



April 30, 2014

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

Re: Sump Closure: Excavation Summary Letter Report
HSR Nelson 13-14
API: 05-123-15688
Legal: SWSW Sec 14-T3N-R66W

Dear Mr. Hamlin:

On behalf of Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), Tasman Geosciences, LLC (Tasman) has prepared this 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 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 maintenance of a water sump on April 21, 2014. Soil 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).

The final extent of the excavation measured approximately 12 feet by 12 feet with an approximate depth of 5 feet below ground surface (bgs). Approximately 26 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 detectable hydrocarbon impacts. Groundwater was not encountered in the excavation.

Confirmation soil samples from the north, south, east and west excavation sidewalls at the final extent of the excavation were collected at approximately 4 feet bgs. A sample was also collected from the base of the excavation at approximately 5 feet bgs. A liner is not present at this location. The base sample was 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. Soil laboratory data is summarized in Table 1, and the laboratory analytical report is provided in Attachment B.

Results

Soil analytical results from the base confirmation sample indicate that BTEX and TPH concentrations were below the applicable Colorado Oil and Gas Conservation Commission (COGCC) Table 910-1 standards.

Conclusions

Analytical results did not indicate petroleum hydrocarbon impacts above applicable standards in soil in and around the area of the former sump. No further Site assessment or remedial activity is recommended at this time. This location has been plugged and abandoned.

Please contact me at (720) 987-9717 if you have any questions regarding this report or require additional information.

Sincerely,



Jenna R. Barker
Environmental Engineer

Attachments: Table 1
Attachment A – Field Notes
Attachment B – Laboratory Analytical Report

Table

TABLE 1
NELSON 13-14
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)
B01@5'	4/21/2014	5	<0.01	<0.01	<0.01	<0.01	<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 petroleum hydrocarbons - Diesel Range Organics

TEPH - ORO: Total extractable 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.

Attachment A

Date	GW Sample ID (GW__)	Sheen?	Color?	Odor?	Lab?	Laboratory Results	B µg/l	T µg/l	E µg/l	X µg/l	Pass or Fail?	Trucks Out	Barrels Out
						COGCC Standard	5	560	700	1400			
											TOTAL =		

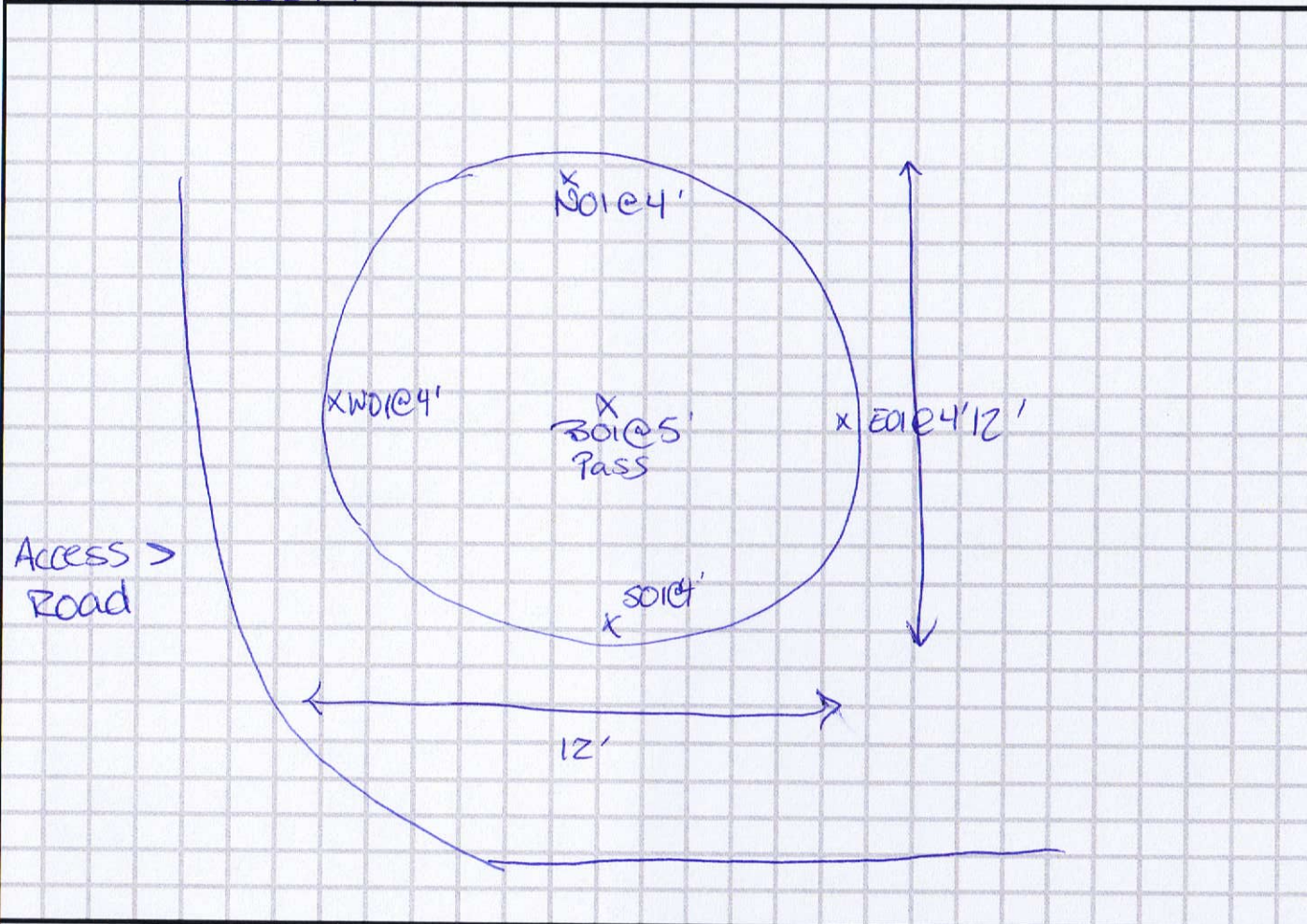


EXCAVATION SUMMARY REPORT


Excavation Diagram & Sample Locations



Site Name: Nelson 13-14



Notes:

Mileage:
From Office to Site & Return
Subtotal =
Equipment / Supplies:
PID (Days) =
4 Gas (Days) =
Trimble (Days) =
Supplies (Days) =
Subtotal =
Treatment Chemicals:
COGAC (Box) =
ISCO =
Subtotal =
Labor (Hours):
Env Sci / Eng =
PM =
Subtotal =
<div style="text-align: center;">  N </div>
Scale:

Attachment B

Test Report



April 21, 2014

Client: Tasman Geosciences / Anadarko

Project: Nelson 13-14

Lab ID: 1212

Date Samples Received: 4/21/2014

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

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 (*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: Nelson B-14													
Project Manager: Paul Schneider													
Sampler: Jenna Barker													
Phone/Email: 720-987-9717 / JBarker@Tasman-Geo.com													
Address: 6899 Pecos Street, Unit C Denver, CO 80221													
Lab ID	Sample Name	Sampling Date/Time											
1	NO1@4	4/21/14	AM/PM	1		X	X						
2	SOT@4	4/21/14 HOLD	AM/PM	1		X	X						
3	EO1@4		AM/PM	1		X	X						
4	WO1@4		AM/PM	1		X	X						
5	BO1@5		AM/PM	1		X	X						
			AM/PM										
			AM/PM										
			AM/PM										
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			AM/PM										
			AM/PM										
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			AM/PM										
Comments: By Tam 4/22/14 Please													
Turnaround Time (Business Days) TAT begins when sample is received by eANALYTICS Normal (5-10 Days) Rush analysis requires an extra charge. If 3 Day (1.25x) possible please inform eANALYTICS in advance 1 Day (2x) for rush analysis. Same Day (3x) Next Bus. Morning (APC Pricing)				Record of Custody Relinquished by: [Signature] Date: 4/21/14 Company: Tasman Time: 3:00 PM Received by: [Signature] Company: Time: AM/PM Relinquished by: [Signature] Company: Time: AM/PM Received by: Todd [Signature] Date: 4/21/14 Company: eANALYTICS Time: 3:00 PM									
For eANALYTICS Use Samples Received Intact <input checked="" type="radio"/> Yes <input type="radio"/> No Stored 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 <input type="radio"/> Acid <input type="radio"/> Other													
WO # 1212				eANALYTICS: Environmental testing made Easy					Page 1 of 1				

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 1212

Project: Nelson 13-14

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 Sampled	Date Analyzed	Lab ID	
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				
B01 @ 5	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	04/21/14	04/21/14	1212	5

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eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko

Lab ID: 1212

Project: Nelson 13-14

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	98	107	101	99	04/21/14	04/21/14	1212 5

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Client: Tasman Geosciences / Anadarko

Lab ID: 1212

Project: Nelson 13-14

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	99	94	96	99	96	89	92	04/21/14	LCS	1212	1
(70-130%)											
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	04/21/14	MB	1212	1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg				

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