



January 28, 2014

Mr. John Axelson  
East Environmental Supervisor  
Colorado Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801  
Denver, Colorado 80203

**RE: Oliver Warren #1 Workplan for Assessment and Remediation of Former Skim Pits  
COGCC NOAV Document #200390913, Facility ID 234897, Complaint #200390716  
Olsson Project #013-1681**

Dear Mr Axelson:

CM Production LLC (CM Production) retained Olsson Associates (Olsson) to develop a scope of work for assessment and remediation activities of two former skim pits located at the Oliver Warren #1 crude oil tank battery. The well and tank battery are located in the SW ¼ NW ¼ of Section 11, Township 2 North, Range 49 West, of the 6<sup>th</sup> Principal Meridian, Hyde Field, in Washington County, Colorado. The Oliver Warren 1 well is located to north of Highway 34 approximately six miles to the west of the town of Yuma, Colorado.

Mr. Ted Park, a former CM Production employee, filed a complaint with the COGCC on 12/2/2013 stating that he was directed by CM Production to bury two skim pits at the Oliver-Warren #1 tank battery. Mr. Park further alleged that there was oily waste in the pit, that no samples were collected, and that CM Production did not fill out a Form 27 to submit to the COGCC. These complaints are identified in the COGCC database as Document # 200390716.

The COGCC conducted inspections of the site on November 20, 2013 in response to the alleged improper closure of the unlined skim pits. During the inspection the COGCC observed that the pits had been closed and replaced with an aboveground steel 300-barrel capacity steel tank at the Oliver-Warren #1 Site. According to CM Production the tank was installed prior to CM Production's purchase of the property.

CM Production closed the pits in 2011 since they were not in use and had not been in use for some time. CM Production maintains that they did not direct Mr. Park to bury oily waste in the former skim pits, but admits that they did not follow COGCC rules in closing the pits by not filing a Form 27 – Site Investigation and Remediation Workplan or collecting closure samples.

Mr. John Noto with the COGC conducted a telephone interview with Mr. Park on November 25, 2013. Mr. Park alleged that a reportable spill occurred from the top of a treater in the spring of 2013. The oil was vacuumed up and oil impacted soils were placed within an earthen berm onsite. The COGCC did not have a report for the spill at the Oliver-Warren #1. In communications with Olsson in June 2013, CM Production indicated that the amount spilled was approximately half a barrel, but it may have been as much as one barrel. Mr. Park alleged that the spill was more than five barrels. CM Production disputes this claim and maintains that it

was not a reportable spill per the COGCC rules in effect at that time. CM Production treated the soils using a commercially available bioremediation product. CM Production personnel collected soil samples from the impacted soils stockpile at the Oliver-Warren #1 on June 21, 2013 and results were received on July 1, 2013. The results indicated that diesel range organics were detected at 6200 milligrams per kilogram (mg/kg) and that oil range organics were detected at 1500 mg/kg. Concentrations of gasoline range organics were reported at 27 mg/kg but benzene, toluene, ethylbenzene, and xylenes were not detected above the laboratory reporting limits of 0.005 mg/kg.

### **Proposed Workplan**

CM Production and Olsson propose to perform a subsurface investigation of the former skim pits area to assess potential impacts. A backhoe will be used to excavate test holes in the former pits to determine the nature and extent of impacts. Prior to excavating, Olsson will contact the Utility Notification Center of Colorado (UNCC) to request that the location of buried utilities at the site be marked prior to beginning excavation activities.

Soils will be assessed for staining and petroleum odor and will be headspace screened using a photoionization detector (PID). Soil samples will be collected and submitted for laboratory analysis of the Table 910-1 soil parameters. The results will be evaluated to determine if the Table 910-1 concentration levels for soil parameters have been met. Three soil samples will be collected from undisturbed areas in the vicinity of the site to assess background total metals concentrations, electrical conductivity (EC), sodium adsorption ratio (SAR), and pH per Table 910-1 to compare with soil results within the pit samples.

If impacted soils are encountered during the assessment excavation, the impacted soils will be removed from the former skim pits and stockpiled on plastic on location pending approval for disposal at a commercial landfill facility. Alternatively, CM Production may request permission from the COGCC and surface landowner to landfarm the soils onsite depending on the volume of soils to be treated and what the assessment results show. At a minimum one confirmation soil sample from each side wall and one soil sample from the base of the excavation will be collected to delineate the nature and extent of impact and document that the impacted soils have been removed. The stockpiled soils will be contained with an earthen berm pending transport to the offsite disposal facility or pending landfarming onsite.

Sincerely,

**Olsson Associates**

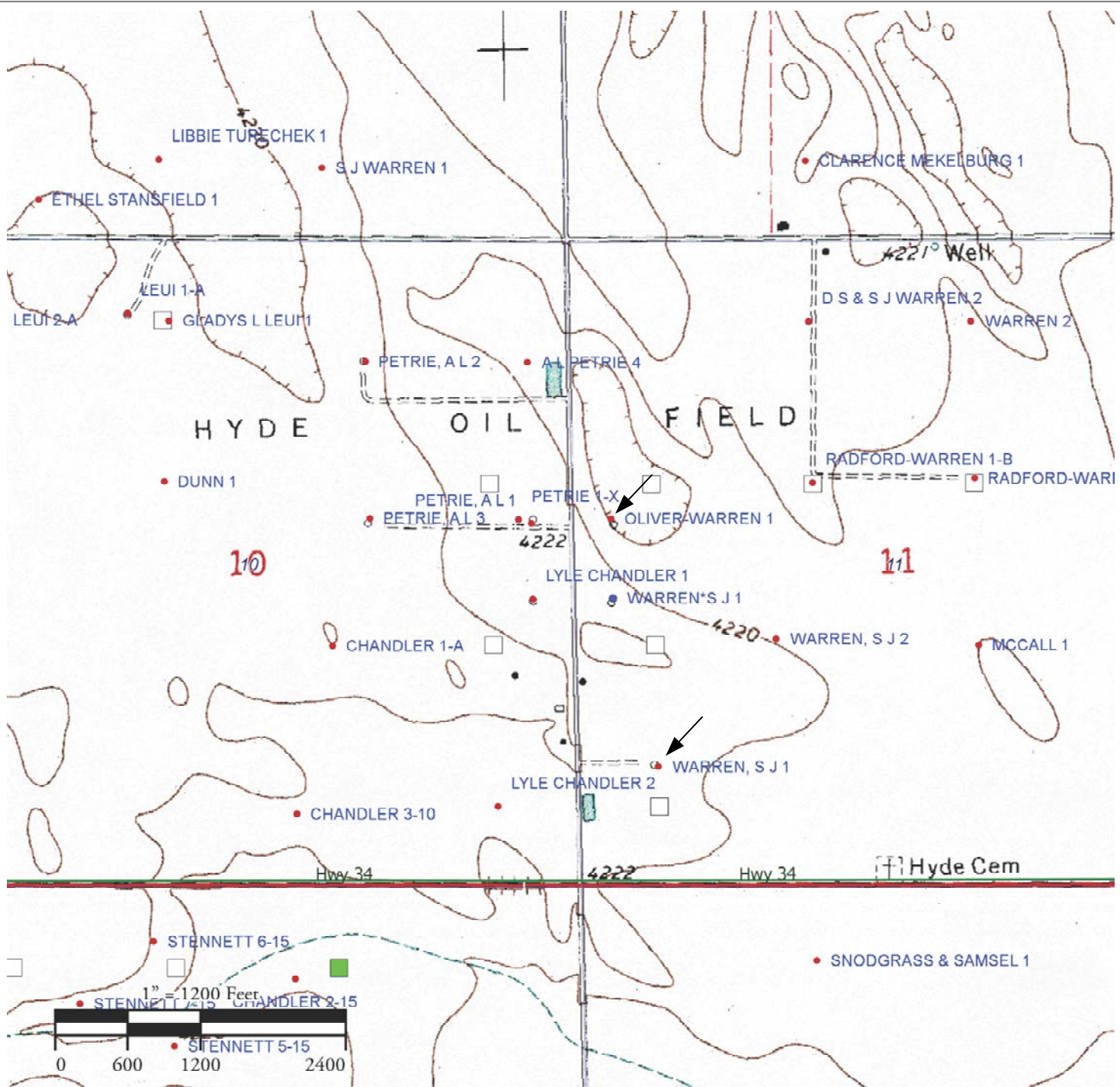


James W. Hix  
Senior Geologist

Attachments

---

## FIGURES



# LEGEND:

- WARREN 1 Well Location
- Tank Location
- COGCC Pit Location (Status Unknown)
- COGCC Pit Location (Status Active)

Scale: As Shown

Base map adapted from the Colorado Oil and Gas Conservation Commission GIS Database Online.



PROJECT NO: 01-1681  
 DRAWN BY: JWH  
 DATE: 01/28/2014

CM Production, LLC  
 Oliver Warren & SJ Warren 1  
 General Location Map

**OLSSON**  
 ASSOCIATES

4690 Table Mountain Dr. #200  
 Golden, CO 80403  
 TEL 303.237.2072  
 FAX 303.237-2659

FIGURE

1





# LEGEND:

- WARREN 1 Well Location
- Tank Location
- COGCC Pit Location (Status Unknown)

Scale: As Shown

Base map adapted from the Colorado Oil and Gas Conservation Commission GIS Database Online.



PROJECT NO:	01-1681
DRAWN BY:	JWH
DATE:	01/28/2014

CM Production, LLC  
Oliver Warren 1 Skim Pits  
2009 Aerial Photograph



4690 Table Mountain Dr. #200  
Golden, CO 80403  
TEL 303.237.2072  
FAX 303.237-2659

FIGURE

2



# LEGEND:

- WARREN 1 Well Location
- Tank Location
- COGCC Pit Location (Status Unknown)

Scale: As Shown

Base map adapted from the Colorado Oil and Gas Conservation Commission GIS Database Online.



PROJECT NO:	01-1681
DRAWN BY:	JWH
DATE:	01/28/2014

CM Production, LLC  
Oliver Warren 1 Skim Pits  
2011 Aerial Photograph



4690 Table Mountain Dr. #200  
Golden, CO 80403  
TEL 303.237.2072  
FAX 303.237-2659

FIGURE

3

---

**ATTACHMENT A  
FORM 27  
SITE INVESTIGATION AND  
REMEDIATION WORKPLAN**



State of Colorado  
**Oil and Gas Conservation Commission**

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



#8209

FOR OGCC USE ONLY

**RECEIVED**  
1/29/2014

**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.

**CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED**

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☒ Site/Facility Closure ☐ Other (describe): \_\_\_\_\_

OGCC Employee:

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No:

OGCC Operator Number: 10352

Name of Operator: CM Production LLC

Address: 600 17th Street, Suite 2800 South

City: Denver State: CO Zip: 80202-5428

Contact Name and Telephone:

Mr. John Teff

No: 303.534.0199 Cell: 720.299.1101

Fax: 303.479.1318

API Number: 05-121-07039

County: Washington

Facility Name: Oliver-Warren #1

Facility Number: 234897

Well Name: Oliver-Warren #1

Well Number: \_\_\_\_\_

Location: (QtrQtr, Sec, Twp, Rng, Meridian): SW NW 11 T2N R49W 6 Latitude: \_\_\_\_\_ Longitude: \_\_\_\_\_

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Produced Water and Crude 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, dry land farming

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Keith-Kuma Complex (Unit 33)

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Water wells for irrigation within 1/4 mile

Reported depth to groundwater > 200 feet below ground surface.

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

Impacted Media (check):

Extent of Impact:

How Determined:

☐

Soils

☐

Vegetation

☐

Groundwater

☐

Surface Water

**REMEDIALATION WORKPLAN**

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

Olsson Associates will perform environmental oversight of excavation activities of the former skim pits at the Oliver-Warren #1 tank battery. Soil samples will be collected from the excavations and analyzed for the Table 910-1 soil parameters.

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

The pits will be excavated using a backhoe excavator. If impacted soils are encountered that show evidence of staining or petroleum hydrocarbon odors, these soils will be removed from the pits, placed on plastic, and contained within an earthen berm pending offsite disposal at a commercial landfill.

**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.:**

It is expected that the extent of the impacted soils can be delineated using a backhoe. In the event that the impacted soils extend beyond the limits of the excavator, additional assessment and remediation will need to be performed. Groundwater is not expected to be encountered in the excavations. If there is evidence of groundwater impacts, CM Production and Olsson will evaluate remediation strategies.





Page 2  
**REMEDIATION WORKPLAN (Cont.)**

Tracking Number: \_\_\_\_\_  
Name of Operator: \_\_\_\_\_  
OGCC Operator No: \_\_\_\_\_  
Received Date: \_\_\_\_\_  
Well Name & No: \_\_\_\_\_  
Facility Name & No: \_\_\_\_\_

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

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

Groundwater is not expected to be impacted. Groundwater is expected to lie at a depth of more than 200 feet below ground surface based on reported static water levels for area water wells.

**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.

The former pit locations will be assessed using an excavator. E&P wastes that are encountered will be sampled for Table 910-1 parameters. The results will be compared with Table 910-1 concentration levels to determine the extent of wastes/impacted soils. If none of the wastes are above the Table 910-1 concentration levels, the pits will be backfilled. If E&P wastes are encountered that are above the Table 910-1 concentration levels, CM Production will assess the volumes to be treated or disposed offsite at a commercial landfill facility. If the amount of E&P wastes can be treated onsite, CM Production will obtain approval from the surface landowner and COGCC prior to beginning treatment.

**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:

CM Production did not characterize the skim pits prior to closure in 2011.

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

The disposition of E&P waste will be determined based on the amount of E&P wastes encountered. If the impacted soils can be landtreated onsite to meet Table 910-1 concentration levels, CM Production will obtain approval from the surface landowner and the COGCC. Otherwise the E&P wastes will be hauled to a commercial landfill facility such as the Logan County landfill, the Waste Management North Weld Landfill in Ault, Colorado or the Buffalo Ridge Landfill in Keenesburg, Colorado, or the Clean Harbors Deer Trail landfill.

### IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 12/03/2013 Date Site Investigation Completed: \_\_\_\_\_ Date Remediation Plan Submitted: \_\_\_\_\_  
Remediation Start Date: \_\_\_\_\_ Anticipated Completion Date: \_\_\_\_\_ 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: \_\_\_\_\_ Signed: \_\_\_\_\_

Title: \_\_\_\_\_ Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_

---

**ATTACHMENT B  
TREATER SPILL  
ANALYTICAL RESULTS**

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 01, 2013

James Hix  
Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden, CO 80403  
RE: CM Production

Enclosed are the results of analyses for samples received by Summit Scientific on 06/26/13 13:49. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Joseph J Egry IV  
Laboratory Director

This report shall not be reproduced, except in its entirety, without the written approval of Summit Scientific. Test results relate only to samples analyzed.

Summit Scientific is the sole authority for authorizing edits or modifications to this document. Unauthorized modification of this report is strictly prohibited.







Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden CO, 80403

Project: CM Production  
Project Number: [none]  
Project Manager: James Hix

**Reported:**  
07/01/13 14:44

**Oliver Warren**  
**R306237-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **06/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (TEPH-DRO)</b>	<b>6200</b>	44	mg/kg	1	3062705	06/27/13	06/28/13	8015M	
<b>C28-C36 (TEPH-ORO)</b>	<b>1500</b>	44	"	"	"	"	"	"	

Date Sampled: **06/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.5 %	30-150		"	"	"	"	

**Volatile Organic Compounds by EPA Method 8260B**

Date Sampled: **06/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0050	mg/kg	1	3062707	06/27/13	06/30/13	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>27</b>	0.50	"	"	"	"	"	"	

Date Sampled: **06/21/13 00:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		119 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		95.7 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	21-167		"	"	"	"	

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden CO, 80403

Project: CM Production  
Project Number: [none]  
Project Manager: James Hix

Reported:  
07/01/13 14:44

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 3062705 - EPA 3550A**

**Blank (3062705-BLK1)**

Prepared: 06/27/13 Analyzed: 06/28/13

C10-C28 (TEPH-DRO)	ND	50	mg/kg
C28-C36 (TEPH-ORO)	ND	50	"

**LCS (3062705-BS1)**

Prepared: 06/27/13 Analyzed: 06/28/13

C10-C28 (TEPH-DRO)	471	50	mg/kg	501	94.0	73-134
--------------------	-----	----	-------	-----	------	--------

**LCS Dup (3062705-BSD1)**

Prepared: 06/27/13 Analyzed: 06/28/13

C10-C28 (TEPH-DRO)	473	50	mg/kg	501	94.4	73-134	0.518	11
--------------------	-----	----	-------	-----	------	--------	-------	----

**Matrix Spike (3062705-MS1)**

Source: R306234-01

Prepared: 06/27/13 Analyzed: 06/28/13

C10-C28 (TEPH-DRO)	464	50	mg/kg	469	ND	98.9	50-148
--------------------	-----	----	-------	-----	----	------	--------

**Matrix Spike Dup (3062705-MSD1)**

Source: R306234-01

Prepared: 06/27/13 Analyzed: 06/28/13

C10-C28 (TEPH-DRO)	481	50	mg/kg	489	ND	98.2	50-148	3.55	13
--------------------	-----	----	-------	-----	----	------	--------	------	----

Summit Scientific

*The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.*



Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden CO, 80403

Project: CM Production  
Project Number: [none]  
Project Manager: James Hix

Reported:  
07/01/13 14:44

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source		%REC		RPD	
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	Notes

**Batch 3062707 - EPA 5030 Soil MS**

**Blank (3062707-BLK1)**

Prepared: 06/27/13 Analyzed: 06/28/13

Benzene	ND	0.0050	mg/kg
Toluene	ND	0.0050	"
Ethylbenzene	ND	0.0050	"
Xylenes (total)	ND	0.0050	"
Gasoline Range Hydrocarbons	ND	0.50	"

Surrogate: 1,2-Dichloroethane-d4	0.0449	"	0.0397	113	23-173
Surrogate: Toluene-d8	0.0398	"	0.0400	99.4	20-170
Surrogate: 4-Bromofluorobenzene	0.0396	"	0.0400	99.1	21-167

**LCS (3062707-BS1)**

Prepared: 06/27/13 Analyzed: 06/28/13

Benzene	0.143	0.0050	mg/kg	0.150	95.5	58-130
Toluene	0.136	0.0050	"	0.150	91.0	61-134
Ethylbenzene	0.128	0.0050	"	0.150	85.5	74-139
m,p-Xylene	0.250	0.010	"	0.300	83.3	73-137
o-Xylene	0.130	0.0050	"	0.150	86.9	73-141
<hr/>						
Surrogate: 1,2-Dichloroethane-d4	0.0493		"	0.0397	124	23-173
Surrogate: Toluene-d8	0.0416		"	0.0400	104	20-170
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400	99.2	21-167

**LCS Dup (3062707-BSD1)**

Prepared: 06/27/13 Analyzed: 06/28/13

Benzene	0.148	0.0050	mg/kg	0.150	98.5	58-130	3.15	13
Toluene	0.139	0.0050	"	0.150	92.9	61-134	2.15	16
Ethylbenzene	0.135	0.0050	"	0.150	90.3	74-139	5.51	12
m,p-Xylene	0.262	0.010	"	0.300	87.3	73-137	4.74	14
o-Xylene	0.138	0.0050	"	0.150	92.0	73-141	5.68	12
<hr/>								
Surrogate: 1,2-Dichloroethane-d4	0.0469		"	0.0397	118	23-173		
Surrogate: Toluene-d8	0.0403		"	0.0400	101	20-170		
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400	98.8	21-167		

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden CO, 80403

Project: CM Production  
Project Number: [none]  
Project Manager: James Hix

Reported:  
07/01/13 14:44

**Volatile Organic Compounds by EPA Method 8260B - Quality Control**  
**Summit Scientific**

Analyte	Reporting			Spike	Source	%REC		RPD		Notes
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	Limit	

**Batch 3062707 - EPA 5030 Soil MS**

Matrix Spike (3062707-MS1)		Source: R306240-01			Prepared: 06/27/13		Analyzed: 06/28/13			
Benzene	0.124	0.0050	mg/kg	0.140	ND	88.4	30-131			
Toluene	0.119	0.0050	"	0.140	ND	84.6	30-134			
Ethylbenzene	0.115	0.0050	"	0.140	ND	82.2	22-153			
m,p-Xylene	0.223	0.010	"	0.280	ND	79.4	10-159			
o-Xylene	0.115	0.0050	"	0.140	ND	82.2	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0432		"	0.0371		117	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0374		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0374		103	21-167			
Matrix Spike Dup (3062707-MSD1)		Source: R306240-01			Prepared: 06/27/13		Analyzed: 06/28/13			
Benzene	0.124	0.0050	mg/kg	0.139	ND	89.0	30-131	0.140	34	
Toluene	0.120	0.0050	"	0.139	ND	86.0	30-134	1.01	30	
Ethylbenzene	0.117	0.0050	"	0.139	ND	83.9	22-153	1.49	24	
m,p-Xylene	0.226	0.010	"	0.279	ND	80.9	10-159	1.30	68	
o-Xylene	0.117	0.0050	"	0.139	ND	83.6	31-151	1.13	38	
Surrogate: 1,2-Dichloroethane-d4	0.0436		"	0.0369		118	23-173			
Surrogate: Toluene-d8	0.0372		"	0.0372		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0372		99.9	21-167			

Summit Scientific

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.





Olsson Associates  
4690 Table Mountain Drive, Suite 200  
Golden CO, 80403

Project: CM Production  
Project Number: [none]  
Project Manager: James Hix

**Reported:**  
07/01/13 14:44

### Notes and Definitions

DET Analyte DETECTED  
ND Analyte NOT DETECTED at or above the reporting limit  
NR Not Reported  
dry Sample results reported on a dry weight basis  
RPD Relative Percent Difference

A handwritten signature in black ink, appearing to read 'James Hix IV'.