									
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Sampler(s): Please Print & Sign		Ship Method:		Required Turnaround Time:		Results Due Date:												
Alex Landrean		Alex Landrean		<input checked="" type="checkbox"/> STD 10 Wk Days <input type="checkbox"/> 5 Wk Days <input type="checkbox"/> 2 Wk Days <input type="checkbox"/> 24 Hour		<input type="checkbox"/> Other												
Requisitioned by:		Received by:		Notes:		Cooler Temp:												
Alex Landrean		11/22/2014 17:15		11/22/2014 17:15		03°												
Requisitioned by:		Time:		Time:		Time:												
Alex Landrean		11-25-14		10:10														
Logged by (Laboratory):		Date:		Date:		Date:												
Alex Landrean		11-25-14		10:10														
Preservative Key:		1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035		QC Package: (Check Box Below)														
						Level II: Standard QC												
						Level III: Std QC + Raw Data												
						Level IV: SW846 CLP-Like												
						Other:												

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