

# State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 (303)894-2100 Fax:(303)894-2109



FOR OGCC USE ONLY

Received 12/5/2014

REM 3439

Document 2313591

## SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☐ Spill ☐ Complaint

☐ Inspection ☐ NOAV

Tracking No:

### CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☒ Other (describe): Historical Pit Closure Follow up

OGCC Operator Number: 10261

Name of Operator: Bayswater Exploration &amp; Production

Address: 730 17th St., Suite 610

City: Denver State: CO Zip: 80202

Contact Name and Telephone:

Meagan Miller

No: 303-893-2503

Fax:

API Number: 05-123-12702

County: WELD

Facility Name: Moody

Facility Number:

Well Name: Moody 1-30

Well Number: 1-30

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NENE 30 7N 64W Latitude: 40.549328 Longitude: 104.585061

### TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Oil

**Site Conditions:** Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): Cultivated

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Clay-Loam

Potential receptors (water wells within 1/4 mi, surface waters, etc.): None Known

**Description of Impact** (if previously provided, refer to that form or document):

Impacted Media (check):

☒ Soils

☐ Vegetation

☐ Groundwater

☐ Surface Water

Extent of Impact:

Unknown

How Determined:

Soil Sampling

### REMEDIALATION WORKPLAN

**Describe initial action taken** (if previously provided, refer to that form or document):

This is a follow up request by COGCC for Bayswater to complete a remediation workplan started by a previous owner.

**Describe how source is to be removed:**

Bayswater will stake out sample areas for potential utilities to be located. Samples will be taken using a hand auger and analyzed for BTEX and TPH-GRO/DRO to determine if any contamination still exists.

**Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:**

Bayswater will analyze samples, if contamination is found, soil will be removed and disposed of accordingly. We will work with COGCC to close out this remediation project.



REMEDIATION WORKPLAN (Cont.)

Tracking Number: \_\_\_\_\_  
Name of Operator: Bayswater E&P  
OGCC Operator No: 10261  
Received Date: 12/5/2014  
Well Name & No: Moody 1-30  
Facility Name & No: \_\_\_\_\_

OGCC Employee: \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

None

**Describe reclamation plan.** Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.  
Bayswater will follow through with conducting the initial remediation plans made by a previous owner. Attached are the sampling results and corresponding maps associated to sampling locations.

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe:

**Final disposition of E&P waste** (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Should it be necessary, soil will be disposed of accordingly and replaced with clean soil, regraded, and vegetated where needed.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 4-13-2005 Date Site Investigation Completed: 12-5-2014 Date Remediation Plan Submitted: 12-5-2014  
Remediation Start Date: 4-13-2005 Anticipated Completion Date: 12-5-2014 Actual Completion Date: 12-5-2014

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name: Meagan M. Miller

Signed: \_\_\_\_\_

Title: Environmental Specialist

Date: 12-5-2014

OGCC Approved: \_\_\_\_\_ Title: Northeast EPS Date: 1/7/2015



01138953

State of Colorado  
Oil and Gas Conservation Commission



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SITE INVESTIGATION AND REMEDIATION WORKPLAN

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FOR OGCC USE ONLY

RECEIVED #3439  
APR 13 05

OGCC Employee

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe) REPLACE LID ON COFFIN

GENERAL INFORMATION

OGCC Operator Number: <u>100199</u>	Contact Name and Telephone <u>DUANE BACON</u>
Name of Operator <u>ENERGY OIL &amp; GAS INC</u>	No <u>303-545-2620</u>
Address <u>5986 HERRICK WAY</u>	Fax <u>303-545-2620</u>
City: <u>LONGMONT</u> State <u>CO</u> Zip <u>80503</u>	
API Number <u>05-123-12702-00</u>	County <u>WELD</u>
Facility Name <u>MOODY</u>	Facility Number <u># 1-30</u>
Well Name <u>MOODY #1-30</u>	Well Number <u># 1-30</u>
Location (QtrQtr, Sec, Twp, Rng, Meridian) <u>N4NE 30 7N-64W</u>	Latitude <u>40.549328</u> Longitude <u>104.585061</u>

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.) OIL

Site Conditions Is location within a sensitive area (according to Rule 901e)? ☐ Y ☒ N If yes, attach evaluation

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.) CULTIVATED

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan CLAY-LOAM

Potential receptors (water wells within 1/4 mi, surface waters, etc.) NONE KNOWN

Description of Impact (if previously provided, refer to that form or document)

Impacted Media (check):	Extent of Impact	How Determined
<input type="checkbox"/> Soils	<u>APILL AROUND WATERVAULT</u>	<u>SITE</u>
<input type="checkbox"/> Vegetation	<u>NO</u>	
<input type="checkbox"/> Groundwater	<u>NO</u>	
<input type="checkbox"/> Surface water	<u>NO</u>	

REMEDIAL WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document) NONE

Describe how source is to be removed: WE WILL STAM VAULT & REMOVE ALL CONTAMINATED SOIL, SPREAD AND REMEDIATE. REPLACE LID ON WATERVAULT

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:  
CONTAMINATED SOIL WILL BE SPREAD ABOUT 6" DEEP, USE MANURE AND TURN SOIL EVERY 2 MONTHS - USE FOR BERM MATERIAL WHEN CLEAN



State of Colorado  
Oil and Gas Conservation Commission  
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Tracking Number \_\_\_\_\_  
Name of Operator \_\_\_\_\_  
OGCC Operator No \_\_\_\_\_  
Received Date \_\_\_\_\_  
Well Name & No \_\_\_\_\_  
Facility Name & No \_\_\_\_\_

Page 2

### REMEDIALATION WORKPLAN (Cont.)

OGCC Employee \_\_\_\_\_

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.)

NO WATER NEARBY, SMALL Spill

Describe reclamation plan. Discuss existing and new grade recontouring, method and testing of compaction alleviation, and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

WE WILL REPLACE REMOVED SOIL WITH CLEAR SOIL, CONTOUR AND RESEED - SPRAY FOR NOXIOUS WEEDS

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☐ Y ☒ N If yes, describe \_\_\_\_\_

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.)

REMEDIED AND USED ON SITE

### IMPLEMENTATION SCHEDULE

Date Site Investigation Began 4-5-05 Date Site Investigation Completed \_\_\_\_\_ Date Remediation Plan Submitted 4-10-05  
Remediation Start Date 4-20 Anticipated Completion Date 4-30 Actual Completion Date \_\_\_\_\_

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct, and complete.

Print Name ENERGY OIL & GAS INC

Signed Duane Bacon

Title President

Date 4-6-05

OGCC Approved Randall J... Title EPS

Date 4/27/05

\* See letter of conditional approval dated 4/27/05.

December 2, 2014

Bayswater Exploration & Production  
730 17th Street, Suite 610  
Denver, CO 80202

Attention: Ms. Meagan Miller

Subject: Limited Subsurface Investigation  
Moody 1-30 Facility  
Weld County, Colorado  
CTL | T Project No. FC06008.009

CTL Thompson, Inc. (CTL) performed a limited Subsurface Investigation at the Moody 1-30 Facility located near Weld County Road 51 in Weld County, Colorado. The Site location is shown on Figure 1. The limited Subsurface Investigation was requested by the Colorado Oil and Gas Conservation Commission (COGCC) to assess potential concerns that date back to the prior operator, Energy Oil & Gas, Inc., which reported a release at the buried produced water vessel. COGCC assigned project number 3439 to the release. COGCC reportedly approved a work plan in which soils impacted by the produced water release would be excavated and remediated on-site. COGCC indicated that it had no documentation that this work plan was ever implemented.

Below is a summary of CTL's services.

#### **Preliminary Assessment and Utility Locates**

On November 13, 2014, CTL met with Mr. Kent Moore of Bayswater Exploration & Production. Mr. Moore has worked at the facility since the time of the reported release. Mr. Moore showed CTL the approximate former location of the buried produced water vessel where the release reportedly occurred. CTL marked the location with a stake and notified the local utility marking service to locate public utilities in the vicinity of the staked location.

No stockpiled soils were observed in the vicinity of the former buried produced water vessel.

#### **Subsurface Sampling and Analysis**

On November 21, 2014, CTL returned to the facility to conduct the limited subsurface investigation. At the staked sample location, CTL used a pre-cleaned hand auger to advance a soil boring to a depth of 5 feet below grade. Figure 2 shows the site plan and sample location. During advancement of the boring, soils were collected at one-foot intervals in a zipper-lock plastic bag. Each aliquot of soil was observed in the field for staining and odor, and each aliquot of soil was also screened for the presence of volatiles using a Photoionization Detector (PID). PID measurements are presented on



Table 2, attached. The soil aliquot with the highest PID reading (or the sample from the 5-foot depth, if no elevated PID readings were measured) was placed in a container for laboratory analysis. The soil sample was given a unique identification number, preserved on ice in a cooler, and delivered under chain of custody protocol to ALS Laboratory in Fort Collins, Colorado, to be analyzed for total extractable petroleum hydrocarbons (TEPH), total volatile petroleum hydrocarbons (TVPH), and benzene, toluene, ethylbenzene, and xylenes (BTEX).

Laboratory results are attached and are summarized on Table 1, attached. As shown, TEPH and TVPH concentrations were well below the COGCC limit of 500 milligrams per kilogram (mg/kg) and BTEX concentrations were well below associated COGCC limits.

### Limitations

The subsurface investigation and chemical analysis were performed for specific parameters, as detailed in this letter. The accuracy and reliability of environmental studies are a reflection of the number and type of samples taken and extent of the analyses conducted, and are thus inherently limited and dependent upon the resources expended. An independent laboratory performed laboratory analysis. We are not responsible for the accuracy of data presented by others. The services performed should not be interpreted as providing any guarantee that the materials are free and clear of all hazardous or toxic materials.

We believe that our services were conducted in a manner consistent with that level of care and skill ordinarily exercised by members of the profession currently practicing under similar conditions in the locality of the project. No warranty, express or implied, is made.

Thank you for choosing us to assist you with this project. If you have any questions or would like further clarification regarding this letter, please call.

CTL|THOMPSON, INC.

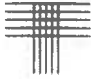
Levi Stockton, EIT  
Environmental Engineer

Reviewed By:

Dana L. Harris  
Environmental Department Manager

### Attachments

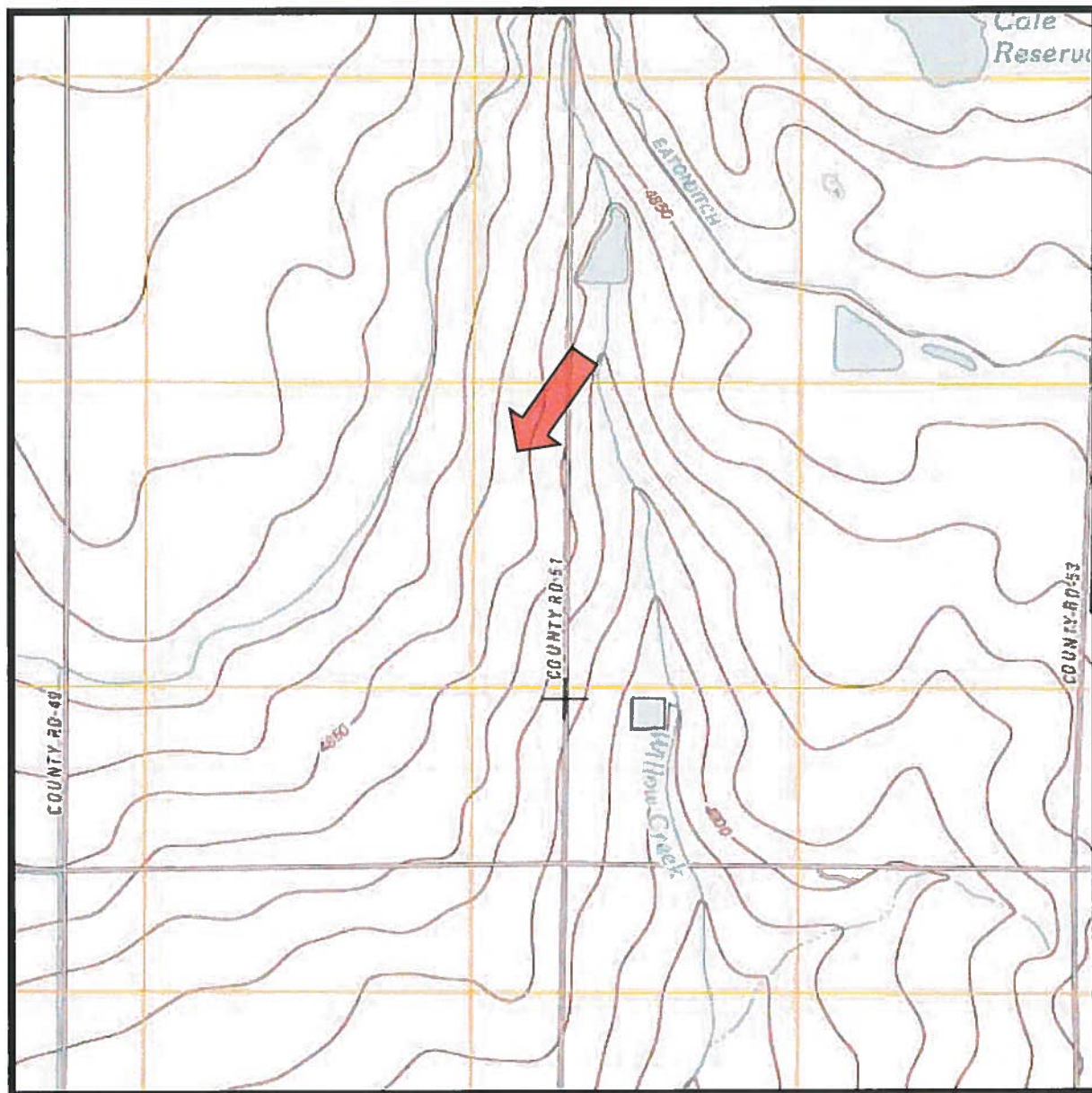
Figures  
Tables  
Laboratory Analytical Results



## ATTACHMENT 1

### FIGURES





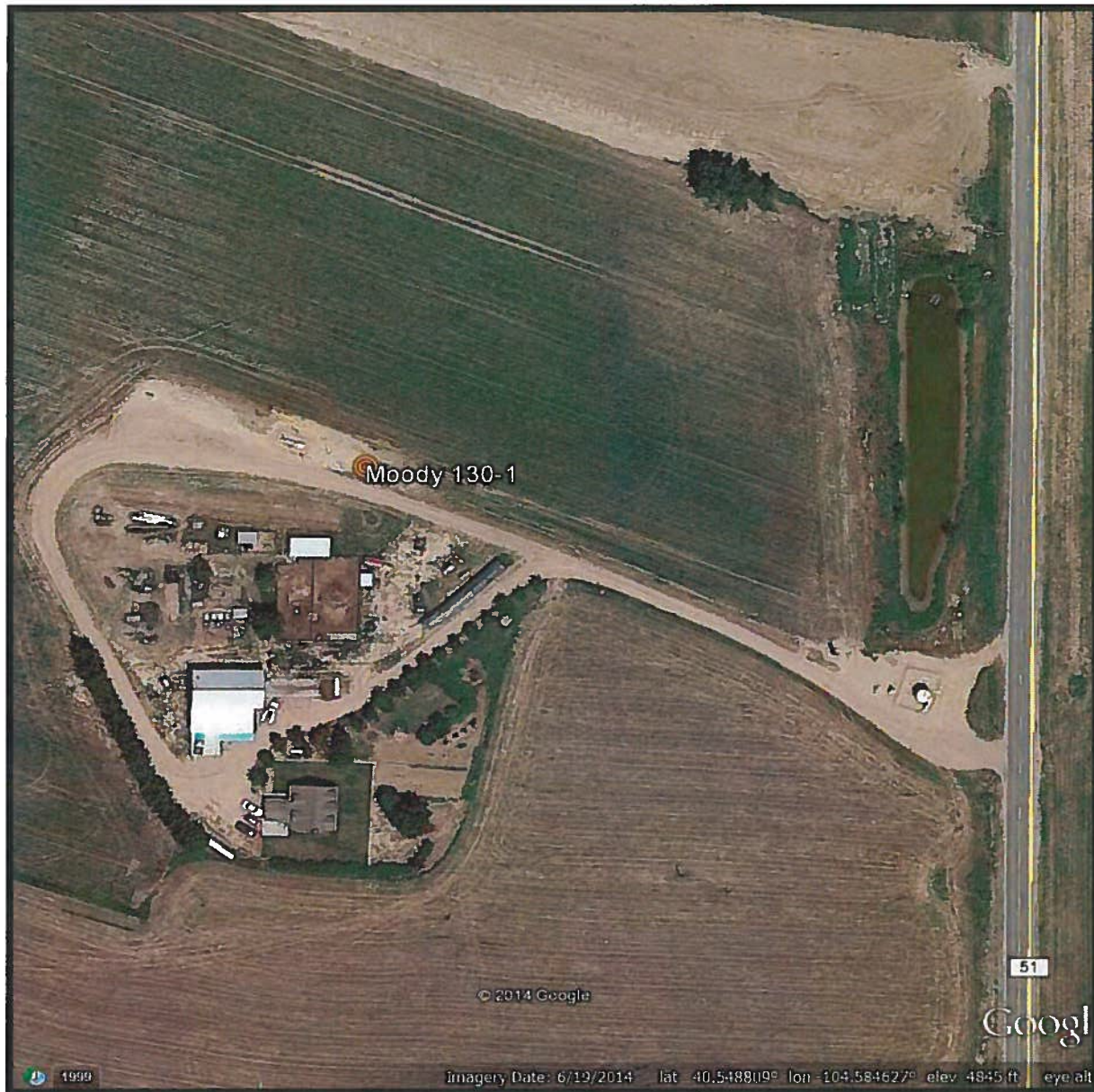
**Source:**  
U.S.G.S. Topographic Map  
Eaton CO quadrangle  
Photorevised 2011

Bayswater Exploration & Production  
Limited Subsurface Investigation of Moody 1-30  
Job No. FC06008.009-205

**AREA  
MAP**

**Fig. 1**





**Source:**  
 Google Earth  
 2014 Satellite Photo

Not to Scale

Bayswater Exploration & Production  
 Limited Subsurface Investigation of Moody 1-30  
 Job No. FC06008.009-205

**SITE  
 PLAN**

**Fig. 2**



## ATTACHMENT 2

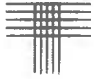
### TABLES

**Table 1**  
**Soil Analytical Results - 11/30/14**  
**Tank Area Sampling**  
**Moody 1-30 Facility**

Sample Description	Sample No.	Sample Depth (ft)	Benzene	Toluene	Ethylbenzene	Xylenes	TPH-GRO	TPH-DRO
			(µg/kg)				(mg/kg)	(mg/kg)
Approximate Location of Tank	Moody 130-1	5	4.4	9.2	<5.3	5.1	<0.52	59
COGCC Limit			170	85000	100000	175000	500	500

**Table 2**  
**PID Readings - 11/21/14**  
**Tank Area Sampling**  
**Eleanor Facility**

Sample Depth (ft)	PID Reading (ppm)
1	0.2
2	1.2
3	1.3
4	1.1
5	2.6



ATTACHMENT 3  
LABORATORY ANALYTICAL RESULTS



**1411437**

**GC/MS Volatiles:**

The sample was analyzed using GC/MS following the current revision of SOP 525 based on SW-846 Method 8260C.

All acceptance criteria were met.

**GRO:**

The sample was analyzed following the current revision of SOP 425 generally based on SW-846 Methods 8000C and 8015D. The procedures are based on these methods because SW-846 does not have a specific method for TVPH or gasoline range organics. The only true modification from these methods is that TVPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks. The carbon range integrated in this test extends from C<sub>6</sub> to C<sub>10</sub>.

All acceptance criteria were met.

**DRO:**

The sample was analyzed following the current revision of SOP 406 generally based on SW-846 Method 8000C and Method 8015D. The procedures are based on this general method because SW-846 does not have a specific method for total extractable petroleum hydrocarbons (TEPH) or diesel range organics. The only true modification from this method is that TEPH is a multicomponent mixture and is quantitated by summing the entire range, rather than individual peaks.

All acceptance criteria were met.

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

---

**OrderNum:** 1411437

**Client Name:** CTL Thompson

**Client Project Name:** Moody 1-30

**Client Project Number:** FC06008.009

**Client PO Number:**

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
Moody 130-1	1411437-1		SOIL	21-Nov-14	16:20



## Chain-of-Custody

Form 2021a

Time Zone (Circle)	EST	CST	MST	PST	Matrix: O = oil S = soil NS = non-soil solid W = water L = liquid E = extract F = filter
--------------------	-----	-----	-----	-----	--

**For metals or anions, please detail analytes below.**

3 of 9

**Preservative Key:** 1-HCl 2-HNO<sub>3</sub> 3-H<sub>2</sub>SO<sub>4</sub> 4-NaOH 5-NaHSO<sub>4</sub> 7-Other 8-4 degrees C 9-5035





ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: CTL Thompson

Workorder No: 1411437

Project Manager: ARW

Initials: ECP

Date: 11/22/14

1. Does this project require any special handling in addition to standard ALS procedures?		YES	(NO)
2. Are custody seals on shipping containers intact?	NONE	YES	NO
3. Are Custody seals on sample containers intact?	NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		(YES)	NO
5. Are the COC and bottle labels complete and legible?		(YES)	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		(YES)	NO
7. Were airbills / shipping documents present and/or removable?	PROP OFF	YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		(YES)	NO
11. Were all samples placed in the proper containers for the requested analyses?		(YES)	NO
12. Are all samples within holding times for the requested analyses?		(YES)	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		(YES)	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	N/A	YES	NO
16. Were the samples shipped on ice?		(YES)	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 (#4)		(YES)	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>4.2°</u>			
No. of custody seals on cooler: <u>0</u>			
External µR/hr reading: <u>NA</u>			
Background µR/hr reading: <u>14</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / (NA) (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO / NA Contact: [Signature] Date/Time: 11/22/14

Project Manager Signature / Date: [Signature] 11/22/14

## ALS Environmental -- FC

## SAMPLE SUMMARY REPORT

**Client:** CTL Thompson  
**Project:** FC06008.009 Moody 1-30  
**Sample ID:** Moody 130-1  
**Legal Location:**  
**Collection Date:** 11/21/2014 16:20

**Date:** 30-Nov-14  
**Work Order:** 1411437  
**Lab ID:** 1411437-1  
**Matrix:** SOIL  
**Percent Moisture:** 19.0

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
<b>Diesel Range Organics</b>			<b>SW8015M</b>		Prep Date: 11/23/2014	PrepBy: JFN
Diesel Range Organics	59	DMH	5.9	MG/KG	1	11/23/2014 19:29
Surr: O-TERPHENYL	87		53-116	%REC	1	11/23/2014 19:29
<b>Gasoline Range Organics</b>			<b>SW8015</b>		Prep Date: 11/24/2014	PrepBy: JFN
GASOLINE RANGE ORGANICS	ND		0.52	MG/KG	1	11/24/2014 19:22
Surr: 2,3,4-TRIFLUOROTOLUENE	85		76-126	%REC	1	11/24/2014 19:22
<b>GC/MS Volatiles</b>			<b>SW8260</b>		Prep Date: 11/26/2014	PrepBy: TWK
BENZENE	4.4	J	5.3	UG/KG	1	11/26/2014 15:18
TOLUENE	9.2		5.3	UG/KG	1	11/26/2014 15:18
ETHYLBENZENE	ND		5.3	UG/KG	1	11/26/2014 15:18
M+P-XYLENE	5.1	J	5.3	UG/KG	1	11/26/2014 15:18
O-XYLENE	ND		5.3	UG/KG	1	11/26/2014 15:18
Surr: DIBROMOFLUOROMETHANE	99		61-134	%REC	1	11/26/2014 15:18
Surr: TOLUENE-D8	105		57-135	%REC	1	11/26/2014 15:18
Surr: 4-BROMOFLUOROBENZENE	100		52-151	%REC	1	11/26/2014 15:18

# ALS Environmental -- FC

# SAMPLE SUMMARY REPORT

Client: CTL Thompson  
Project: FC06008.009 Moody 1-30  
Sample ID: Moody 130-1  
Legal Location:  
Collection Date: 11/21/2014 16:20

Date: 30-Nov-14  
Work Order: 1411437  
Lab ID: 1411437-1  
Matrix: SOIL  
Percent Moisture: 19.0

Analyses	Result	Qual	Report Limit	Units	Dilution Factor	Date Analyzed
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## Explanation of Qualifiers

### Radiochemistry:

U or ND - Result is less than the sample specific MDC.	M3 - The requested MDC was not met, but the reported activity is greater than the reported MDC.
Y1 - Chemical Yield is in control at 100-110%. Quantitative yield is assumed.	L - LCS Recovery below lower control limit.
Y2 - Chemical Yield outside default limits.	H - LCS Recovery above upper control limit.
W - DER is greater than Warning Limit of 1.42	P - LCS, Matrix Spike Recovery within control limits.
* - Aliquot Basis is 'As Received' while the Report Basis is 'Dry Weight'.	N - Matrix Spike Recovery outside control limits
# - Aliquot Basis is 'Dry Weight' while the Report Basis is 'As Received'.	NC - Not Calculated for duplicate results less than 5 times MDC
G - Sample density differs by more than 15% of LCS density.	B - Analyte concentration greater than MDC.
D - DER is greater than Control Limit	B3 - Analyte concentration greater than MDC but less than Requested MDC.
M - Requested MDC not met.	
LT - Result is less than requested MDC but greater than achieved MDC.	

### Inorganics:

B - Result is less than the requested reporting limit but greater than the instrument method detection limit (MDL).  
U or ND - Indicates that the compound was analyzed for but not detected.  
E - The reported value is estimated because of the presence of interference. An explanatory note may be included in the narrative.  
M - Duplicate injection precision was not met.  
N - Spiked sample recovery not within control limits. A post spike is analyzed for all ICP analyses when the matrix spike and or spike duplicate fail and the native sample concentration is less than four times the spike added concentration.  
Z - Spiked recovery not within control limits. An explanatory note may be included in the narrative.  
\* - Duplicate analysis (relative percent difference) not within control limits.  
S - SAR value is estimated as one or more analytes used in the calculation were not detected above the detection limit.

### Organics:

U or ND - Indicates that the compound was analyzed for but not detected.  
B - Analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user.  
E - Analyte concentration exceeds the upper level of the calibration range.  
J - Estimated value. The result is less than the reporting limit but greater than the instrument method detection limit (MDL).  
A - A tentatively identified compound is a suspected aldol-condensation product.  
X - The analyte was diluted below an accurate quantitation level.  
\* - The spike recovery is equal to or outside the control criteria used.  
+ - The relative percent difference (RPD) equals or exceeds the control criteria.  
G - A pattern resembling gasoline was detected in this sample.  
D - A pattern resembling diesel was detected in this sample.  
M - A pattern resembling motor oil was detected in this sample.  
C - A pattern resembling crude oil was detected in this sample.  
4 - A pattern resembling JP-4 was detected in this sample.  
5 - A pattern resembling JP-5 was detected in this sample.  
H - Indicates that the fuel pattern was in the heavier end of the retention time window for the analyte of interest.  
L - Indicates that the fuel pattern was in the lighter end of the retention time window for the analyte of interest.  
Z - This flag indicates that a significant fraction of the reported result did not resemble the patterns of any of the following petroleum hydrocarbon products:  
- gasoline  
- JP-8  
- diesel  
- mineral spirits  
- motor oil  
- Stoddard solvent  
- bunker C

# ALS Environmental -- FC

Date: 11/30/2014 6:01

Client: CTL Thompson

## QC BATCH REPORT

Work Order: 1411437

Project: FC06008.009 Moody 1-30

Batch ID: EX141123-99-1 Instrument ID FUELS-1 Method: SW8015M

LCS	Sample ID: EX141123-99				Units: MG/KG		Analysis Date: 11/23/2014 17:37			
Client ID:	Run ID: HC141123-7A						Prep Date: 11/23/2014		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	142	5	125		114	76-124			20	
Surr: O-TERPHENYL	9.66		12.5		77	53-116				

MB	Sample ID: EX141123-99				Units: MG/KG		Analysis Date: 11/23/2014 13:54			
Client ID:	Run ID: HC141123-7A						Prep Date: 11/23/2014		DF: 1	
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
Diesel Range Organics	ND	5								
Surr: O-TERPHENYL	9.21		12.5		74	53-116				

The following samples were analyzed in this batch:

1411437-1

Client: CTL Thompson  
Work Order: 1411437  
Project: FC06008.009 Moody 1-30

## QC BATCH REPORT

Batch ID: HC141124-66-1 Instrument ID FUELS-1 Method: SW8015

LCS Sample ID: HC141124-66 Units: MG/KG Analysis Date: 11/24/2014 19:44

Client ID: Run ID: HC141124-6A Prep Date: 11/24/2014 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGA	2.3	0.5	2.5		92	79-118			20	
Surr: 2,3,4-TRIFLUOROT	0.493		0.5		99	76-126				

MB Sample ID: HC141124-66 Units: MG/KG Analysis Date: 11/24/2014 17:38

Client ID: Run ID: HC141124-6A Prep Date: 11/24/2014 DF: 1

Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
GASOLINE RANGE ORGA	ND	0.5								
Surr: 2,3,4-TRIFLUOROT	0.479		0.5		96	76-126				

The following samples were analyzed in this batch:

1411437-1

Client: CTL Thompson  
 Work Order: 1411437  
 Project: FC06008.009 Moody 1-30

## QC BATCH REPORT

Batch ID: VL141126-2 Instrument ID HPV1 Method: SW8260

LCS		Sample ID: VL141126-2		Units: UG/KG		Analysis Date: 11/26/2014 10:05				
Client ID:		Run ID: VL141126-2A		Prep Date: 11/26/2014		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	33.2	5	40		83	73-126				
TOLUENE	35.1	5	40		88	71-127				
ETHYLBENZENE	35	5	40		87	74-127				
M+P-XYLENE	71	5	80		89	79-126				
O-XYLENE	35.6	5	40		89	77-125				
Surr: DIBROMOFLUORO	51		50		102	61-134				
Surr: TOLUENE-D8	49.9		50		100	57-135				
Surr: 4-BROMOFLUORO	49.8		50		100	52-151				

LCSD		Sample ID: VL141126-2		Units: UG/KG		Analysis Date: 11/26/2014 10:27				
Client ID:		Run ID: VL141126-2A		Prep Date: 11/26/2014		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	39.9	5	40		100	73-126	33.2	18	30	
TOLUENE	42	5	40		105	71-127	35.1	18	30	
ETHYLBENZENE	41.8	5	40		105	74-127	35	18	30	
M+P-XYLENE	85.1	5	80		106	79-126	71	18	30	
O-XYLENE	42.9	5	40		107	77-125	35.6	19	30	
Surr: DIBROMOFLUORO	50.4		50		101	61-134		1		
Surr: TOLUENE-D8	51		50		102	57-135		2		
Surr: 4-BROMOFLUORO	51.3		50		103	52-151		3		

MB		Sample ID: VL141126-2		Units: UG/KG		Analysis Date: 11/26/2014 10:50				
Client ID:		Run ID: VL141126-2A		Prep Date: 11/26/2014		DF: 1				
Analyte	Result	ReportLimit	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	RPD	RPD Limit	Qual
BENZENE	ND	5								
TOLUENE	ND	5								
ETHYLBENZENE	ND	5								
M+P-XYLENE	ND	5								
O-XYLENE	ND	5								
Surr: DIBROMOFLUORO	50.8		50		102	61-134				
Surr: TOLUENE-D8	51.1		50		102	57-135				
Surr: 4-BROMOFLUORO	50.6		50		101	52-151				

The following samples were analyzed in this batch:

1411437-1