



Blake Ford  
Environmental Coordinator  
Extraction Oil & Gas  
370 17<sup>th</sup> Street, Suite 5300  
Denver, Colorado 80202

July 26, 2017

**Subject: Work Completion Report – Remedial Investigation**

Varra MD-61S69W/28NESE ("Varra MD 28-4D")  
COGCC Location ID: 321405  
NESE, Section 28, T1S-R69W  
39.934326/-105.112399 (WGS 84)  
Boulder County, Colorado

Dear Mr. Ford:

Apex Companies LLC (Apex) has prepared this work completion report to document remedial investigation activities conducted in support of final site reclamation. These efforts included soil sampling to support closure of a partially buried produced water vessel, and field-screening of disturbed soils following production equipment removal and well plugging and abandonment (P&A). These efforts were completed under an approved Form 27 (Site Investigation and Remediation Workplan) with remediation project number 10033 and an approved Form 19 (Spill/Release Report) with an approved Spill/Release Point ID number 449093, both assigned by the Colorado Oil and Gas Conservation Commission (COGCC).

**Site Assessment Activities**

Between January 15, 2017 and February 06, 2017, an Apex Field Coordinator collected and field-screened sixteen grab soil samples from the sidewalls and bottoms of two excavations that were completed to remove a partially buried produced water vessel and an oil water separator. A composite sample of an overburden stockpile was also collected to demonstrate clearance for backfill material.

During removal of the partially buried produced water vessel, hydrocarbon odor and visual staining was noted. A photoionization detector (PID) was used to field-screen soils in support of excavation efforts and collection of clearance samples at the expected horizontal and vertical extent. Final extent of the produced water vessel excavation was 27 feet (27') by 17', with a depth of 12'.

During removal of the flowlines and oil-water separator, onsite personnel used visual observation and a PID to field-screen for potential soil impacts. Soil staining and elevated PID readings were noted in a small area beneath the separator, and a characterization sample, E01@3', was collected. Construction personnel excavated the impacted area to vertical clearance at 4', before removing an additional 4' from the sidewall to the east, where low field screening results indicated clearance and a confirmation sample (E02@3') was collected. The separator excavation had a final extent of 18' by 12', with a depth of 4'.

In addition to characterization efforts at the site of the excavations, the Apex Field Coordinator completed a visual assessment of the site in support of the larger reclamation effort. The assessment

looked for soil staining, salt accumulation, stressed vegetation, or other signs of soil impacts at the surface or near any recently disturbed soils.

During onsite remediation efforts, approximately 236 cubic yards were excavated and transported to the Front Range Landfill for final disposal.

Collected soil samples were submitted for laboratory analysis in accordance with the approved remediation workplan and spill/release report.

## Results

Field-screening was used to direct removal of impacted soils, support identification of vertical and horizontal extent, and collect clearance. Laboratory results for samples collected from the extents of the two excavations were within allowable limits for COGCC Table 910-1 constituents of concern (COC). A sample (E01@3') collected from an excavation sidewall beneath the separator was above allowable limits for gasoline range organics (GRO), benzene, and xylenes, but impacted material was removed, and a confirmation sample (E02@3') was collected to demonstrate clearance of the excavation. See attached site diagram, and laboratory results summary table and reports for an illustration of sample collection points and findings.

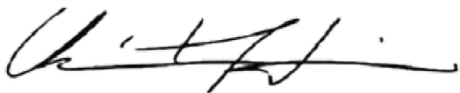
No other indications of soil impacts were noted during the site investigation, and no groundwater was encountered during the remediation project.

## Conclusions

Based on field observations and laboratory results, impacted material above COGCC allowable limits was removed and transported for offsite disposal. No further site assessment or remedial activities are recommended at this time.

If you have any questions about this report, onsite activities, or anything else related to this effort, please don't hesitate to contact me at 970-261-1127.

Sincerely,  
Apex Companies, LLC



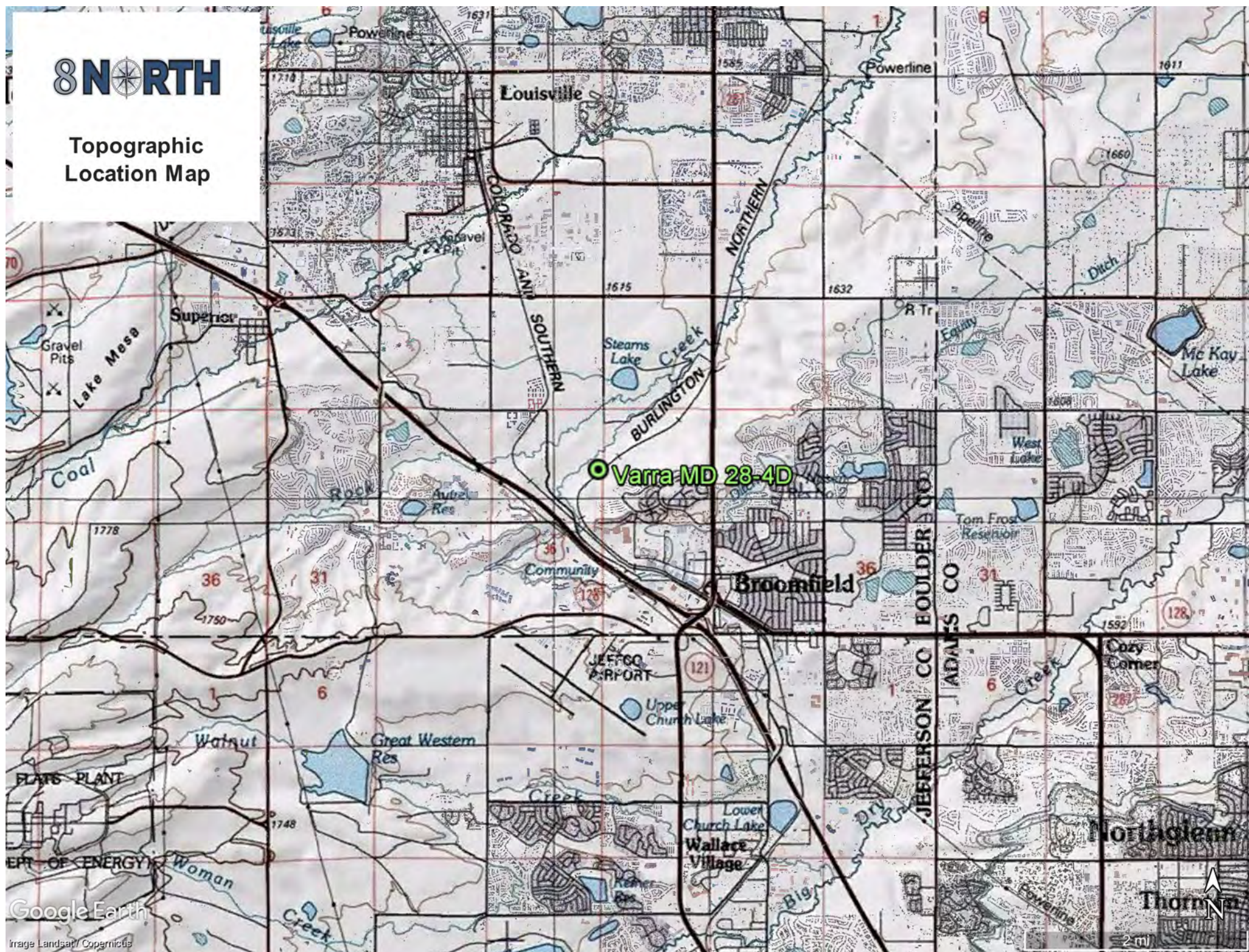
Chris Hines  
Project Manager

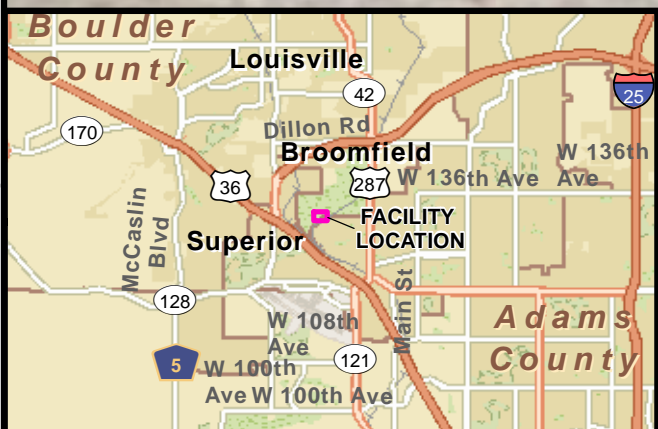
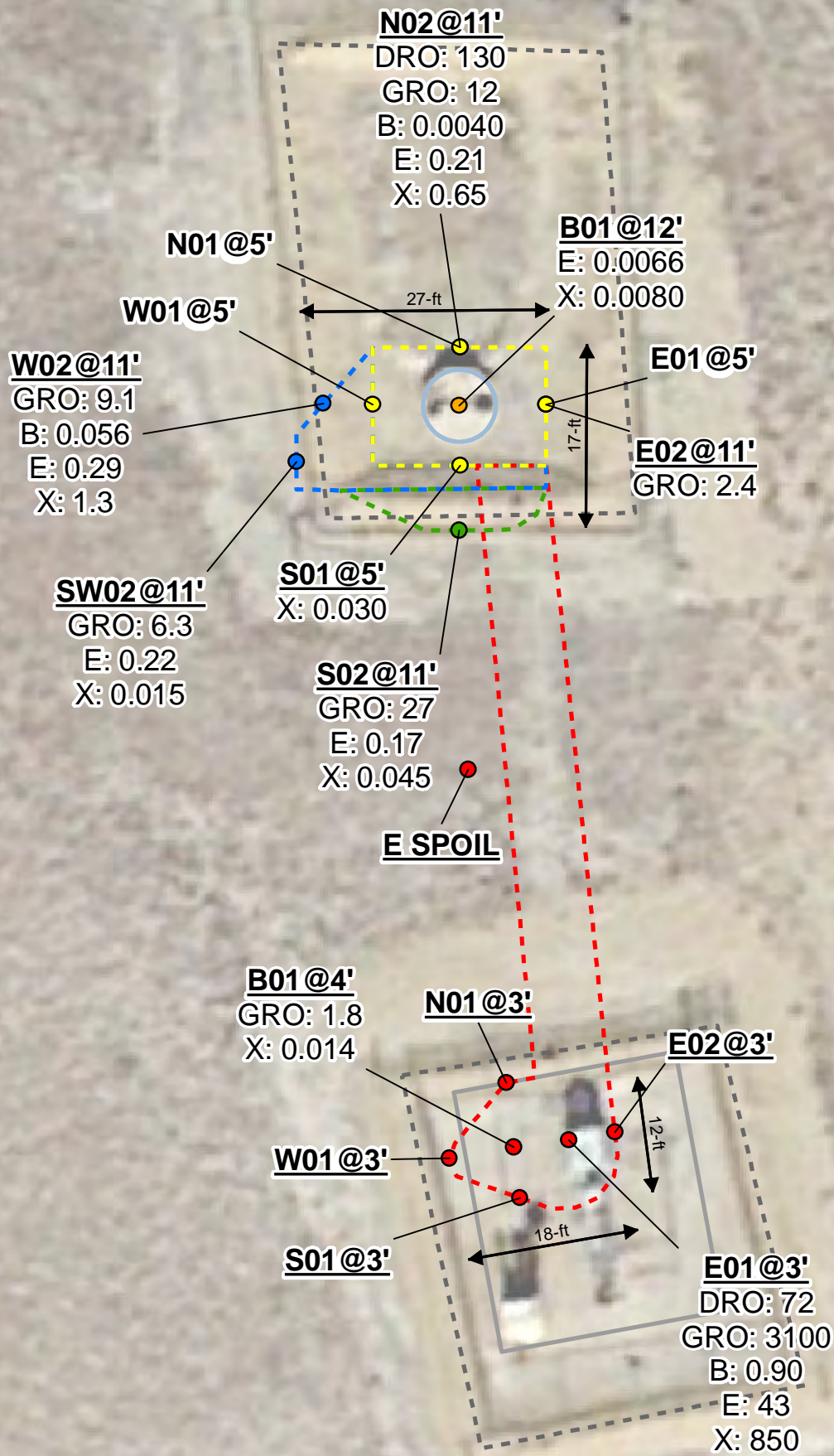
## Attachments:

1. Topographic Location Map
2. Site Diagram
3. Laboratory Results Summary Table
4. Laboratory Report

8NORTH

Topographic  
Location Map





**Legal Description:** NENE, Sec 28, T1S R69W  
**County:** Boulder  
**Land Use:** Non-cropland  
**Topography:** 3-9% Slopes  
**Run-Off Risk:** Medium  
**Soil Type:** Renohill silty clay loam  
**Receiving Waters:** Unnamed trib

Service Layer Credits:  
Google Earth, Inc.

- |                           |                                |
|---------------------------|--------------------------------|
| ● Soil Sample - 1/13/2017 | ▭ Former Equipment             |
| ● Soil Sample - 1/30/2017 | ▭ Former Secondary Containment |
| ● Soil Sample - 1/31/2017 |                                |
| ● Soil Sample - 2/1/2017  | <b>Excavation Date</b>         |
| ● Soil Sample - 2/6/2017  | 1/13/2017                      |
| ● Former Sump             | 1/31/2017                      |
|                           | 2/1/2017                       |
|                           | 2/6/2017                       |



**Varra 28-4D  
Tank Battery  
Site Diagram**

# Laboratory Results Summary Table

COGCC Allowable Concentration -->				Organic Compounds in Soil (mg/kg [ppm])							Inorganics in Soil		
Location	Sample Date:	Sample Matrix	Matrix Notes (Sample Point - Depth)	500			0.17	85	100	175	4	12	(6-9)
				TPH (total volatile and extractable petroleum hydrocarbons) (TPH-GRO + TPH-DRO)			Benzene	Toluene	Ethylbenzene	Xylenes - total			
Varra 28-4D	01/15/17	PW Vessel	N01@5'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050	0.403	2.90	7.90
Varra 28-4D	01/15/17	PW Vessel	W01@5'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050	2.53	5.23	7.71
Varra 28-4D	01/15/17	PW Vessel	S01@5'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	0.030	2.04	6.22	7.69
Varra 28-4D	01/15/17	PW Vessel	E01@5'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050	0.588	4.68	8.10
Varra 28-4D	01/30/17	PW Vessel	Base01@12'	<0.5	<0.5	<50	<0.0020	<0.0050	0.007	0.008	1.430	4.83	6.03
Varra 28-4D	01/31/17	PW Vessel	W02@11'	9.1	9.1	<50	0.06	<0.0050	0.290	1.300			
Varra 28-4D	01/31/17	PW Vessel	SW02@11'	6.3	6.3	<50	<0.0020	<0.0050	0.220	0.015			
Varra 28-4D	01/31/17	PW Vessel	N02@11'	142	12	130	0.04	<0.0050	0.210	0.650			
Varra 28-4D	02/01/17	PW Vessel	S02@11'	27	27	<50	<0.0020	<0.0050	0.170	0.045			
Varra 28-4D	02/01/17	PW Vessel	E02@11'	2.4	2.4	<50	<0.0020	<0.0050	<0.0050	<0.0050			
Varra 28-4D	02/06/17	Separator	B01@4'	1.8	1.8	<50	<0.0020	<0.0050	<0.0050	0.014			
Varra 28-4D	02/06/17	Separator	E01@3'	3172	3100	72	0.90	<0.0050	43.00	850.000	0.491	1.99	8.01
Varra 28-4D	02/06/17	Separator	S01@3'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050			
Varra 28-4D	02/06/17	Separator	W01@3'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050			
Varra 28-4D	02/06/17	Separator	N01@3'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050			
Varra 28-4D	02/06/17	Separator	E02@3'	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050			
Varra 28-4D	02/06/17	Stockpile	Espoil	<0.5	<0.5	<50	<0.0020	<0.0050	<0.0050	<0.0050			

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 16, 2017

Jacob Hildebrand  
Extraction Oil & Gas  
570 17th St. Suite 550  
Denver, CO 80202  
RE: Varra 28-4D

Enclosed are the results of analyses for samples received by Summit Scientific on 01/13/17 15:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
N01@5'	1701067-01	Soil	01/13/17 10:45	01/13/17 15:45
W01@5'	1701067-02	Soil	01/13/17 12:30	01/13/17 15:45
S01@5'	1701067-03	Soil	01/13/17 13:08	01/13/17 15:45
E01@5'	1701067-04	Soil	01/13/17 13:30	01/13/17 15:45

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

Reported:  
01/16/17 09:22

# Summit Scientific

1701067

741 Corporate Circle, Suite J ♦ Golden, Colorado 80401  
303-277-9310 ♦ 303-374-5933

Page 1 of 1

Client: Extraction Oil Project Manager: Jacob Hildebrand  
Address: 370 17th St E-Mail: jacob.hildebrand@summit-sc.com  
City/State/Zip: Denver CO  
Phone: \_\_\_\_\_ Fax: \_\_\_\_\_ Project Name: Varra 28-4D  
Sampler Name: J. Hildebrand Project Number: 744.1608.01

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested						Special Instructions	
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	PTC	2015	624	PH		EC
1	1001 ES	1/13/17	1045	1						X			X	X	X	X	X	
2	1001 ES		1230	1						X			X	X	X	X	X	
3	501 ES		1308	1						X			X	X	X	X	X	
4	801 ES		1330	1						X			X	X	X	X	X	
5	B6-W		1403	1						X				X	X	X		Hold
6																		
7																		
8																		
9																		
10																		

Relinquished by: <u>J. Hildebrand</u>	Date/Time: <u>1/13/17 1540</u>	Received by: _____	Date/Time: _____	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours _____ 24 hours _____ Standard _____ 48 hours _____	Notes:  <u>Oil Ice</u>
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____	Sample Integrity: Temperature Upon Receipt: <u>8.3</u> Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____		

www.s2scientific.com



Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

Reported:  
01/16/17 09:22

#### Sample Receipt Checklist

S2 Work Order: 1701067

Client: Extraction Client Project ID: Varra 28-4D

Shipped Via: H.D. Airbill #: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	<u>8.3</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	✓			
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	✓			
Was adequate sample volume provided <sup>(1)</sup> ?	✓			
If custody seals are present, are they intact <sup>(1)</sup> ?	✓			
Are short holding time analytes or samples with HTs due within 48 hours present?		✓		
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	✓			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	✓			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?			✓	
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?			✓	
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?			✓	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

  
Custodian Printed Name

  
Signature or Initials of Custodian

2/13/17  
Date/Time





Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**N01@5'**  
**1701067-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: <b>01/13/17 10:45</b>									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701107	01/13/17	01/13/17	8015M	

Date Sampled: <b>01/13/17 10:45</b>									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		114 %	30-150		"	"	"	"	

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

Date Sampled: <b>01/13/17 10:45</b>									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701106	01/13/17	01/13/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: <b>01/13/17 10:45</b>									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: <b>01/13/17 10:45</b>									
Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>388</b>	11.6	mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)	
<b>Magnesium</b>	<b>246</b>	5.78	"	"	"	"	"	"	

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**N01@5'**  
**1701067-01 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Sodium	297	5.78	mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	2.90		units	"	1701116	01/15/17	01/15/17	"

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **01/13/17 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	0.403	0.0100	mmhos/cm	1	1701111	01/13/17	01/13/17	SM 2510B	
pH	7.90	0.100	pH Units	"	1701112	01/13/17	01/13/17	EPA 9045	
% Solids	86.5		%	"	1701115	01/13/17	01/15/17	% calculation	

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Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**W01@5'**  
**1701067-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701107	01/13/17	01/13/17	8015M	

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701106	01/13/17	01/13/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.6 %	21-167		"	"	"	"	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	<b>580</b>	11.6	mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	<b>275</b>	5.82	"	"	"	"	"	"	

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**Reported:**  
01/16/17 09:22

**W01@5'**  
**1701067-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Sodium	611	5.82 mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	5.23	units	"	1701116	01/15/17	01/15/17	"

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **01/13/17 12:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.71	0.100	pH Units	1	1701112	01/13/17	01/13/17	EPA 9045	
Specific Conductance (EC)	2.53	0.0100	mmhos/cm	"	1701111	01/13/17	01/13/17	SM 2510B	
% Solids	85.9		%	"	1701115	01/13/17	01/15/17	% calculation	

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**Reported:**  
01/16/17 09:22

**S01@5'**  
**1701067-03 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701107	01/13/17	01/13/17	8015M	

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701106	01/13/17	01/13/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.030</b>	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

#### Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Calcium</b>	<b>1250</b>	11.4	mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)	
<b>Magnesium</b>	<b>415</b>	5.69	"	"	"	"	"	"	

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Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**S01@5'**  
**1701067-03 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

<b>Sodium</b>	<b>994</b>	5.69 mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)
<b>Sodium Adsorption Ratio</b>	<b>6.22</b>	units	"	1701116	01/15/17	01/15/17	"

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **01/13/17 13:08**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Specific Conductance (EC)</b>	<b>2.04</b>	0.0100	mmhos/cm	1	1701111	01/13/17	01/13/17	SM 2510B	
<b>pH</b>	<b>7.69</b>	0.100	pH Units	"	1701112	01/13/17	01/13/17	EPA 9045	
<b>% Solids</b>	<b>87.9</b>		%	"	1701115	01/13/17	01/15/17	% calculation	

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**E01@5'**  
**1701067-04 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701107	01/13/17	01/13/17	8015M	

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		113 %	30-150		"	"	"	"	

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

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701106	01/13/17	01/13/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

#### Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	1060	11.1	mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	300	5.55	"	"	"	"	"	"	

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**E01@5'**  
**1701067-04 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Sodium	670	5.55 mg/kg dry	1	1701108	01/13/17	01/13/17	EPA 6020/Mod. USDA60 6(2, 3A)
Sodium Adsorption Ratio	4.68	units	"	1701116	01/15/17	01/15/17	"

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **01/13/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.10	0.100	pH Units	1	1701112	01/13/17	01/13/17	EPA 9045	
% Solids	90.1		%	"	1701115	01/13/17	01/15/17	% calculation	
Specific Conductance (EC)	0.588	0.0100	mmhos/cm	"	1701111	01/13/17	01/13/17	SM 2510B	

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**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 1701107 - EPA 3550A**

**Blank (1701107-BLK1)**

Prepared & Analyzed: 01/13/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	14.6		"	12.5		117	30-150			

**LCS (1701107-BS1)**

Prepared & Analyzed: 01/13/17

C10-C28 (DRO)	568	50	mg/kg	499		114	73-134			
Surrogate: o-Terphenyl	15.9		"	12.5		127	30-150			

**Matrix Spike (1701107-MS1)**

**Source: 1701066-01**

Prepared & Analyzed: 01/13/17

C10-C28 (DRO)	521	50	mg/kg	494	11.4	103	50-148			
Surrogate: o-Terphenyl	14.6		"	12.4		118	30-150			

**Matrix Spike Dup (1701107-MSD1)**

**Source: 1701066-01**

Prepared & Analyzed: 01/13/17

C10-C28 (DRO)	497	50	mg/kg	493	11.4	98.4	50-148	4.83	20	
Surrogate: o-Terphenyl	13.7		"	12.4		111	30-150			

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

Reported:  
01/16/17 09:22

**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 1701106 - EPA 5030 Soil MS**

**Blank (1701106-BLK1)**

Prepared & Analyzed: 01/13/17

Benzene	ND	0.0020	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	0.0409		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0397		"	0.0400		99.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

**LCS (1701106-BS1)**

Prepared & Analyzed: 01/13/17

Benzene	0.0910	0.0020	mg/kg	0.100		91.0	58-130			
Toluene	0.0944	0.0050	"	0.100		94.4	61-134			
Ethylbenzene	0.0881	0.0050	"	0.0992		88.9	74-139			
m,p-Xylene	0.161	0.010	"	0.200		80.8	73-137			
o-Xylene	0.0853	0.0050	"	0.0980		87.1	73-141			
Xylenes (total)	0.247	0.0050	"				30-150			
Gasoline Range Hydrocarbons	1.78	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0373		"	0.0400		93.2	23-173			
Surrogate: Toluene-d8	0.0487		"	0.0400		122	20-170			
Surrogate: 4-Bromofluorobenzene	0.0415		"	0.0400		104	21-167			

**Matrix Spike (1701106-MS1)**

Source: 1701066-01

Prepared & Analyzed: 01/13/17

Benzene	0.107	0.0020	mg/kg	0.0992	ND	108	30-131			
Toluene	0.112	0.0050	"	0.0992	ND	113	30-134			
Ethylbenzene	0.112	0.0050	"	0.0984	ND	113	22-153			
m,p-Xylene	0.206	0.010	"	0.198	ND	104	10-159			
o-Xylene	0.108	0.0050	"	0.0972	ND	111	31-151			
Xylenes (total)	0.314	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	2.35	0.50	"		0.216		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0400		"	0.0397		101	23-173			
Surrogate: Toluene-d8	0.0445		"	0.0397		112	20-170			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0397		102	21-167			

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**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 1701106 - EPA 5030 Soil MS**

Matrix Spike Dup (1701106-MSD1)		Source: 1701066-01			Prepared & Analyzed: 01/13/17					
Benzene	0.115	0.0020	mg/kg	0.0994	ND	116	30-131	7.15	34	
Toluene	0.119	0.0050	"	0.0994	ND	120	30-134	6.67	30	
Ethylbenzene	0.130	0.0050	"	0.0986	ND	132	22-153	15.2	24	
m,p-Xylene	0.236	0.010	"	0.198	ND	119	10-159	13.7	68	
o-Xylene	0.125	0.0050	"	0.0974	ND	128	31-151	14.5	38	
Xylenes (total)	0.361	0.0050	"		ND		30-150	14.0	20	
Gasoline Range Hydrocarbons	2.78	0.50	"		0.216		30-150	17.0	20	
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0398		106	23-173			
Surrogate: Toluene-d8	0.0411		"	0.0398		103	20-170			
Surrogate: 4-Bromofluorobenzene	0.0407		"	0.0398		102	21-167			

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1701108 - General Preparation**

**Blank (1701108-BLK1)**

Prepared & Analyzed: 01/13/17

Calcium	ND	10.0	mg/kg wet
Magnesium	ND	5.00	"
Sodium	ND	5.00	"

**LCS (1701108-BS1)**

Prepared & Analyzed: 01/13/17

Calcium	482	10.0	mg/kg wet	500	96.5	82.9-118
Magnesium	528	5.00	"	500	106	77.1-123
Sodium	491	5.00	"	500	98.2	71-129

**Duplicate (1701108-DUP1)**

Source: 1701054-03

Prepared & Analyzed: 01/13/17

Calcium	1790	10.0	mg/kg wet	1800	0.571	200
Magnesium	642	5.00	"	703	9.04	200
Sodium	104	5.00	"	97.8	6.31	200

**Matrix Spike (1701108-MS1)**

Source: 1701054-03

Prepared & Analyzed: 01/13/17

Calcium	2600	10.0	mg/kg wet	500	1800	160	75-125	QM-07
Magnesium	1160	5.00	"	500	703	91.7	75-125	
Sodium	549	5.00	"	500	97.8	90.3	75-125	

**Matrix Spike Dup (1701108-MSD1)**

Source: 1701054-03

Prepared & Analyzed: 01/13/17

Calcium	2690	10.0	mg/kg wet	500	1800	178	75-125	3.39	25	QM-07
Magnesium	1480	5.00	"	500	703	156	75-125	24.2	25	QM-07
Sodium	960	5.00	"	500	97.8	172	75-125	54.4	25	QM-07

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

Reported:  
01/16/17 09:22

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control  
Summit Scientific

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

Batch 1701111 - General Preparation

Blank (1701111-BLK1)

Prepared & Analyzed: 01/13/17

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (1701111-BS1)

Prepared & Analyzed: 01/13/17

Specific Conductance (EC) 0.500 0.0100 mmhos/cm 0.500 100 90-110

Duplicate (1701111-DUP1)

Source: 1701068-01

Prepared & Analyzed: 01/13/17

Specific Conductance (EC) 5.78 0.0100 mmhos/cm 5.66 2.10 20

Batch 1701112 - General Preparation

LCS (1701112-BS1)

Prepared & Analyzed: 01/13/17

pH 5.98 0.100 pH Units 6.00 99.7 95-105

Duplicate (1701112-DUP1)

Source: 1701068-01

Prepared & Analyzed: 01/13/17

pH 7.64 0.100 pH Units 7.67 0.392 20

Summit Scientific

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Extraction Oil & Gas  
570 17th St. Suite 550  
Denver CO, 80202

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Jacob Hildebrand

**Reported:**  
01/16/17 09:22

### Notes and Definitions

QM-07    The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.

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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

January 31, 2017

Heather Otterstetter  
Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood, CO 80401  
RE: Varra 28-4D

Enclosed are the results of analyses for samples received by Summit Scientific on 01/30/17 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Base 01@12'	1701238-01	Soil	01/30/17 13:49	01/30/17 17:40

Summit Scientific

A handwritten signature in black ink, appearing to be 'MSM'.

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

Reported:  
01/31/17 06:30

### Sample Receipt Checklist

S2 Work Order: 1761238

Client: Apex Co

Client Project ID: Varra 28-4D

Shipped Via: \_\_\_\_\_  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	<u>9.3</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<u>ON ICE</u>
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect		<input checked="" type="checkbox"/>		
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?		<input checked="" type="checkbox"/>		
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				

Logan S  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

1-30-17  
Date/Time



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

**Base 01@12'**  
**1701238-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/30/17 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701297	01/30/17	01/30/17	8015M	

Date Sampled: **01/30/17 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		108 %	30-150		"	"	"	"	

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

Date Sampled: **01/30/17 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701296	01/30/17	01/30/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.0066</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.0080</b>	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **01/30/17 13:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.6 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

**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 1701297 - EPA 3550A**

**Blank (1701297-BLK1)**

Prepared & Analyzed: 01/30/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.5		"	12.5		100	30-150			

**LCS (1701297-BS1)**

Prepared & Analyzed: 01/30/17

C10-C28 (DRO)	514	50	mg/kg	499		103	73-134			
Surrogate: o-Terphenyl	12.8		"	12.5		103	30-150			

**Matrix Spike (1701297-MS1)**

Source: 1701237-01

Prepared & Analyzed: 01/30/17

C10-C28 (DRO)	528	50	mg/kg	499	16.8	102	50-148			
Surrogate: o-Terphenyl	12.7		"	12.5		102	30-150			

**Matrix Spike Dup (1701297-MSD1)**

Source: 1701237-01

Prepared & Analyzed: 01/30/17

C10-C28 (DRO)	516	50	mg/kg	499	16.8	100	50-148	2.20	20	
Surrogate: o-Terphenyl	12.3		"	12.5		98.8	30-150			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

**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 1701296 - EPA 5030 Soil MS**

**Blank (1701296-BLK1)**

Prepared & Analyzed: 01/30/17

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0332</i>		<i>"</i>	<i>0.0400</i>		<i>83.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0354</i>		<i>"</i>	<i>0.0400</i>		<i>88.4</i>	<i>21-167</i>			

**LCS (1701296-BS1)**

Prepared & Analyzed: 01/30/17

Benzene	0.0881	0.0020	mg/kg	0.100		88.1	58-130			
Toluene	0.100	0.0050	"	0.100		100	61-134			
Ethylbenzene	0.109	0.0050	"	0.0992		110	74-139			
m,p-Xylene	0.234	0.010	"	0.200		117	73-137			
o-Xylene	0.115	0.0050	"	0.0980		117	73-141			
Xylenes (total)	0.349	0.0050	"				30-150			
Gasoline Range Hydrocarbons	1.18	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0332</i>		<i>"</i>	<i>0.0400</i>		<i>83.1</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0390</i>		<i>"</i>	<i>0.0400</i>		<i>97.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.5</i>	<i>21-167</i>			

**Matrix Spike (1701296-MS1)**

Source: 1701237-01

Prepared & Analyzed: 01/30/17

Benzene	0.0889	0.0020	mg/kg	0.100	ND	88.9	30-131			
Toluene	0.0978	0.0050	"	0.100	ND	97.8	30-134			
Ethylbenzene	0.107	0.0050	"	0.0992	ND	108	22-153			
m,p-Xylene	0.227	0.010	"	0.200	ND	114	10-159			
o-Xylene	0.114	0.0050	"	0.0980	ND	116	31-151			
Xylenes (total)	0.341	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	1.34	0.50	"		0.404		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0347</i>		<i>"</i>	<i>0.0400</i>		<i>86.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>		<i>95.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.7</i>	<i>21-167</i>			

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.*



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

**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 1701296 - EPA 5030 Soil MS**

<b>Matrix Spike Dup (1701296-MSD1)</b>	<b>Source: 1701237-01</b>			<b>Prepared &amp; Analyzed: 01/30/17</b>						
Benzene	0.0896	0.0020	mg/kg	0.100	ND	89.6	30-131	0.807	34	
Toluene	0.0999	0.0050	"	0.100	ND	99.9	30-134	2.13	30	
Ethylbenzene	0.110	0.0050	"	0.0992	ND	111	22-153	3.24	24	
m,p-Xylene	0.233	0.010	"	0.200	ND	117	10-159	2.53	68	
o-Xylene	0.116	0.0050	"	0.0980	ND	118	31-151	1.54	38	
Xylenes (total)	0.348	0.0050	"		ND		30-150	2.20	20	
Gasoline Range Hydrocarbons	1.34	0.50	"		0.404		30-150	0.277	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0336</i>		<i>"</i>	<i>0.0400</i>		<i>83.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0374</i>		<i>"</i>	<i>0.0400</i>		<i>93.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0368</i>		<i>"</i>	<i>0.0400</i>		<i>92.0</i>	<i>21-167</i>			

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.*



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D

Project Number: 744.1608.01 COT0012  
Project Manager: Heather Otterstetter

**Reported:**  
01/31/17 06:30

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 01, 2017

Chris Hines

Apex Companies LLC

1746 Cole blvd bldg 21 ste 265

Lakewood, CO 80401

RE: Varra 28-4D

Enclosed are the results of analyses for samples received by Summit Scientific on 01/31/17 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury  
President



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
W02@11'	1701249-01	Soil	01/31/17 13:15	01/31/17 17:45
SW02@11'	1701249-02	Soil	01/31/17 13:30	01/31/17 17:45
N02@11'	1701249-03	Soil	01/31/17 13:45	01/31/17 17:45

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.*





Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

Reported:  
02/01/17 06:40

### Sample Receipt Checklist

S2 Work Order: 1701249

Client: Apex Co

Client Project ID: Varra 28-4D

Shipped Via:

(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #:

Matrix (check all that apply):

☐ Air

☒ Soil/Solid

☐ Water

☐ Other:

(Describe)

Cooler ID					
Temp (°C)	11.0				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?				
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?				- on ice
Was adequate sample volume provided <sup>(1)</sup> ?				
If custody seals are present, are they intact <sup>(1)</sup> ?				
Are short holding time analytes or samples with HTs due within 48 hours present?				
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?				
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?				
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?				
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?				
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.				
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?				
Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect				
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?				
Record the pH in Comments.				
If dissolved metals are requested, were samples field filtered?				
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Custodian Printed Name

Signature or Initials of Custodian

Date/Time



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**W02@11'**  
**1701249-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/31/17 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701261	01/31/17	01/31/17	8015M	

Date Sampled: **01/31/17 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.8 %	30-150		"	"	"	"	

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

Date Sampled: **01/31/17 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.056</b>	0.0020	mg/kg	1	1701314	01/31/17	01/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.29</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>1.3</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>9.1</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/31/17 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.3 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	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.



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**SW02@11'**  
**1701249-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **01/31/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1701261	01/31/17	01/31/17	8015M	

Date Sampled: **01/31/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		101 %	30-150		"	"	"	"	

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

Date Sampled: **01/31/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1701314	01/31/17	01/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.22	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.015	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	6.3	0.50	"	"	"	"	"	"	

Date Sampled: **01/31/17 13:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		86.1 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %	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.



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**N02@11'**  
**1701249-03 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **01/31/17 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>130</b>	50	mg/kg	1	1701261	01/31/17	01/31/17	8015M	

Date Sampled: **01/31/17 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.1 %	30-150		"	"	"	"	

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

Date Sampled: **01/31/17 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>0.0040</b>	0.0020	mg/kg	1	1701314	01/31/17	01/31/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.21</b>	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.65</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>12</b>	0.50	"	"	"	"	"	"	

Date Sampled: **01/31/17 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		90.5 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.9 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		111 %	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.*



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**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 1701261 - EPA 3550A**

**Blank (1701261-BLK1)**

Prepared & Analyzed: 01/31/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.7		"	12.5		102	30-150			

**LCS (1701261-BS1)**

Prepared & Analyzed: 01/31/17

C10-C28 (DRO)	500	50	mg/kg	499		100	73-134			
Surrogate: o-Terphenyl	12.5		"	12.5		99.6	30-150			

**Matrix Spike (1701261-MS1)**

Source: 1701183-02

Prepared & Analyzed: 01/31/17

C10-C28 (DRO)	476	50	mg/kg	499	15.3	92.4	50-148			
Surrogate: o-Terphenyl	11.7		"	12.5		93.7	30-150			

**Matrix Spike Dup (1701261-MSD1)**

Source: 1701183-02

Prepared & Analyzed: 01/31/17

C10-C28 (DRO)	495	50	mg/kg	499	15.3	96.1	50-148	3.79	20	
Surrogate: o-Terphenyl	12.6		"	12.5		101	30-150			

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.



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**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 1701314 - EPA 5030 Soil MS**

**Blank (1701314-BLK1)**

Prepared & Analyzed: 01/31/17

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0332</i>		<i>"</i>	<i>0.0400</i>		<i>83.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0367</i>		<i>"</i>	<i>0.0400</i>		<i>91.8</i>	<i>21-167</i>			

**LCS (1701314-BS1)**

Prepared & Analyzed: 01/31/17

Benzene	0.0896	0.0020	mg/kg	0.100		89.6	58-130			
Toluene	0.0998	0.0050	"	0.100		99.8	61-134			
Ethylbenzene	0.110	0.0050	"	0.0992		111	74-139			
m,p-Xylene	0.232	0.010	"	0.200		116	73-137			
o-Xylene	0.117	0.0050	"	0.0980		119	73-141			
Xylenes (total)	0.349	0.0050	"				30-150			
Gasoline Range Hydrocarbons	1.23	0.50	"				30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0338</i>		<i>"</i>	<i>0.0400</i>		<i>84.4</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0360</i>		<i>"</i>	<i>0.0400</i>		<i>90.1</i>	<i>21-167</i>			

**Matrix Spike (1701314-MS1)**

Source: 1701248-02

Prepared & Analyzed: 01/31/17

Benzene	0.0891	0.0020	mg/kg	0.100	ND	89.1	30-131			
Toluene	0.0985	0.0050	"	0.100	ND	98.5	30-134			
Ethylbenzene	0.112	0.0050	"	0.0992	ND	113	22-153			
m,p-Xylene	0.256	0.010	"	0.200	0.0815	87.4	10-159			
o-Xylene	0.119	0.0050	"	0.0980	ND	121	31-151			
Xylenes (total)	0.375	0.0050	"		0.0815		30-150			
Gasoline Range Hydrocarbons	2.88	0.50	"		27.9		30-150			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0345</i>		<i>"</i>	<i>0.0400</i>		<i>86.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>93.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>21-167</i>			

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.



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

**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 1701314 - EPA 5030 Soil MS**

Matrix Spike Dup (1701314-MSD1)		Source: 1701248-02			Prepared & Analyzed: 01/31/17					
Benzene	0.0898	0.0020	mg/kg	0.100	ND	89.8	30-131	0.704	34	
Toluene	0.101	0.0050	"	0.100	ND	101	30-134	2.68	30	
Ethylbenzene	0.110	0.0050	"	0.0992	ND	111	22-153	1.40	24	
m,p-Xylene	0.253	0.010	"	0.200	0.0815	85.9	10-159	1.16	68	
o-Xylene	0.116	0.0050	"	0.0980	ND	118	31-151	2.45	38	
Xylenes (total)	0.369	0.0050	"		0.0815		30-150	1.56	20	
Gasoline Range Hydrocarbons	3.64	0.50	"		27.9		30-150	23.4	20	
Surrogate: 1,2-Dichloroethane-d4	0.0327		"	0.0400		81.8	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0400		96.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0427		"	0.0400		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.



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01 COT 012  
Project Manager: Chris Hines

**Reported:**  
02/01/17 06:40

### 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

# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 02, 2017

Chris Hines

Apex Companies LLC

1746 Cole blvd bldg 21 ste 265

Lakewood, CO 80401

RE: Varra 28-4D

Enclosed are the results of analyses for samples received by Summit Scientific on 02/01/17 14:17. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/02/17 07:37

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S02@11'	1702001-01	Soil	02/01/17 12:18	02/01/17 14:17
E02@11'	1702001-02	Soil	02/01/17 12:22	02/01/17 14:17

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.*

Page 2 of 9

Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/02/17 07:37

### Sample Receipt Checklist

S2 Work Order: 1702001

Client: Apex

Client Project ID: Varra 28-4D

Shipped Via: hand delivered  
(UPS, FedEx, Hand Delivered, Pick-up, etc.)

Airbill #: \_\_\_\_\_

Matrix (check all that apply): ☐ Air ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_  
(Describe)

Cooler ID					
Temp (°C)	<u>6.8°C</u>				

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>on ice</u>
NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.				
Were all samples received intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)</sup> ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.

Eric Kaurilla  
Custodian Printed Name

[Signature]  
Signature or Initials of Custodian

2-1-17 14:17  
Date/Time

[Signature]



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/02/17 07:37

**S02@11'**  
**1702001-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/01/17 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702012	02/01/17	02/01/17	8015M	

Date Sampled: **02/01/17 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

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

Date Sampled: **02/01/17 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702013	02/01/17	02/01/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	<b>0.17</b>	0.0050	"	"	"	"	"	"	
Xylenes (total)	<b>0.045</b>	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	<b>27</b>	0.50	"	"	"	"	"	"	

Date Sampled: **02/01/17 12:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		124 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/02/17 07:37

**E02@11'**  
**1702001-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/01/17 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702012	02/01/17	02/01/17	8015M	

Date Sampled: **02/01/17 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		102 %	30-150		"	"	"	"	

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

Date Sampled: **02/01/17 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702013	02/01/17	02/01/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.4	0.50	"	"	"	"	"	"	

Date Sampled: **02/01/17 12:22**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.8 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/02/17 07:37

**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 1702012 - EPA 3550A**

**Blank (1702012-BLK1)**

Prepared & Analyzed: 02/01/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	13.8		"	12.5		110	30-150			

**LCS (1702012-BS1)**

Prepared & Analyzed: 02/01/17

C10-C28 (DRO)	553	50	mg/kg	499		111	73-134			
Surrogate: o-Terphenyl	13.4		"	12.5		107	30-150			

**Matrix Spike (1702012-MS1)**

**Source: 1702001-02**

Prepared & Analyzed: 02/01/17

C10-C28 (DRO)	530	50	mg/kg	499	35.1	99.1	50-148			
Surrogate: o-Terphenyl	12.8		"	12.5		103	30-150			

**Matrix Spike Dup (1702012-MSD1)**

**Source: 1702001-02**

Prepared & Analyzed: 02/01/17

C10-C28 (DRO)	504	50	mg/kg	499	35.1	94.0	50-148	4.95	20	
Surrogate: o-Terphenyl	12.1		"	12.5		96.9	30-150			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/02/17 07:37

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

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

**Batch 1702013 - EPA 5030 Soil MS**

**Blank (1702013-BLK1)**

Prepared & Analyzed: 02/01/17

Benzene	ND	0.0020	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	0.0410		"	0.0400		102	23-173			
Surrogate: Toluene-d8	0.0392		"	0.0400		98.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0404		"	0.0400		101	21-167			

**LCS (1702013-BS1)**

Prepared & Analyzed: 02/01/17

Benzene	0.105	0.0020	mg/kg	0.100		105	58-130			
Toluene	0.107	0.0050	"	0.100		107	61-134			
Ethylbenzene	0.113	0.0050	"	0.0992		114	74-139			
m,p-Xylene	0.201	0.010	"	0.200		101	73-137			
o-Xylene	0.110	0.0050	"	0.0980		113	73-141			
Xylenes (total)	0.311	0.0050	"				30-150			
Gasoline Range Hydrocarbons	2.45	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0382		"	0.0400		95.6	23-173			
Surrogate: Toluene-d8	0.0437		"	0.0400		109	20-170			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		102	21-167			

**Matrix Spike (1702013-MS1)**

Source: 1702001-02

Prepared & Analyzed: 02/01/17

Benzene	0.113	0.0020	mg/kg	0.100	ND	113	30-131			
Toluene	0.115	0.0050	"	0.100	ND	115	30-134			
Ethylbenzene	0.131	0.0050	"	0.0992	ND	132	22-153			
m,p-Xylene	0.232	0.010	"	0.200	ND	116	10-159			
o-Xylene	0.127	0.0050	"	0.0980	ND	130	31-151			
Xylenes (total)	0.359	0.0050	"		ND		30-150			
Gasoline Range Hydrocarbons	2.81	0.50	"		2.35		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0418		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0418		"	0.0400		105	20-170			
Surrogate: 4-Bromofluorobenzene	0.0408		"	0.0400		102	21-167			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/02/17 07:37

**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 1702013 - EPA 5030 Soil MS**

Matrix Spike Dup (1702013-MSD1)		Source: 1702001-02			Prepared & Analyzed: 02/01/17					
Benzene	0.115	0.0020	mg/kg	0.100	ND	115	30-131	1.84	34	
Toluene	0.119	0.0050	"	0.100	ND	119	30-134	2.82	30	
Ethylbenzene	0.137	0.0050	"	0.0992	ND	138	22-153	4.72	24	
m,p-Xylene	0.244	0.010	"	0.200	ND	122	10-159	4.86	68	
o-Xylene	0.134	0.0050	"	0.0980	ND	136	31-151	4.72	38	
Xylenes (total)	0.377	0.0050	"		ND		30-150	4.81	20	
Gasoline Range Hydrocarbons	3.04	0.50	"		2.35		30-150	8.04	20	
Surrogate: 1,2-Dichloroethane-d4	0.0424		"	0.0400		106	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	21-167			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/02/17 07:37

### 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

# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

February 07, 2017

Chris Hines

Apex Companies LLC

1746 Cole blvd bldg 21 ste 265

Lakewood, CO 80401

RE: Varra 28-4D

Enclosed are the results of analyses for samples received by Summit Scientific on 02/06/17 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', with a stylized, cursive script.

Paul Shrewsbury  
President



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BO1@4'	1702038-01	Soil	02/06/17 10:45	02/06/17 14:00
E01@3'	1702038-02	Soil	02/06/17 10:49	02/06/17 14:00
SO1@3'	1702038-03	Soil	02/06/17 10:52	02/06/17 14:00
WO1@3'	1702038-04	Soil	02/06/17 10:56	02/06/17 14:00
NO1@3'	1702038-05	Soil	02/06/17 11:00	02/06/17 14:00
E02@3'	1702038-06	Soil	02/06/17 11:40	02/06/17 14:00
E SPOIL	1702038-07	Soil	02/06/17 12:20	02/06/17 14:00

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

Sample Receipt Checklist				
S2 Work Order: <u>1702038</u>				
Client: <u>Apex</u>		Client Project ID: <u>Varra 28-4D</u>		
Shipped Via: <u>H.D. on ice</u> (UPS, FedEx, Hand Delivered, Pick-up, etc.)		Airbill #: _____		
Matrix (check all that apply): <input type="checkbox"/> Air <input checked="" type="checkbox"/> Soil/Solid <input type="checkbox"/> Water <input type="checkbox"/> Other: _____ (Describe)				
Cooler ID				
Temp (°C)	<u>12.3</u>			
Thermometer ID: 61857155-K				
	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature just above 0°C to ≤ 6°C <sup>(1)?</sup> NOTE: If samples are delivered the same day of sampling, this requirement is waived provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>			
Were all samples received intact <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Was adequate sample volume provided <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
If custody seals are present, are they intact <sup>(1)?</sup>			<input checked="" type="checkbox"/>	
Are short holding time analytes or samples with HTs due within 48 hours present?	<input checked="" type="checkbox"/>			
Is a chain-of-custody (COC) form present and filled out completely <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client w/ date and time recorded <sup>(1)?</sup>	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace present? <b>if yes, contact client and note in narrative.</b>			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) <sup>(1)?</sup> Note the type of preservative in the Comments column – HCl, H <sub>2</sub> SO <sub>4</sub> , NaOH, HNO <sub>3</sub> , ect			<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 <sup>(1)?</sup> Record the pH in Comments.			<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?			<input checked="" type="checkbox"/>	
Additional Comments (if any):				
<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note in case narrative.				
<u>Nuri P.</u> Custodian Printed Name	<u>CH</u> Signature or Initials of Custodian	<u>2-6-17</u> Date/Time	<u>15:30</u> Date/Time	



Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**BO1@4'**  
**1702038-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.1 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/07/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>0.014</b>	0.0050	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>1.8</b>	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 10:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**E01@3'**  
**1702038-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	72	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		93.6 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.90	0.0020	mg/kg	1	1702062	02/06/17	02/07/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	43	0.50	"	100	"	"	02/07/17	"	
Xylenes (total)	850	0.50	"	"	"	"	02/07/17	"	E
Gasoline Range Hydrocarbons	3100	50	"	"	"	"	02/07/17	"	

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	02/07/17	"	
Surrogate: Toluene-d8		92.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		159 %	21-167		"	"	"	"	

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	823	13.0	mg/kg dry	1	1702061	02/06/17	02/06/17	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	271	6.49	"	"	"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**E01@3'**  
**1702038-02 (Soil)**

**Summit Scientific**

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis**

<b>Sodium</b>	<b>258</b>	6.49 mg/kg dry	1	1702061	02/06/17	02/06/17	EPA 6020/Mod. USDA60 6(2, 3A)
<b>Sodium Adsorption Ratio</b>	<b>1.99</b>	units	"	1702065	02/07/17	02/07/17	"

**Physical Parameters by APHA/ASTM/EPA Methods**

Date Sampled: **02/06/17 10:49**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
<b>pH</b>	<b>8.01</b>	0.100	pH Units	1	1702054	02/06/17	02/06/17	EPA 9045	
<b>% Solids</b>	<b>77.1</b>		%	"	1702064	02/06/17	02/07/17	% calculation	
<b>Specific Conductance (EC)</b>	<b>0.491</b>	0.0100	mmhos/cm	"	1702055	02/06/17	02/06/17	SM 2510B	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**SO1@3'**  
**1702038-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.4 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/06/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 10:52**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**WO1@3'**  
**1702038-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 10:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 10:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.5 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 10:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/06/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 10:56**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**NO1@3'**  
**1702038-05 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.7 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/06/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**E02@3'**  
**1702038-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.0 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/07/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		100 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.7 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**E SPOIL**  
**1702038-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **02/06/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1702063	02/06/17	02/06/17	8015M	

Date Sampled: **02/06/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		100 %	30-150		"	"	"	"	

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

Date Sampled: **02/06/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	1702062	02/06/17	02/07/17	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **02/06/17 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.7 %	21-167		"	"	"	"	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**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 1702063 - EPA 3550A**

**Blank (1702063-BLK1)**

Prepared & Analyzed: 02/06/17

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.0		"	12.5		95.7	30-150			

**LCS (1702063-BS1)**

Prepared & Analyzed: 02/06/17

C10-C28 (DRO)	491	50	mg/kg	499		98.4	73-134			
Surrogate: o-Terphenyl	12.5		"	12.5		100	30-150			

**Matrix Spike (1702063-MS1)**

**Source: 1702045-01**

Prepared & Analyzed: 02/06/17

C10-C28 (DRO)	642	50	mg/kg	499	185	91.5	50-148			
Surrogate: o-Terphenyl	12.8		"	12.5		103	30-150			

**Matrix Spike Dup (1702063-MSD1)**

**Source: 1702045-01**

Prepared & Analyzed: 02/06/17

C10-C28 (DRO)	618	50	mg/kg	499	185	86.7	50-148	3.78	20	
Surrogate: o-Terphenyl	12.4		"	12.5		99.4	30-150			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

Reported:  
02/07/17 06:17

**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 1702062 - EPA 5030 Soil MS**

**Blank (1702062-BLK1)**

Prepared & Analyzed: 02/06/17

Benzene	ND	0.0020	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	0.0417		"	0.0400		104	23-173			
Surrogate: Toluene-d8	0.0382		"	0.0400		95.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.0	21-167			

**LCS (1702062-BS1)**

Prepared & Analyzed: 02/06/17

Benzene	0.0843	0.0020	mg/kg	0.100		84.3	58-130			
Toluene	0.0887	0.0050	"	0.100		88.7	61-134			
Ethylbenzene	0.0877	0.0050	"	0.0992		88.4	74-139			
m,p-Xylene	0.158	0.010	"	0.200		79.1	73-137			
o-Xylene	0.0835	0.0050	"	0.0980		85.2	73-141			
Xylenes (total)	0.241	0.0050	"				30-150			
Gasoline Range Hydrocarbons	1.56	0.50	"				30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0400		97.1	23-173			
Surrogate: Toluene-d8	0.0452		"	0.0400		113	20-170			
Surrogate: 4-Bromofluorobenzene	0.0410		"	0.0400		102	21-167			

**Matrix Spike (1702062-MS1)**

Source: 1702045-01

Prepared & Analyzed: 02/06/17

Benzene	0.104	0.0020	mg/kg	0.100	0.0125	91.7	30-131			
Toluene	0.102	0.0050	"	0.100	ND	102	30-134			
Ethylbenzene	0.140	0.0050	"	0.0992	0.0650	75.1	22-153			
m,p-Xylene	0.409	0.010	"	0.200	0.497	NR	10-159			QM-07
o-Xylene	0.135	0.0050	"	0.0980	0.0524	84.7	31-151			
Xylenes (total)	0.544	0.0050	"		0.549		30-150			
Gasoline Range Hydrocarbons	17.4	0.50	"		47.0		30-150			
Surrogate: 1,2-Dichloroethane-d4	0.0402		"	0.0400		100	23-173			
Surrogate: Toluene-d8	0.0432		"	0.0400		108	20-170			
Surrogate: 4-Bromofluorobenzene	0.0419		"	0.0400		105	21-167			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**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 1702062 - EPA 5030 Soil MS**

Matrix Spike Dup (1702062-MSD1)	Source: 1702045-01			Prepared & Analyzed: 02/06/17						
Benzene	0.111	0.0020	mg/kg	0.100	0.0125	98.1	30-131	5.98	34	
Toluene	0.109	0.0050	"	0.100	ND	109	30-134	6.50	30	
Ethylbenzene	0.157	0.0050	"	0.0992	0.0650	92.4	22-153	11.6	24	
m,p-Xylene	0.456	0.010	"	0.200	0.497	NR	10-159	10.8	68	QM-07
o-Xylene	0.153	0.0050	"	0.0980	0.0524	103	31-151	12.5	38	
Xylenes (total)	0.609	0.0050	"		0.549		30-150	11.3	20	
Gasoline Range Hydrocarbons	18.5	0.50	"		47.0		30-150	6.22	20	
Surrogate: 1,2-Dichloroethane-d4	0.0419		"	0.0400		105	23-173			
Surrogate: Toluene-d8	0.0417		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0431		"	0.0400		108	21-167			

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**Soluble Nutrients by EPA 6020/Mod. USDA60 6(2, 3A) - Dry Weight Basis - Quality Control**  
**Summit Scientific**

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

**Batch 1702061 - General Preparation**

**LCS (1702061-BS1)**

Prepared & Analyzed: 02/06/17

Calcium	423	10.0	mg/kg wet	500		84.7	82.9-118			
Magnesium	399	5.00	"	500		79.9	77.1-123			
Sodium	390	5.00	"	500		78.0	71-129			

**Duplicate (1702061-DUP1)**

Source: 1702016-01

Prepared & Analyzed: 02/06/17

Calcium	361	10.7	mg/kg dry		391			7.95	200	
Magnesium	101	5.36	"		101			0.517	200	
Sodium	19.6	5.36	"		17.4			11.7	200	

**Matrix Spike (1702061-MS1)**

Source: 1702016-01

Prepared & Analyzed: 02/06/17

Calcium	898	10.7	mg/kg dry	536	391	94.5	75-125			
Magnesium	557	5.36	"	536	101	84.8	75-125			
Sodium	435	5.36	"	536	17.4	77.8	75-125			

**Matrix Spike Dup (1702061-MSD1)**

Source: 1702016-01

Prepared & Analyzed: 02/06/17

Calcium	874	10.7	mg/kg dry	536	391	89.9	75-125	2.77	25	
Magnesium	547	5.36	"	536	101	83.0	75-125	1.75	25	
Sodium	437	5.36	"	536	17.4	78.2	75-125	0.476	25	

Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

**Physical Parameters by APHA/ASTM/EPA Methods - Quality Control**  
**Summit Scientific**

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

**Batch 1702054 - General Preparation**

**LCS (1702054-BS1)**

Prepared & Analyzed: 02/06/17

pH	8.04	0.100	pH Units	8.00	100	95-105
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**Duplicate (1702054-DUP1)**

**Source: 1701257-01**

Prepared & Analyzed: 02/06/17

pH	8.38	0.100	pH Units	8.47	1.07	20
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**Batch 1702055 - General Preparation**

**Blank (1702055-BLK1)**

Prepared & Analyzed: 02/06/17

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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**LCS (1702055-BS1)**

Prepared & Analyzed: 02/06/17

Specific Conductance (EC)	0.761	0.0100	mmhos/cm	0.750	101	90-110
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**Duplicate (1702055-DUP1)**

**Source: 1701257-01**

Prepared & Analyzed: 02/06/17

Specific Conductance (EC)	2.26	0.0100	mmhos/cm	2.27	0.375	20
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Summit Scientific

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Apex Companies LLC  
1746 Cole blvd bldg 21 ste 265  
Lakewood CO, 80401

Project: Varra 28-4D  
Project Number: 744.1608.01  
Project Manager: Chris Hines

**Reported:**  
02/07/17 06:17

### Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
E	The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
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