



November 20, 2014

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

**Re: Sump Excavation Summary Letter Report
Farley 37-23, Duffy 9-23
API# 05-123-23941
NESE 23-T3N-R66W**

Dear Mr. Schwarz:

LT Environmental, Inc. (LTE) was contracted by Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee) to perform environmental oversight activities at the above referenced site. The oversight activities included collection of a confirmation soil sample from the sump excavation, documentation of field activities, and analytical results review.

The objective of the soil sampling was to determine if petroleum hydrocarbon impacts to subsurface soil resulted from Kerr-McGee operating a produced water sump at the site. The soil sampling activities, laboratory analytical results, and conclusions are summarized below. The general site layout, sump excavation dimensions, and soil sample location are shown on the attached hand-sketched map.

After removing the produced water sump, one representative confirmation soil sample (B01@5') was collected from the soil directly beneath the water sump. The soil sample was submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by Environmental Protection Agency (EPA) Method 8260 and total petroleum hydrocarbons (TPH) by EPA Methods 8015 and 8260. The laboratory analytical results are summarized in Table 1 and provided in the attached laboratory analytical report.

The sump excavation measured approximately 20 feet north to south by 20 feet east to west to an approximate depth of 5 feet below ground surface. No indication of petroleum hydrocarbon impacts, including soil staining or odor, was observed beneath the water sump. In addition, TPH and BTEX concentrations were below Colorado Oil and Gas Conservation Commission allowable levels in soil sample B01@5'. Based on the field and analytical results, no remedial action is required at this site.



Please call us at (303) 433-9788 if you have any questions regarding this Sump Excavation Summary Letter Report or if you require additional information.

Sincerely,
LT ENVIRONMENTAL, INC.

A handwritten signature in black ink that reads 'Aimee Cole'.

Aimee Cole
Project Geologist

Reviewed by

A handwritten signature in blue ink that reads 'Kelly L. Kenyon'.

Kelly L. Kenyon
Project Environmental Scientist

Attachments



PROJECT Farley 37-23, Duffy 9-23
PROJECT MANAGER J. Corbett
JOB No. 0147-14168
LOCATION N/4SE 23 - T3N-R66W

DATE 4-15-2014
CONT. No.
BY AC CHK'D
SHEET No. 1 OF 1

BLT0838 10/7/07

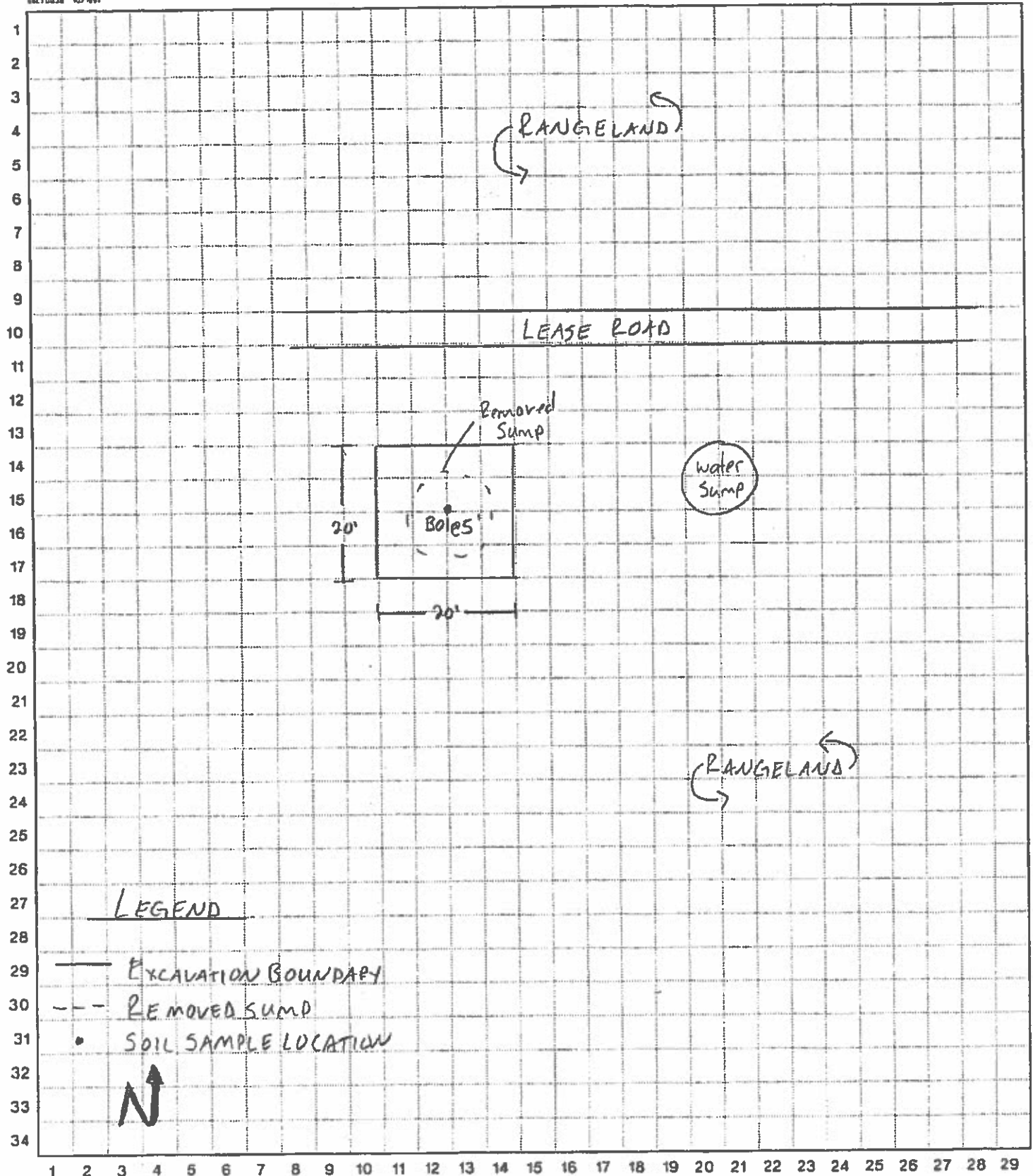


TABLE 1
SOIL SAMPLE ANALYTICAL RESULTS
FARLEY 37-23, DUFFY 9-23
WELD COUNTY, COLORADO
KERR-MCGEE OIL & GAS ONSHORE LP

Soil Sample ID	Depth (bgs)	Date	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylenes (mg/kg)	DRO (mg/kg)	GRO (mg/kg)	ORO (mg/kg)
B01 @ 5'	5'	04/15/2014	<0.01	<0.01	<0.01	<0.01	<50	<50	<50
COGCC Standards			0.17	85	100	175	500*	500*	500*

Notes: bgs - below ground surface

< - less than

DRO - Diesel Range Organics

ORO - Oil Range Organics

GRO - Gasoline Range Organics

* - Standard applies to combined DRO-GRO-ORO

mg/kg - milligrams per kilogram

NA - Not Analyzed/Not Available

Bold numbers indicate result equaled or exceeded standard.

COGCC - Colorado Oil and Gas Conservation Commission



Test Report



November 17, 2014

Client: LT Environmental / Anadarko

Project: Farley 37-23, Duffy 9-23

Lab ID: 1167

Date Samples Received: 4/15/2014

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

L A B O R A T O R Y

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: <u>LTE Cypress 15-23, Duffy 4-23</u>			Other Instructions:					
Project: <u>McHale Merit Unit #1</u>								
Project Manager: <u>J. Coe-roft</u>								
Sampler: <u>J. Decker</u>								
Phone/Email:								
Address: <u>Name changed to: Farley 37-23 Duffy 9-23</u>								
by <u>Jeremy Espinoza 11/17/14 Todd R.</u>								
Lab ID	Sample Name	Sampling Date/Time	Number of Containers	Metal (S) (S)	Water (V) Vapor (O) Other			
1	NO104'	4/5/14 1330 AM/PM	1	S	X			
2	EO104'	1335 AM/PM						
3	SO104'	1340 AM/PM						
4	WO104'	1345 AM/PM						
5	BO105'	1350 AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
		AM/PM						
Comments: <u>Run BO105', hold other samples</u>								
Turnaround Time (Business Days) TAT begins when sample is received by eANALYTICS <input type="radio"/> Normal (5-10 Days) <input type="radio"/> 3 Day (25%) <input type="radio"/> 2 Day (50%) <input type="radio"/> 1 Day (100%) <input checked="" type="radio"/> Same Day (300%)			Record of Custody Relinquished by: <u>[Signature]</u> Company: <u>LTE</u> Received by: Company:			Date: <u>4/15/14</u> Time: <u>16:34</u> AM/PM		
Colorado OPS Project: Yes / No			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 / <input type="radio"/> Acid / <input type="radio"/> Other			Relinquished by: Company: Received by: <u>[Signature]</u> Company: <u>eANALYTICS</u>		
Date: <u>4/15/14</u> Time: <u>16:34</u> AM/PM			Date: <u>4/15/14</u> Time: <u>16:34</u> AM/PM			Date: <u>4/15/14</u> Time: <u>16:34</u> AM/PM		

WO # 11167

eANALYTICS: Environmental testing made Easy

Page 1 of 2

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

eANALYTICS
L A B O R A T O R Y

Client: LT Environmental / Anadarko Lab ID: 1167

Project: Farley 37-23, Duffy 9-23

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	04/15/14	04/15/14	1167 5

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

The results contained within this report relate only to the items analyzed

eANALYTICS
LABORATORY

Client: LT Environmental / Anadarko

Lab ID: 1167

Project: Farley 37-23, Duffy 9-23

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'	87	100	104	100	04/15/14	04/15/14	1167 5

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

eANALYTICS

LABORATORY

Client: LT Environmental / Anadarko

Lab ID: 1167

Project: Farley 37-23, Duffy 9-23

Analysis: Volatile Organics
TPHMethod: EPA8260
EPA8260/8015

Sample Name	Benzene % Rec	Toluene % Rec	Ethyl- benzene % Rec	Total Xylenes % Rec	TPH GRO	TPH DRO	TPH ORO	Date Analyzed	Lab ID
					C6-C10	C10-C28	C28-C36		
					% Rec	% Rec	% Rec		
Laboratory Control Sample	92	89	97	97	103	104	90	04/15/14	LCS 1167 1
(70-130%)									
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	04/15/14	MB 1167 1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg		

eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538