



June 10, 2014

Mr. Sam LaRue  
Senior HSE Representative  
Kerr-McGee Oil & Gas Onshore LP  
1099 18<sup>th</sup> Street, Suite 1800  
Denver, Colorado 80202

**Re: Sump Replacement Summary Letter Report  
UPRR 43 Pan Am O #1  
API: 05-123-09668  
Facility ID: 318673  
Legal: NWN Sec 13-T1N-R68W  
Remediation Project #8961**

Dear Mr. LaRue:

On behalf of Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), Tasman Geosciences, Inc. (Tasman) has prepared this Sump Replacement Summary Letter Report (Report) to document sampling activities and the results of environmental testing at the above-referenced site. This Report is being submitted under the Form 27 Management Plan for Closure of Produced Water Vessels, which has been assigned Remediation #8961 by the Colorado Oil and Gas Conservation Commission (COGCC). Tasman provided environmental services at the site that included collection of confirmation soil samples from the excavation and documentation of field activities.

### **Site Assessment Activities**

The field activities described herein were performed with the purpose of assessing potential hydrocarbon impacts at the site related to the removal and replacement of the produced water sump on June 25, 2014. Soil sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout and sample locations are provided in the attached site map (Attachment A).

The final extent of the excavation measured approximately 10 feet by 10 feet with an approximate depth of 3 feet below ground surface (bgs). No impacted material was removed from the site during replacement activities. No liner was present beneath the sump, and groundwater was not encountered in the excavation.

Confirmation soil samples were collected from the base and sidewalls of the excavation area at approximately 3 feet and 1.5 feet bgs, respectively. Soil samples were field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). The confirmation soil sample collected from the base of the excavation area was submitted to eAnalytics Laboratory in Loveland, Colorado for laboratory analysis of benzene, toluene,

ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by United States Environmental Protection Agency (USEPA) Method 8260B, and TPH - diesel range and oil range organics (DRO and ORO) by USEPA Method 8015. Soil analytical data is summarized in Table 1 and the laboratory analytical report is provided in Attachment B.

## **Results**

Soil analytical results for the sample collected from the base of the final extent of the excavation area indicated that BTEX and TPH concentrations were below the applicable COGCC Table 910-1 standards. The remaining four soil samples collected from the sidewalls of the excavation area were not submitted for laboratory analysis as analytical data confirmed the absence of petroleum hydrocarbon impacts above regulatory standards.

## **Conclusions**

Analytical results described herein confirm BTEX and TPH impacts are not present at concentrations above regulatory standards in the area of the former sump. Consequently, no further site assessment or remedial activity is recommended at this time. Following site assessment activities, the produced water sump was replaced and the excavation area was backfilled and contoured to match pre-existing site conditions. The production facility remains operational.

Please contact me at (720) 409-8791 if you have any questions regarding this report or require additional information.

Sincerely,

A handwritten signature in blue ink that reads "Christine Wasko".

Christine Wasko  
Project Scientist

## **Attachments:**

Table 1 – Soil Sample Results Summary Table  
Attachment A – Site Map  
Attachment B – Laboratory Analytical Report

**Table**

**TABLE 1**  
**UPRR 43 PAN AM O #1**  
**SOIL SAMPLE RESULTS SUMMARY TABLE**  
**KERR-McGEE OIL AND GAS ONSHORE LP**

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH - GRO (mg/kg)	TEPH - DRO + ORO (mg/kg)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>500</b>	
B01@3'	6/25/2014	3	<0.01	<0.01	<0.01	<0.01	<50	<50

**Notes:**

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

TVPH - GRO = Total volatile petroleum hydrocarbons - gasoline range organics

TEPH - DRO = Total extractable petroleum hydrocarbons - diesel range organics

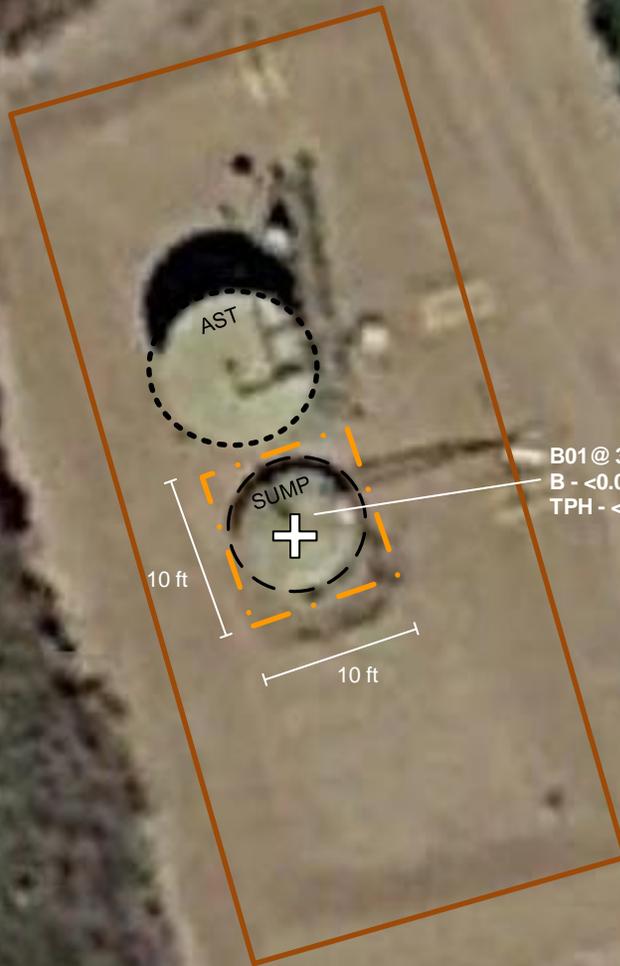
TEPH - ORO = Total extractable petroleum hydrocarbons - oil range organics

mg/kg = Milligrams per kilogram.

bgs = Below ground surface.

**BOLD**= Analytical result is in exceedance of COGCC Table 910-1 soil standards.

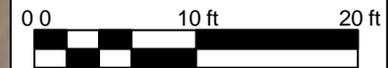
**Attachment A**



Surface  
Drainage →

B – Benzene  
TPH – Total Petroleum Hydrocarbons  
mg/kg – Milligrams Per Kilogram

Image Source:  
Google Earth 2015



DRAWN BY: BRN  
DATE: 6/9/2015

**Facility Diagram**  
Kerr-McGee Oil and Gas Onshore, LP  
UPRR 43 Pan Am O#1  
NWNE S13 T1N R68W  
Weld County, CO

 **TASMAN** 6899 Pecos St., Unit C  
GEOSCIENCES Denver, CO 80221

**LEGEND**  
 Approximate Excavation Extent  
 Former Infrastructure  
 Existing Infrastructure  
 Berm

  
Approximate Soil  
Sample Location

FIGURE 1  
SITE MAP

**Attachment B**

# Test Report

## eANALYTICS LABORATORY

June 25, 2014

Client: Tasman Geosciences / Anadarko

Project: UPRR 43 Pan Am "O" #1

Lab ID: 1661

Date Samples Received: 6/25/2014

Number of Samples: 5

Sample Condition: Samples arrived intact and in appropriate sample containers

Sample Temperature: Within acceptable range of 2-6° C, or as specified in EPA Method

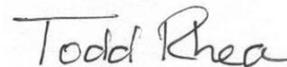
The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you.

Sincerely,



Christopher Dieken  
Quality Assurance Manager



Todd Rhea  
Laboratory Manager

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

Chain of Custody

# eANALYTICS

## LABORATORY

Chain of Custody Form

**eANALYTICS LABORATORY**

1767 Rocky Mountain Avenue Loveland CO 80538 | Phone: (970) 667-6975 | Fax: (970) 669-0941 | www.eAnalyticsLab.com

CLIENT INFORMATION <small>(*New Clients please fill out completely)</small>			ANALYSIS INFORMATION <small>(Select analysis by checking box on corresponding sample line)</small>																		
Company: Tasman Geosciences / Anadarko			Number of Containers	Matrix(S) Soil (W) Water (V) Vapor (O) Other	BTEX (EPA 8260)	BTEX/GRO (EPA 8260)	DRO/ORO (EPA 8015)	TPH-GRO/DRO/ORO (EPA 8260/8015)	SAR (US Dept of Ag Method 20B)	EC (US Dept of Ag Method 3)	pH (EPA 9045D)	Other Analysis									
Project: UPRR 43 PanAm #0' #1																					
Project Manager: Paul Schneider / Phil Hamlin																					
Sampler: Christine Wasko																					
Phone/Email: 720-409-8791 / cwasko@tasman-geo.com																					
Address: 6899 Pecos Street, Unit C Denver, CO 80221																					
Lab ID	Sample Name	Sampling Date/Time																			
1	B01 @ 3'	6/25/14 1405 AM/PM	1	S		X	X														
2	NOL @ 1.5'	6/25/14 1410 AM/PM	1	S		X	X														
3	ED1 @ 1.5'	1415 AM/PM																			
4	W01 @ 1.5'	1425 AM/PM																			
5	S01 @ 1.5'	1420 AM/PM																			

Comments:

<p><b>Turnaround Time (Business Days)</b> TAT begins when sample is received by eANALYTICS</p> <p> <input type="radio"/> Normal (5-10 Days)  <input type="radio"/> 3 Day (1.25x)  <input type="radio"/> 1 Day (2x)  <input type="radio"/> Same Day (3x)  <input checked="" type="radio"/> Next Bus. Morning (APC Pricing)                 </p> <p>Rush analysis requires an extra charge. If possible please inform eANALYTICS in advance for rush analysis.</p>	<p><b>Record of Custody</b></p> <p>Relinquished by: <i>Tasman</i> Date: <i>6/25/14</i></p> <p>Company: <i>Tasman</i> Time: <i>1:53 PM</i></p> <p>Received by: <i>[Signature]</i> Date: _____</p> <p>Company: _____ Time: _____</p> <p>Relinquished by: _____ Date: _____</p> <p>Company: _____ Time: _____</p> <p>Received by: <i>[Signature]</i> Date: <i>6/25/14</i></p> <p>Company: <b>eANALYTICS</b> Time: <i>03:50 AM '14</i></p>
<p><b>For eANALYTICS Use</b></p> <p>Samples Received Intact: <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Received Within Temperature Range (2-6°C): <input checked="" type="radio"/> Yes / <input type="radio"/> No</p> <p>Sample Preservative: <input checked="" type="radio"/> Ice / <input type="radio"/> None     <input type="radio"/> Acid / <input type="radio"/> Other</p>	

WO # 1661 88368965     eANALYTICS: Environmental testing made Easy     Page 1 of 1

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538



Client: Tasman Geosciences / Anadarko Lab ID: 1661  
 Project: UPRR 43 Pan Am "O" #1  
 Analysis: Volatile Organics Method: EPA8260  
 TPH EPA8260/8015

Sample Name	Benzene mg/kg	Toluene mg/kg	Ethyl- benzene mg/kg	Total Xylenes mg/kg	TPH	TPH	TPH	Date Sampled	Date Analyzed	Lab ID
					GRO C6-C10 mg/kg	DRO C10-C28 mg/kg	ORO C28-C36 mg/kg			
B01 @ 3'	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	06/25/14	06/25/14	1661 1



Client: Tasman Geosciences / Anadarko Lab ID: 1661  
 Project: UPRR 43 Pan Am "O" #1 Method: EPA8260

Sample Name	Dibromo-fluoromethane % Recovery	1,2 Dichloro-ethane-D4 % Recovery	Toluene-D8 % Recovery	Bromo-fluorobenzene % Recovery	Date Sampled	Date Analyzed	Lab ID
B01 @ 3'	106	108	99	108	06/25/14	06/25/14	1661 1

**eANALYTICS**  
LABORATORY

Client: Tasman Geosciences / Anadarko Lab ID: 1661  
 Project: UPRR 43 Pan Am "O" #1  
 Analysis: Volatile Organics Method: EPA8260  
 TPH EPA8260/8015

Sample Name	Benzene % Rec	Toluene % Rec	Ethyl- benzene % Rec	Total Xylenes % Rec	TPH GRO C6-C10 % Rec	TPH DRO C10-C28 % Rec	TPH ORO C28-C36 % Rec	Date Analyzed	Lab ID
Laboratory Control Sample (70-130%)	101	102	96	98	101	97	101	06/25/14	LCS 1661 1
Method Blank	< 0.01 mg/kg	< 0.01 mg/kg	< 0.01 mg/kg	< 0.01 mg/kg	< 50 mg/kg	< 50 mg/kg	< 50 mg/kg	06/25/14	MB 1661 1

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538