



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,

A handwritten signature in blue ink, appearing to read 'Jenna R. Barker', is positioned above the typed name.

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



DAILY EXCAVATION SUMMARY FORM



SITE NAME: Nelson 13-14
 INTERSECTION: CR 32 & 33
 SOIL: siltw/sand

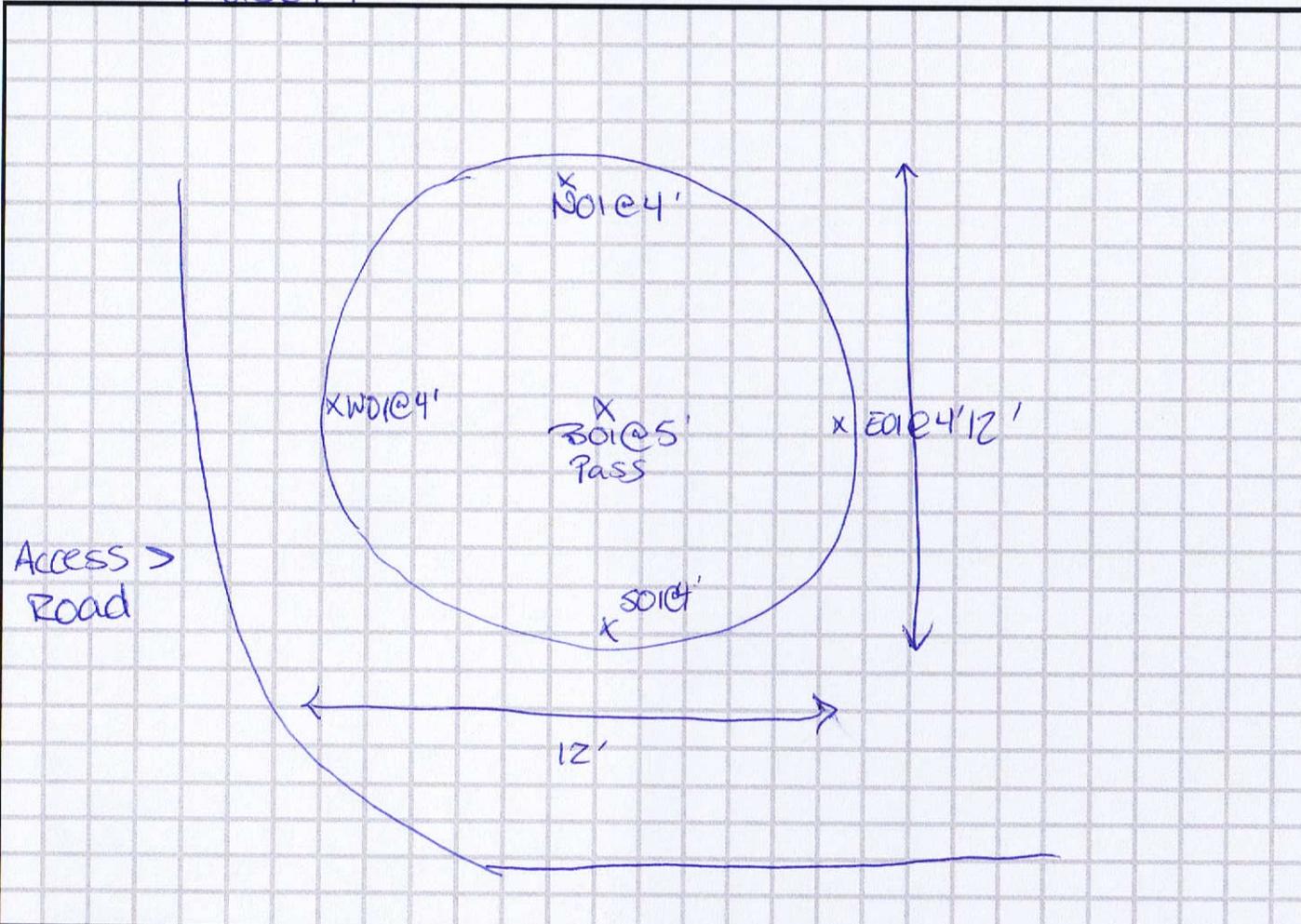
WO#:
 DIRECTIONS: N 1/2 E into

Date	Soil Sample ID (N/S/E/W @_')	PID	Stain?	Odor?	Lab?	Laboratory Results	B mg/kg	T mg/kg	E mg/kg	X mg/kg	GRO mg/kg	DRO + ORO mg/kg	Pass or Fail?	Trucks In/Out
						COGCC Standard	0.17	85	100	175	500			
8/24/14	NO104	2.0	N	N	H									
	SO104	0.0	N	N	H									
	EO104	0.5	N	N	H									
	WO104	0.1	N	N	H									
	BO105	0.0	N	N	Y		<0.01	<0.01	<0.01	<0.01	<50	<50	Pass	
Notes: * No liner, No H ₂ O * Sump Closure												TOTAL =	Soil/GW Disposal Facility:	

GROUNDWATER:

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 =													

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 =
↑ N
Scale:

Attachment B

Test Report

eANALYTICS LABORATORY

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

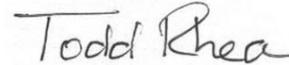
The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

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

Sincerely,



Christopher Dieken
Quality Assurance Manager



Todd Rhea
Laboratory Manager

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538



Client: Tasman Geosciences / Anadarko Lab ID: 1212
 Project: Nelson 13-14
 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 @ 5	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	04/21/14	04/21/14	1212 5



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

eANALYTICS
LABORATORY

Client: Tasman Geosciences / Anadarko Lab ID: 1212

Project: Nelson 13-14

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%)	99	94	96	99	96	89	92	04/21/14	LCS	1212	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	04/21/14	MB	1212	1

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538