



March 24, 2014

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

**Re: Sump Excavation Summary Letter Report**  
**Rix #1**  
**API# 05-123-10973**  
**NWSE 13-T4N-R68W**

Dear Mr. Schneider:

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@4') 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 on Table 1 and provided in the attached analytical laboratory report.

The sump excavation measured approximately 15 feet north to south by 18 feet east to west to an approximate depth of 4 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@4'. 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.

Reviewed by

A handwritten signature in blue ink that reads "Kelly L. Kenyon". The signature is written in a cursive, flowing style.

Kelly L. Kenyon  
Project Environmental Scientist

A handwritten signature in blue ink that reads "Michael J. Furtaw". The signature is written in a cursive, flowing style.

Michael J. Furtaw  
Project Geologist

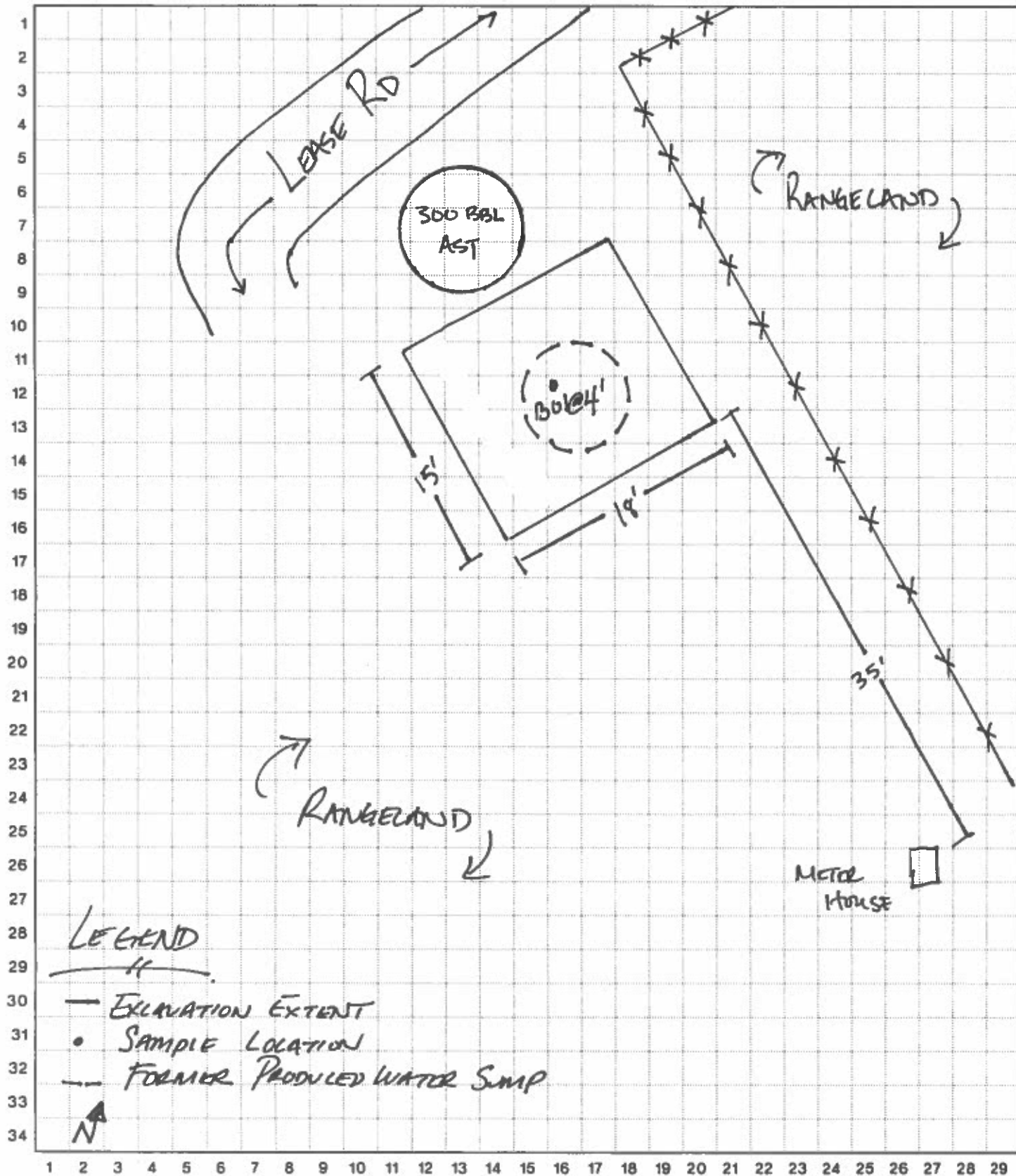
Attachments



PROJECT Rix #1  
PROJECT MANAGER John Cocroft  
JOB No. 0142 14/10  
LOCATION NWSE 13 4N 68W

DATE 3-14-14  
CONT. No. \_\_\_\_\_  
BY KK CHK'D \_\_\_\_\_  
SHEET No. 1 OF 1

851T0038 10/1997



**TABLE 1**  
**SOIL SAMPLE ANALYTICAL RESULTS**  
**RIX #1**  
**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 @ 4'	4'	03/14/2014	<0.01	<0.01	<0.01	<0.01	<50	<50	<50
<b>COGCC Standards</b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>500*</b>	<b>500*</b>	<b>500*</b>

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



March 16, 2014

Client: LT Environmental / Anadarko

Project: Rix #1

Lab ID: 930

Date Samples Received: 3/14/2014

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

[illegible]

WO# 930

**eANALYTICS: Environmental testing made Easy**

Page 1 of 1

## eAnalytics Laboratory

1767 Rocky Mountain Avenue Loveland CO 80538

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

**e**ANALYTICS  
LABORATORY

Client: LT Environmental / Anadarko

Lab ID: 930

Project: Rix #1

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 @ 4'	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	03/14/14	03/14/14	930	1

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

**e**ANALYTICS  
LABORATORY

Client: LT Environmental / Anadarko

Lab ID: 930

Project: Rix #1

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 @ 4'	97	87	106	110	03/14/14	03/14/14	930 1

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538

# eANALYTICS

## LABORATORY

Client: LT Environmental / Anadarko

Lab ID: 930

Project: Rix #1

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	91	97	97	101	91	95	93	03/14/14	LCS	930 1
(70-130%)										
Method Blank	< 0.01	< 0.01	< 0.01	< 0.01	< 50	< 50	< 50	03/14/14	MB	930 1
	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg			

**eAnalytics Laboratory**

1767 Rocky Mountain Avenue Loveland CO 80538