



June 24, 2016

Mr. Erik Mickelson
Senior HSE Representative
Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**Re: Sump Replacement Summary Letter Report
HSR-Cannon-62N66W3NESE (HSR Cannon 9-3A)
API: 05-123-20134
Facility ID: 331088
Legal: NESE Sec 3-T2N-R66W
Remediation Project #8961**

Dear Mr. Mickelson:

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/Replacement of Produced Water Vessels, which has been assigned Remediation #8961 by the COGCC. Tasman provided environmental services at the site that included collection of confirmation soil and groundwater samples from the excavation and documentation of field activities, as described below.

Site Assessment Activities

The field activities described herein were performed with the purpose of assessing potential hydrocarbon impacts at the site related to the replacement of the produced water sump on June 30, 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 5 feet below ground surface (bgs). No impacted material was removed during the replacement of the produced water sump at this location. A liner was not present at the location and groundwater was not encountered in the excavation.

Confirmation soil samples were collected from the base and sidewalls of the excavation area at approximately 5 feet and 3 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 analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by

United States Environmental Protection Agency (USEPA) Method 8260, 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 from 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 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 applicable regulatory standards in the former sump location. 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 (303) 487-1228 if you have any questions regarding this report or require additional information.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Daniel Wade'.

Daniel Wade P.G.
Senior Geologist

Attachments:

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

Table

TABLE 1
HSR-CANNON-62N66W3NESE (HSR CANNON 9-3A)
SOIL SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date	Depth (ft. bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TVPH-GRO (mg/kg)	TEPH-DRO (mg/kg)	TEPH-ORO (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500		
B01@5'	06/30/14	5	<0.01	<0.01	<0.01	<0.01	<50	<50	<50

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective March 16, 2016.

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.

ft. bgs = Feet below ground surface.

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

Attachment A



DATE:	May 12, 2016
DESIGNED BY:	B. Nelson
DRAWN BY:	B. Nelson



Kerr-McGee Oil and Gas Onshore, LP
HSR-Cannon-62N66W3NESE (HSR Cannon 9-3A)
NESE, Section 3, Township 2 North, Range 66 West
Weld County, Colorado

Sample Location
Map

FIGURE
1

Attachment B

Test Report



June 30, 2014

Client: Tasman Geosciences / Anadarko

Project: HSR Cannon 9-3A

Lab ID: 1688

Date Samples Received: 6/30/2014

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,

A handwritten signature in black ink, appearing to read "Chris Dieken".

Christopher Dieken
Quality Assurance Manager

A handwritten signature in black ink, appearing to read "Todd Rhea".

Todd Rhea
Laboratory Manager


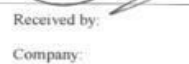


eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

Chain of Custody

eANALYTICS

LABORATORY

eANALYTICS LABORATORY			Chain of Custody Form																
1767 Rocky Mountain Avenue Loveland CO 80538			Phone: (970) 667-6975		Fax: (970) 669-0941		www.eAnalyticsLab.com												
CLIENT INFORMATION (*New Clients please fill out completely)			ANALYSIS INFORMATION (Select analysis by checking box on corresponding sample line)																
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: HSE Cannon 9-3A																			
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																	
	B01 @ 5'	6/30/14 1430 AM / PM	1	S															
	N01 @ 3'	6/30/14 1435 AM / PM	1	S															
	E01 @ 3'	1440 AM / PM																	
	801 @ 3'	1445 AM / PM																	
	W01 @ 3'	1450 AM / PM																	
Comments:																			
Turnaround Time (Business Days) TAT begins when sample is received by eANALYTICS <input type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (1.25x) <input type="radio"/> 1 Day (2x) <input checked="" type="radio"/> Same Day (3x) <input type="radio"/> Next Bus. Morning (APC Pricing)					Record of Custody Relinquished by:  Company: <u>6/30/14 1500</u> Received by:  Company: <u>6/30/14 1500</u> Relinquished by:  Company: <u>6/30/14 1500</u> Received by:  Company: <u>6/30/14 1500</u>					Date: <u>6/30/14</u> Time: <u>4:00</u> AM / PM									
For eANALYTICS Use Samples Received Intact: <input checked="" type="radio"/> Yes / <input type="radio"/> No Received Within Temperature Range (2-6°C): <input checked="" type="radio"/> Yes / <input type="radio"/> No Sample Preservative: <input checked="" type="radio"/> Ice / <input type="radio"/> None																			
WO # <u>88579597</u> <u>1688</u>																			

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Page 1 of 1

eAnalytics Laboratory

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eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko Lab ID: 1688

Project: HSR Cannon 9-3A

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 GRO	TPH DRO	TPH ORO	Date Sampled	Date Analyzed	Lab ID
					C6-C10	C10-C28	C28-C36			
					mg/kg	mg/kg	mg/kg			
B01 @ 5'	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	06/30/14	06/30/14	1688 1

eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 1688

Project: HSR Cannon 9-3A

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 @ 5'	91	90	104	103	06/30/14	06/30/14	1688 1

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eANALYTICS

LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 1688

Project: HSR Cannon 9-3A

Analysis: Volatile Organics
TPHMethod: EPA8260
EPA8260/8015

Sample Name	Benzene	Toluene	Ethyl- benzene	Total Xylenes	TPH GRO C6-C10	TPH DRO C10-C28	TPH ORO C28-C36	Date Analyzed	Lab ID		
	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec				
Laboratory Control Sample	101	103	104	95	101	94	97	06/30/14	LCS	1688	1
(70-130%)											
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	06/30/14	MB	1688	1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				

eAnalytics Laboratory

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