



August 12, 2015

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

**Re: Sump Closure Summary Letter Report
UPRR 42 Pan Am “R”-62N66W21SWNE
API: 05-123-08417
Facility ID: 318112
Legal: SWNE Sec 21-T2N-R66W
Remediation Project #8961**

Dear Mr. LaRue:

On behalf of Kerr-McGee Oil & Gas Onshore LP (Kerr-McGee), Tasman Geosciences, Inc. (Tasman) has prepared this Sump Closure Summary Letter Report (Report) to document sampling activities and the results of environmental testing at the above-referenced site. This Report is being submitted under the Form 27 Management Plan for Closure of Produced Water Vessels, which has been assigned Remediation #8961 by the COGCC. Tasman provided environmental services at the site that included collection of confirmation soil samples from the excavation and documentation of field activities, as described below.

Site Assessment Activities

The field activities described herein were performed with the purpose of assessing potential hydrocarbon impacts at the site related to the closure of the produced water sump on May 28, 2014. Soil sampling activities, laboratory analytical results, and conclusions are presented below. The general site layout and sample locations are provided in the attached site map (Attachment A).

The final extent of the excavation measured approximately 15 feet by 10 feet with an approximate depth of 4.5 feet below ground surface (bgs). No impacted material was removed from the site during closure activities. A liner was not present at the location, and groundwater was not encountered in the excavation.

Confirmation soil samples were collected from the base and sidewalls of the excavation area at approximately 4.5 feet and 3 feet bgs, respectively. Soil samples were field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). The confirmation soil sample collected from the base of the excavation area was submitted to Origins Laboratory in Denver, Colorado, for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), total petroleum hydrocarbons (TPH) – gasoline range organics (GRO) by United States

Environmental Protection Agency (USEPA) Method 8260B, and TPH – diesel range and oil range organics (DRO and ORO) by USEPA Method 8015. Soil analytical data is summarized in Table 1 and the laboratory analytical report is provided in Attachment B.

Results

Soil analytical results from the sample collected from the base of the final extent of the excavation area indicated that BTEX and TPH concentrations were below the applicable COGCC Table 910-1 standards. The remaining four soil samples collected from the sidewalls of the excavation area were not submitted for laboratory analysis as analytical data confirmed the absence of petroleum hydrocarbon impacts above regulatory standards.

Conclusions

Analytical results described herein confirm BTEX and TPH impacts are not present at concentrations above applicable regulatory standards in the former sump location. Consequently, no further site assessment or remedial activity is recommended at this time. Following site assessment activities, the produced water sump was removed and the excavation area was backfilled and contoured to match pre-existing site conditions.

Please contact me at (720) 409-8791 if you have any questions regarding this report or require additional information.

Sincerely,

A handwritten signature in blue ink that reads 'Christine Wasko'.

Christine Wasko
Project Scientist

Attachments:

- Table 1 – Soil Sample Results Summary Table
- Attachment A – Site Map
- Attachment B – Laboratory Analytical Reports

Table

TABLE 1
UPRR 42 PAN AM "R"-62N66W21SWNE
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) |
|--------------------------------------------------------|--------------|------------------|-----------------|-----------------|----------------------|-----------------------|--------------------|--------------------------|
| COGCC standards for soil (mg/kg) ⁽¹⁾ | | | 0.17 | 85 | 100 | 175 | 500 | |
| B01 @ 4.5' | 5/28/2014 | 4.5 | <0.01 | <0.01 | <0.01 | <0.01 | <50 | <50 |

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

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 = Analytical result is in exceedance of COGCC Table 910-1 soil standards.

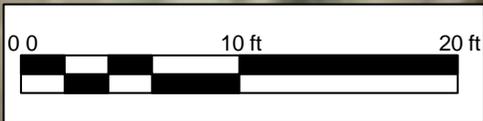
Attachment A



B01 @ 4.5'
B <0.01 mg/kg
TPH <50 mg/kg

Image Source:
Google Earth 2015

B – Benzene
TPH – Total Petroleum Hydrocarbons
mg/kg – Milligrams Per Kilogram



DRAWN BY: BRN
DATE: 8/12/2015

Facility Diagram
Kerr-McGee Oil and Gas Onshore, LP
UPRR 42 Pan Am "R"-62N66W21SWNE
SWNE S21 T2N R66W
Weld County, CO

 **TASMAN** 6899 Pecos St., Unit C
GEOSCIENCES Denver, CO 80221

LEGEND
- - - Approximate Excavation Extent
- - - Former Infrastructure
- - - Berm
+ Approximate Soil Sample Location

FIGURE 1
SITE MAP

Attachment B

Test Report

eANALYTICS LABORATORY

May 28, 2014

Client: Tasman Geosciences / Anadarko
Project: UPRR Pan Am 42 R#1
Lab ID: 1467
Date Samples Received: 5/28/2014
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

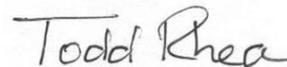
The quality control procedures associated with the requested analyses were satisfactorily passed before the samples were run.

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

Chain of Custody

eANALYTICS

LABORATORY

| eANALYTICS LABORATORY | | Chain of Custody Form | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| 1767 Rocky Mountain Avenue Loveland CO 80538 | | Phone: (970) 667-6975 | Fax: (970) 669-0941 |
| | | www.eAnalyticsLab.com | |
| CLIENT INFORMATION | | ANALYSIS INFORMATION | |
| (*New Clients please fill out completely) | | (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 |
| Project: | UPRR PANAMA 2 R#1 | | |
| Project Manager: | Paul Schneider / Phil Hamlin | | |
| Sampler: | Christine Wasko | | |
| Phone/Email: | 720-409-8791 / cwasko@tasman-geo.com | | |
| Address: | 6899 Pecos Street, Unit C Denver, CO 80221 | BTEX (EPA 8260) | BTEX/GRO (EPA 8260) |
| Lab ID | Sample Name | Sampling Date/Time | DRO/ORO (EPA 8015) |
| | B010A.5 | 5/28/14 1400 AM/PM | TPH-GRO/DRO/ORO (EPA 8260/8015) |
| | ED C3 | 5/28/14 1405 AM/PM | SAR (US Dept of Ag Method 20B) |
| | SO103 | 1415 AM/PM | EC (US Dept of Ag Method 3) |
| | WO103 | 1420 AM/PM | pH (EPA 9045D) |
| | ND103 | | Other Analysis |
| Comments: URGENT MEN | | | |
| Turnaround Time (Business Days) TAT begins when sample is received by eANALYTICS <input type="radio"/> Normal (5-10 Days) Rush analysis requires an extra charge. If <input type="radio"/> 3 Day (1.25x) possible please inform eANALYTICS in advance <input type="radio"/> 1 Day (2x) <input type="radio"/> Same Day (3x) for rush analysis. <input checked="" type="radio"/> Next Bus. Morning (APC Pricing) | | Record of Custody Relinquished by:  Date: _____ Company: TASMAN 5/28/14 1500 Time: AM/PM Received by: _____ Date: _____ Company: _____ Time: _____ Relinquished by: _____ Date: _____ Company: _____ Time: _____ Received by:  Date: 5/28/14 Company: eANALYTICS Time: 3:00 PM | |
| 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 | | | |

WO # 1462

eANALYTICS: Environmental testing made Easy

Page 1 of 1

eAnalytics Laboratory

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



Client: Tasman Geosciences / Anadarko Lab ID: 1467

Project: UPRR Pan Am 42 R#1

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 @ 4.5' | < 0.01 | < 0.01 | < 0.01 | < 0.01 | < 50 | < 50 | < 50 | 05/28/14 | 05/28/14 | 1467 1 |



Client: Tasman Geosciences / Anadarko Lab ID: 1467
 Project: UPRR Pan Am 42 R#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 @ 4.5' | 109 | 90 | 98 | 104 | 05/28/14 | 05/28/14 | 1467 1 |



Client: Tasman Geosciences / Anadarko Lab ID: 1467

Project: UPRR Pan Am 42 R#1

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%) | 103 | 104 | 100 | 97 | 103 | 89 | 94 | 05/28/14 | LCS 1467 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 | 05/28/14 | MB 1467 1 |

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