



February 14, 2014

Mr. Paul Schneider
Senior Staff EHS Representative
Kerr-McGee Oil & Gas Onshore LP
1099 18th Street, Suite 1800
Denver, Colorado 80202

**Re: Sump Closure: Excavation Summary Letter Report
Dos Rios 43-34
API: 05-123-16740
Legal: NESE Sec 34-T5N-R66W**

Dear Mr. Schneider:

On behalf of Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), Tasman Geosciences, LLC (Tasman) has prepared this Sump Closure: Excavation Summary Letter Report (Report) to document sampling activities and results of environmental testing at the above-referenced site. Tasman provided environmental services at the site that included collection of confirmation soil and groundwater 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 of a sump on November 8th. Soil and groundwater sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout, excavation dimensions, and sample locations are provided in the attached field notes (Attachment A).

Upon arrival to the site, the extent of the excavation measured approximately 16 feet by 22 feet with an approximate depth of 9 feet below ground surface (bgs). Approximately 115 cubic yards of soil were removed and transported to Kerr-McGee's land treatment facility in Weld County, Colorado. Soil samples were field screened using a photoionization detector (PID) and standard headspace sampling techniques. PID readings indicated minimal or no detectable hydrocarbon impacts. Groundwater was encountered at approximately 9 feet bgs in the excavation.

Confirmation soil samples from the north, south, east and west sidewalls were collected at approximately 8 feet bgs. One groundwater sample was collected from the base of the excavation at approximately 9 feet bgs. Sidewall samples were submitted to eAnalytics Laboratory located in Loveland, Colorado for laboratory analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX) and total petroleum hydrocarbons (TPH) gasoline range organics (GRO) by Environmental Protection Agency (EPA) Method 8260B, as well as TPH diesel range and oil range organics (DRO and ORO) by EPA Method 8015. The groundwater sample was submitted for laboratory analysis of BTEX by EPA Method 8260B. Soil and

groundwater laboratory data is summarized in Table 1 and Table 2, respectively, and the laboratory analytical report is provided in Attachment B.

Results

Soil analytical results indicate that BTEX and TPH concentrations were below the applicable Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 standards. Analytical results for the groundwater sample indicate that BTEX concentrations were below the applicable Colorado Ground Water Quality Standards (CGWQS).

Conclusions

Site assessment activities did not identify petroleum hydrocarbon impacts above the applicable standards in soil or groundwater in and around the area of the former sump. No further Site assessment or remedial activity is recommended at this time.

Please contact me at (303) 487-1228 if you have any questions regarding this report or require additional information.

Sincerely,



Jenna R. Barker
Environmental Engineer

Attachments: Table 1 – Soil Sample Results Summary
Table 2 – Groundwater Sample Results Summary
Attachment A – Field Notes
Attachment B – Laboratory Analytical Report

Tables

TABLE 1
DOS RIOS 43-34
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)
N01@8'	11/8/2013	2	<0.001	<0.001	<0.001	<50	<50	54.3
S01@8'	11/8/2013	2	<0.001	<0.001	<0.001	<50	<50	<50
E01@8'	11/8/2013	2	<0.001	<0.001	<0.001	<50	<50	<50
W01@8'	11/8/2013	2	<0.001	<0.001	<0.001	<50	<50	<50
COGCC standards for Soil (mg/kg)			0.17	85	100	175	500	

Notes:

TVPH - GRO: Total volatile petroleum hydrocarbons - Gasoline Range Organics

TEPH - DRO: Total extractable volatile petroleum hydrocarbons - Diesel Range Organics

TEPH - ORO: Total extractable volatile petroleum hydrocarbons - Oil Range Organics

mg/kg= Milligrams per kilogram. bgs - Below ground surface.

Bold values indicate an exceedance of the COGCC soil standards for the Site.

TABLE 2
DOS RIOS 43-34
GROUNDWATER SAMPLE RESULTS SUMMARY TABLE
KERR-McGEE OIL AND GAS ONSHORE LP

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
GW01	11/8/2013	<1.0	<1.0	1	89.8
CGWQS (ug/L)		5	560	700	1,400

Notes:

CGWQS = Colorado Groundwater Quality Standards

Bold values indicate an exceedance of the CGWQS groundwater standards for the Site.

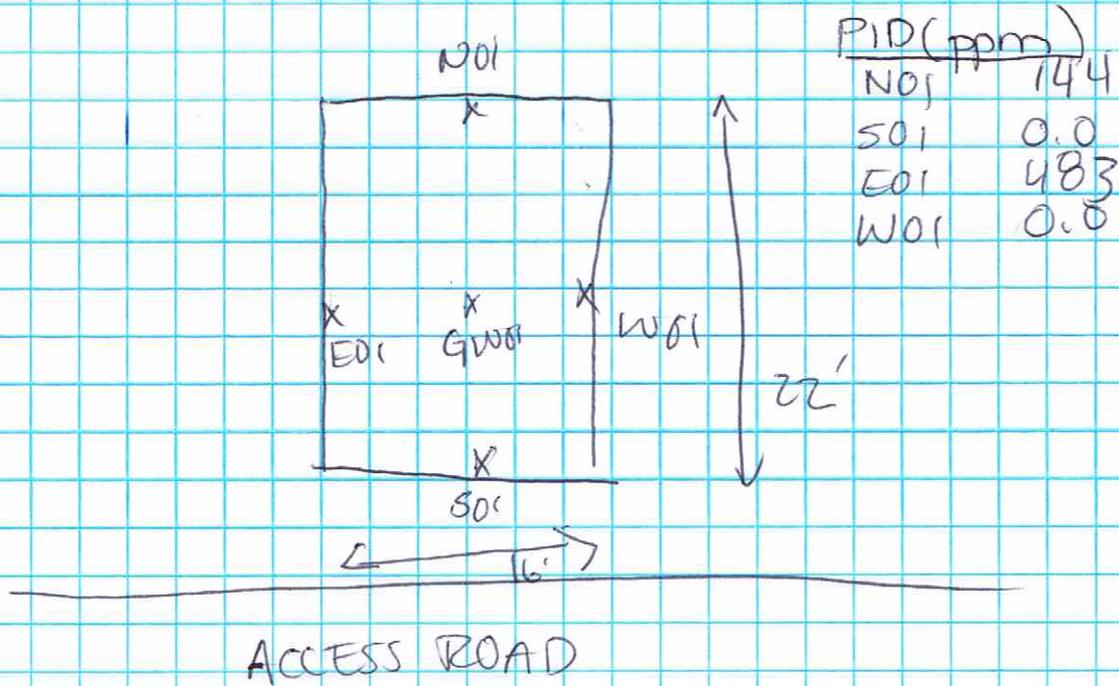
ug/L= Micrograms per liter.

Attachment A

Dos Rios 43-34

CR 33 1/4 E Hwy 394

11/8/13
WO# 88438946



Soil Analytical (mg/kg)

	<u>BTEX</u>	<u>TPH</u>
SOI	ND	ND
NOI	ND	54.3
EOI	ND	ND
WOI	ND	ND

GW Analytical (ug/l)

	<u>Benzene</u>	<u>Toluene</u>	<u>Ethylbenzene</u>	<u>Total Xylenes</u>
GWOI	ND	ND	1.0	89.8

Attachment B

eANALYTICS
L A B O R A T O R Y

November 10, 2013

Client: Tasman Geosciences / Anadarko

Project: Dos Rios 43-34

Lab ID: 110810

Date Received: 11/08/13

Number of Samples Received: 5

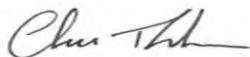
Sample Condition: Samples arrived intact and in appropriate sample containers

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

All quality control analyses associated with the requested analyses were satisfactorily passed before the samples were run. If you have any questions please give us a call, we are happy to help.

Thank you for allowing eAnalytics Laboratory to provide laboratory services for you, we truly appreciate your business.

Sincerely,



Christopher Dieken
Quality Assurance Manager



Todd Rhea
Laboratory Manager

eAnalytics Laboratory
(970) 667-6975
info@eAnalyticsLab.com



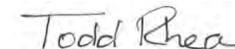
A2LA & Department of Defense (DoD) Certified

November 10, 2013

Sample Name	Benzene mg/kg	Toluene mg/kg	Ethylbenzene mg/kg	Total Xylenes mg/kg	GRO (C6-C10) mg/kg	DRO (C10-C28) mg/kg	ORO (C28-C36) mg/kg	Date Sampled	Date Analyzed	Lab ID
S01 @ 8	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	11/8/13	11/8/13	110810-01
N01 @ 8	< 0.01	< 0.01	< 0.01	< 0.01	< 50	54.3	< 50	11/8/13	11/8/13	110810-02
E01 @ 8	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	11/8/13	11/8/13	110810-03
W01 @ 8	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	11/8/13	11/8/13	110810-04


Quality Manager

eAnalytics Laboratory: 1767 Rocky Mountain Avenue Loveland CO 80538 (970) 667-6975
The results contained within this report relate only to the items analyzed

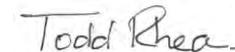

Laboratory Manager

November 10, 2013

Sample Name	Benzene ug/L	Toluene ug/L	Ethylbenzene ug/L	Total Xylenes ug/L	Date Sampled	Date Analyzed	Lab ID
GW01	< 1.0	< 1.0	1.0	89.8	11/8/13	11/8/13	110810-05


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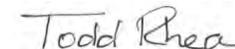

Laboratory Manager

November 10, 2013

QA/QC Surrogate Recoveries	Dibromo- fluoromethane	1,2-Dichloroethane- D4	Toluene-D8	Bromo- fluorobenzene	Date Sampled	Date Analyzed	Lab ID
Sample Name	% Recovery (70-130)	% Recovery (70-130)	% Recovery (70-130)	% Recovery (70-130)			
S01 @ 8	97	88	95	103	11/8/13	11/8/13	110810-01
N01 @ 8	91	89	96	96	11/8/13	11/8/13	110810-02
E01 @ 8	103	103	95	88	11/8/13	11/8/13	110810-03
W01 @ 8	92	89	94	96	11/8/13	11/8/13	110810-04

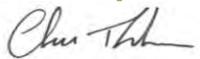

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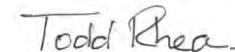

Laboratory Manager

November 10, 2013

QA/QC Surrogate Recoveries	Dibromo- fluoromethane	1,2-Dichloroethane- D4	Toluene-D8	Bromo- fluorobenzene	Date Sampled	Date Analyzed	Lab ID
Sample Name	% Recovery (70-130)	% Recovery (70-130)	% Recovery (70-130)	% Recovery (70-130)			
GW01	97	102	96	92	11/8/13	11/8/13	110810-05


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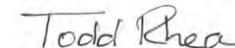

Laboratory Manager

November 10, 2013

QA/QC	Benzene	Toluene	Ethylbenzene	Total Xylenes	GRO (C6-C10)	DRO (C10-C28)	ORO (C28-C36)	Date Analyzed	Lab ID
Sample Name	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec	% Rec		
Laboratory Control (70-130% Recovery)	95	97	102	100	99	89	91	11/8/13	L 110810 1
Calib Verification (80-120% Recovery)	92	94	100	92	102	90	90	11/8/13	C 110810 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	11/8/13	B 110810 1


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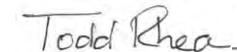

Laboratory Manager

November 10, 2013

QA/QC	Benzene	Toluene	Ethylbenzene	Total Xylenes	Date Analyzed	Lab ID
Sample Name	% Rec	% Rec	% Rec	% Rec		
Laboratory Control (70-130% Recovery)	98	92	99	90	11/8/13	L 110810 1
Calib Verification (80-120% Recovery)	95	91	100	93	11/8/13	C 110810 1
Method Blank	< 1.0 ug/L	< 1.0 ug/L	< 1.0 ug/L	< 1.0 ug/L	11/8/13	B 110810 1


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