

Marubeni
Oil & Gas (USA) Inc.

777 North Eldridge Parkway, Suite 900
Houston, Texas 77079
Tel.(832) 379 1100

August 21, 2015

FedEx Tracking No. 803457848773

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
Marubeni Oil & Gas (USA) Inc. – GMG290361

Dear Mr. Chen

Per the permit requirements in Part I.B.1.d – Water Based Drilling Mud Characterization Study, Marubeni Oil & Gas (USA) Inc. (Marubeni) 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 Green Canyon 113 Well #A002 and one at Green Canyon 155 Well #MA002.

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

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 Excel table that is not easy to follow in a printed, hard copy format. The Excel table attached herein provides a more readable summary of the EDD. The complete analytical report from the laboratory can be provided upon request.

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.

MARUBENI OIL & GAS (USA) INC.



David Barton
VP Operations & HSE
Attachment
REF: DT5665/13690

Water Based Mud Characterization Study - Sampling Results

Marubeni Oil & Gas - GMG290361

Lease Block/Area	Lease No.	Sampling Date	
Green Canyon 113	OCS-G: 15546	1/19/2014	
Parameter	Conc. mg/L	MDL mg/L	RL mg/L
*All metals analyzed for dissolved phase			
Arsenic	0.0182 J	0.010	0.0500
Cadmium	< 0.0080	0.0080	0.0200
Chromium, VI	0.00400 J	0.0040	0.0100
Copper	0.0259 J	0.010	0.0500
Cyanide	< 0.020	0.020	0.0200
Lead	0.0302 J	0.0070	0.0500
Mercury	0.000084 J	0.000042	0.000200
Nickel	< 0.010	0.010	0.0500
Selenium	0.0127 J	0.010	0.0500
Silver	< 0.0080	0.0080	0.0500
Zinc	0.0389 J	0.025	0.0500

Lease Block/Area	Lease No.	Sampling Date	
Green Canyon 155	OCS-G: 16698	8/7/2014	
Parameter	Conc. mg/L	MDL mg/L	RL mg/L
*All metals analyzed for			
Arsenic	0.00314 J	0.00200	0.0100
Cadmium	0.00730	0.00160	0.00400
Chromium, VI	< 0.0040	0.00400	0.0100
Copper	0.0336	0.00200	0.0100
Cyanide	< 0.020	0.0200	0.0200
Lead	0.0115	0.00140	0.0100
Mercury	0.0000760 J	0.0000420	0.000200
Nickel	0.0410	0.00200	0.0100
Selenium	0.0118	0.00200	0.0100
Silver	< 0.00160	0.00160	0.0100
Zinc	0.153	0.00500	0.0100

Lease Block/Area

Green Canyon 113 & 155

Parameter	Min. Conc. mg/L	Max. Conc. mg/L	Avg. Conc. mg/L
*All metals analyzed for dissolved phase concentrations.			
Arsenic	0.00314	0.01820	0.0107
Cadmium	0.00730	0.00800	0.0077
Chromium, VI	< 0.0040	0.0040	0.0040
Copper	0.0259	0.0336	0.0298
Cyanide	< 0.020	< 0.020	< 0.020
Lead	0.0115	0.0302	0.0209
Mercury	0.000076	0.0000840	0.0001
Nickel	0.010	0.0410	0.0255
Selenium	0.0118	0.01270	0.0123
Silver	< 0.00160	< 0.0080	0.0048
Zinc	0.0389	0.153	0.0960

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.

ALS Environmental

Date: 07-Feb-14

Client: Tetra Tech, Inc.
 Project: Gulf of Mexico MPWCS 112C05360
 Sample ID: Marubeni Oil & Gas-1 **GC113**
 Collection Date: 1/19/2014 02:00 PM

Work Order: 1401773
 Lab ID: 1401773-01
 Matrix: SLUDGE

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
DISSOLVED MERCURY BY 7470A							
			Method: SW7470		Prep: SW7470 / 1/27/14		Analyst: OFO
Mercury	0.0000840	J	0.000042	0.000200	mg/L	1	1/27/2014 17:06
MERCURY - SW7471B							
			Method: SW7471A		Prep: SW7471A / 2/3/14		Analyst: OFO
Mercury	0.117		0.00048	0.00336	mg/Kg	1	2/3/2014 15:42
DISSOLVED METALS							
			Method: SW6020		Prep: SW3010A / 1/29/14		Analyst: SKS
Arsenic	0.0182	J	0.010	0.0500	mg/L	10	1/29/2014 16:49
Cadmium		U	0.0080	0.0200	mg/L	10	1/29/2014 16:49
Copper	0.0259	J	0.010	0.0500	mg/L	10	1/29/2014 16:49
Lead	0.0302	J	0.0070	0.0500	mg/L	10	1/29/2014 16:49
Nickel		U	0.010	0.0500	mg/L	10	1/29/2014 16:49
Selenium	0.0127	J	0.010	0.0500	mg/L	10	1/29/2014 16:49
Silver		U	0.0080	0.0500	mg/L	10	1/29/2014 16:49
Zinc	0.0389	J	0.025	0.0500	mg/L	10	1/29/2014 16:49
METALS							
			Method: SW6020		Prep: SW3050A / 2/4/14		Analyst: SKS
Arsenic	27.8		0.0997	0.498	mg/Kg	1	2/4/2014 14:40
Cadmium	0.298	J	0.0498	0.498	mg/Kg	1	2/4/2014 14:40
Copper	49.4		0.0997	0.498	mg/Kg	1	2/4/2014 14:40
Lead	156		0.0498	0.498	mg/Kg	1	2/4/2014 14:40
Nickel	3.68		0.0897	0.498	mg/Kg	1	2/4/2014 14:40
Selenium	0.284	J	0.179	0.498	mg/Kg	1	2/4/2014 14:40
Silver	0.268	J	0.0798	0.498	mg/Kg	1	2/4/2014 14:40
Zinc	69.2		0.249	0.498	mg/Kg	1	2/4/2014 14:40
CYANIDE - SW9014							
			Method: SW9014				Analyst: KKB
Cyanide, Dissolved		U	0.020	0.0200	mg/L	1	1/27/2014 18:00
HEXAVALENT CHROMIUM, DISSOLVED							
			Method: SW7196				Analyst: KKB
Chromium, Hexavalent	0.00400	J	0.0040	0.0100	mg/L	1	1/28/2014 08:00

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



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Chain of Custody Form

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1401773

TTEMI-ATLANTA: Tetra Tech EM, Inc.
 Project: Gulf of Mexico MPWCS 112C05360



Customer Information		ALS Project Manager: Kristin Brown															
Project Information		Project Information															
Purchase Order	1097177	Project Name	Gulf of Mexico MPWCS														
Work Order		Project Number	112C05360														
Company Name	Tetra Tech-GA	Bill To Company	Tetra Tech-GA														
Send Report To	Jessica Vickers	Invoice Attn.	Jessica Vickers														
Address	1955 Evergreen Blvd. Bldg 200, Suite 300	Address	1955 Evergreen Blvd. Bldg 200, Suite 300														
City/State/Zip	Duluth, GA 30096	City/State/Zip	Duluth, GA 30096														
Phone	678-775-3104	Phone	678-775-3104														
Fax		Fax															
e-Mail Address	jessica.vickers@tetratech.com	e-Mail Address	jessica.vickers@tetratech.com														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold
1	Marubeni Dil + Gasol	1/19/14	1400	WBM		2	X	Y	X								
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:											
Kerry Chaison				<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													
Relinquished by:		Received by:		Notes:													
		Received by (Laboratory):		Cooler Temp.													
		Checked by (Laboratory):		QC Package: (Check Box Below)													
		1.20.14. 1740		Level II: Standard QC													
				Level III: Std QC + Raw Data													
				Level IV: SW846 CLP-Like		X											
				Other:													
Preservative Key: 1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																	

Note: Any changes must be made in writing once samples and COC Form have been submitted to ALS Laboratory Group. Copyright 2008 by ALS Laboratory Group

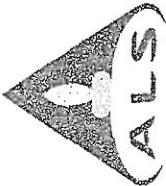
5220

Client: Tetra Tech, Inc.
 Project: Gulf of Mexico MPWCS 112C06367
 Sample ID: Marubeni GC 155 - WBM
 Collection Date: 07-Aug-2014 18:00

ANALYTICAL REPORT
 WorkOrder: HS14080352
 Lab ID: HS14080352-01
 Matrix: Sludge

ANALYSES	RESULT	QUAL	MDL	REPORT LIMIT	UNITS	DILUTION FACTOR	DATE ANALYZED
METALS BY SW6020A Method: SW6020 Prep: SW6020A / 21-Aug-2014 Analyst: JCJ							
Arsenic	13.3		0.0906	0.453	mg/Kg	1	21-Aug-2014 22:12
Cadmium	0.368	J	0.0453	0.453	mg/Kg	1	21-Aug-2014 22:12
Copper	38.8		0.0906	0.453	mg/Kg	1	21-Aug-2014 22:12
Lead	55.2		0.0453	0.453	mg/Kg	1	21-Aug-2014 22:12
Nickel	4.95		0.0816	0.453	mg/Kg	1	21-Aug-2014 22:12
Selenium	0.435	J	0.163	0.453	mg/Kg	1	21-Aug-2014 22:12
Silver	0.115	J	0.0725	0.453	mg/Kg	1	21-Aug-2014 22:12
Zinc	104		0.227	0.906	mg/Kg	1	21-Aug-2014 22:12
DISSOLVED METALS BY SW6020A Method: SW6020 Prep: SW6020A / 15-Aug-2014 Analyst: RPM							
Arsenic	0.00314	J	0.00200	0.0100	mg/L	2	19-Aug-2014 13:03
Cadmium	0.00730		0.00160	0.00400	mg/L	2	19-Aug-2014 13:03
Copper	0.0336		0.00200	0.0100	mg/L	2	19-Aug-2014 13:03
Lead	0.0115		0.00140	0.0100	mg/L	2	19-Aug-2014 13:03
Nickel	0.0410		0.00200	0.0100	mg/L	2	19-Aug-2014 13:03
Selenium	0.0118		0.00200	0.0100	mg/L	2	19-Aug-2014 13:03
Silver	U		0.00160	0.0100	mg/L	2	19-Aug-2014 13:03
Zinc	0.153		0.00500	0.0100	mg/L	2	19-Aug-2014 13:03
HEXAVALENT CHROMIUM, DISSOLVED BY SW7196A Method: SW7196 Analyst: KHT							
Chromium, Hexavalent	U		0.00400	0.0100	mg/L	1	12-Aug-2014 11:56
HEXAVALENT CHROMIUM BY SW7196A Method: SW7196 Prep: SW3060A / 14-Aug-2014 Analyst: KHT							
Chromium, Hexavalent	0.966	J	0.704	2.01	mg/kg	1	14-Aug-2014 14:46
CYANIDE Method: SW9014 Prep: SW9010C / 14-Aug-2014 Analyst: KHT							
Cyanide	U		0.602	2.01	mg/Kg	1	14-Aug-2014 16:25
CYANIDE - SW9014 Method: SW9014 Prep: SW9010C / 15-Aug-2014 Analyst: KHT							
Cyanide, Dissolved	U		0.0200	0.0200	mg/L	1	15-Aug-2014 15:55
MERCURY BY SW7471B Method: SW7471A Prep: SW7471A / 21-Aug-2014 Analyst: OFO							
Mercury	175		0.498	3.53	ug/Kg	1	21-Aug-2014 16:02
DISSOLVED MERCURY BY SW7470A Method: SW7470 Prep: SW7470 / 22-Aug-2014 Analyst: OFO							
Mercury	0.0000760	J	0.0000420	0.000200	mg/L	1	22-Aug-2014 15:01

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



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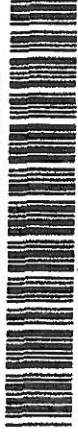
Chain of Custody Form

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HS14080352

Tetra Tech, Inc.

Gulf of Mexico MPWCS 112C06367



Customer Information				ALS Project Manager: Kristin Brown														
Project Information				Project Information														
Purchase Order	1097177-Mod 1	Project Name	Gulf of Mexico MPWCS	A	Dissolved Metals (60207000) As,Cd,Cu,Pb,Ni,Se,Ag,Zn,Hg													
Work Order	Marubent WBM	Project Number	112C06367	B	Dissolved Cyanide (9014)													
Company Name	Tetra Tech, Inc.	Bill To Company	Tetra Tech, Inc.	C	Dissolved Hexavalent Chromium (218.6)													
Send Report To	June Mire	Invoice Attn.	June Mire	D														
Address	1408 Pasadena Ave	Address	1408 Pasadena Ave	E														
City/State/Zip	Metairie, LA 70001	City/State/Zip	Metairie, LA 70001	F														
Phone	504-273-9186	Phone	504-273-9186	G														
Fax		Fax		H														
e-Mail Address	June.Mire@tetratech.com	e-Mail Address	June.Mire@tetratech.com	I														
No.	Sample Description	Date	Time	Matrix	Pres.	# Bottles	A	B	C	D	E	F	G	H	I	J	Hold	
1	Marubent GC 155 - WBM	8/7/14	1800	WBM		2	X	X	X									
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		
Sampler(s): Please Print & Sign		Shipment Method:		Required Turnaround Time:		Results Due Date:												
Kerry Chirson / Ky Chi				<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:	Date:	Received by:	Time:	Notes:														
Requisitioned by:	Date:	Received by (Laboratory):	Time:	Cooler Temp:														
		RPG	08/11/14															
Logged by (Laboratory):	Date:	Checked by (Laboratory):	Time:	QC Package: (Check Box Below)														
				<input type="checkbox"/> Level II: Standard QC <input type="checkbox"/> Level III: Std QC + Raw Data <input checked="" type="checkbox"/> Level IV: SW846 CLP-Like <input type="checkbox"/> Other:														
Preservative Key:	1-HCL 2-HNO3 3-H2SO4 4-NaOH 5-Na2S2O3 6-NaHSO4 7-Other 8-4 degrees C 9-5035																	

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