

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

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



#8516

FOR OGCC USE ONLY

RECEIVED  
7/2/2014

**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 Operator Number: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	Fax: _____
API Number: _____	County: _____
Facility Name: _____	Facility Number: _____
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____ Latitude: _____ Longitude: _____	

**TECHNICAL CONDITIONS**

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): \_\_\_\_\_

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.): \_\_\_\_\_

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: \_\_\_\_\_

Potential receptors (water wells within 1/4 mi, surface waters, etc.): \_\_\_\_\_

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	_____	_____

**REMEDIALTION WORKPLAN**

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

Describe how source is to be removed:

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.:



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

**REMEDIATION WORKPLAN (Cont.)**

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

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.

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

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

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

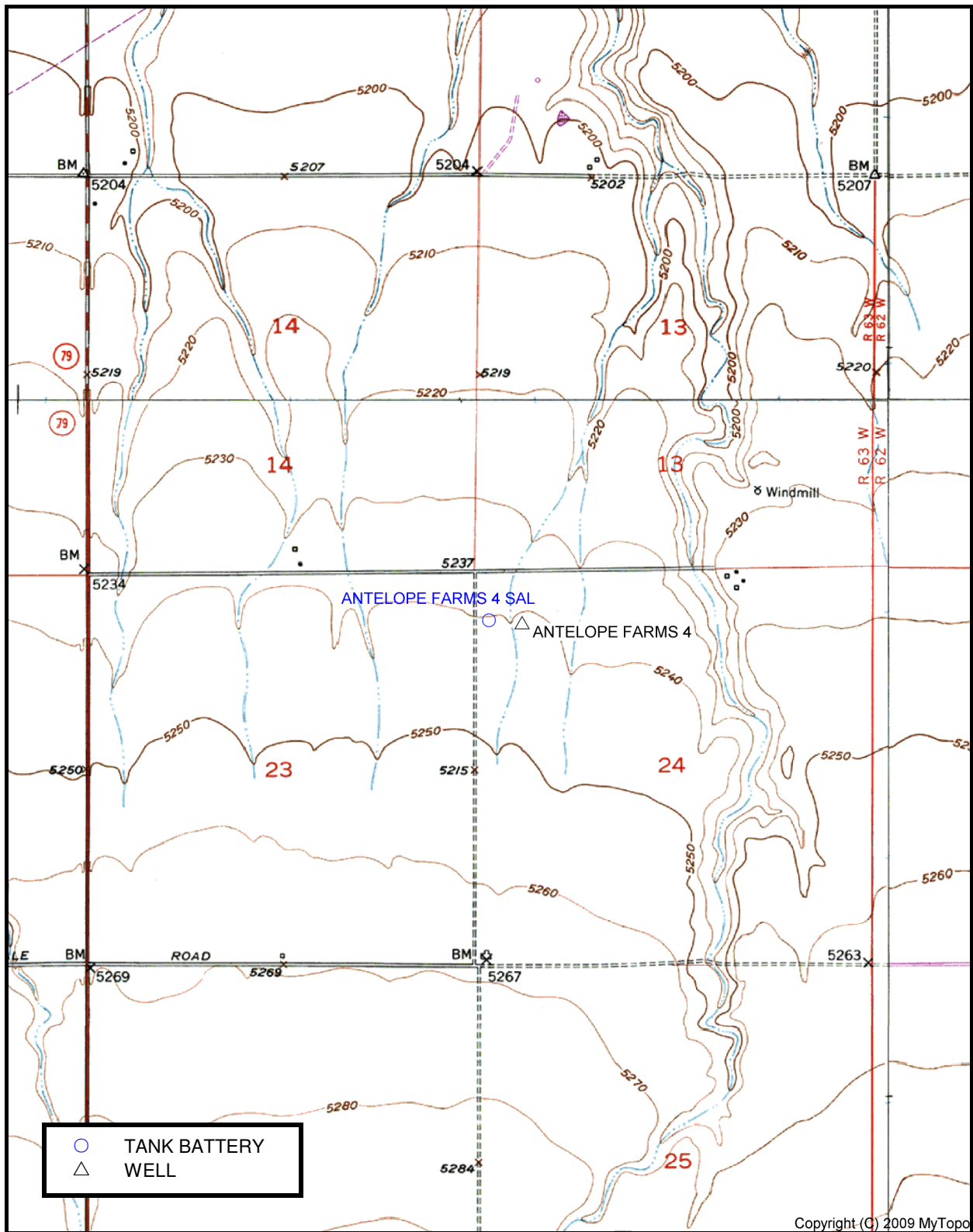
**IMPLEMENTATION SCHEDULE**

Date Site Investigation Began: \_\_\_\_\_ 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: Scott A. Donato  
Title: \_\_\_\_\_ Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: EPS Date: 7/2/2014



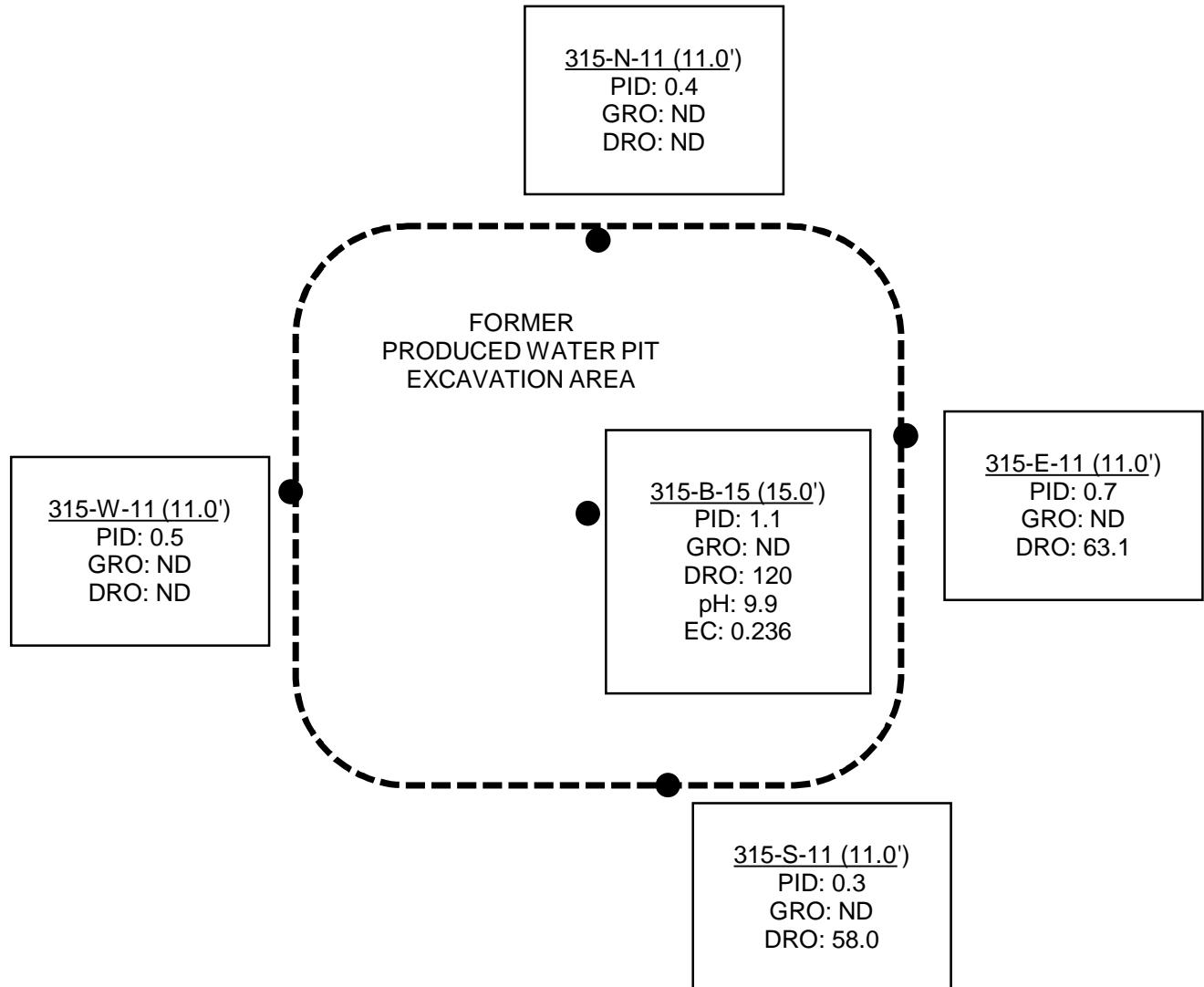
SCALE 1:24000  
0 1000 2000 3000 4000 5000  
FEET



**A.G. Wassenaar** | **Inc.**

ANTELOPE FARMS 4  
SAL  
& WELL LOCATION  
NWNW S24-T2S-R63W

PROJECT NO. E12118.EC  
TOPOGRAPHIC MAP  
FIGURE 1



NOTE: ALL LOCATIONS ARE APPROXIMATE

**LEGEND**

- SOIL SAMPLE LOCATION (WITH DEPTH IN FT.)
- PID: PHOTOIONIZATION DETECTOR READING IN PARTS PER MILLION.
- GRO/DRO: GASOLINE RANGE ORGANICS/DIESEL RANGE ORGANICS
- EC: ELECTRICAL CONDUCTIVITY
- ND: NOT DETECTED ABOVE THE METHOD DETECTION LIMIT



**A.G. WASSENAAR** | **INC.**

GEOTECHNICAL • ENVIRONMENTAL  
CONSULTANTS

ANTELOPE FARMS 4  
PRODUCTION SITE  
ADAMS COUNTY,  
COLORADO

**FIGURE 2**  
**SOIL ANALYTICAL**  
**RESULTS**  
June 24, 2014  
PROJECT: E14315.E2



June 24, 2014

A.G. Wassenaar

Rachel Peterson

2180 South Ivanhoe Street - Suite 5

Denver

CO 80222

Project Name - E14315.E2

Project Number - E14315.E2

Attached are your analytical results for E14315.E2 received by Origins Laboratory, Inc. June 17, 2014. This project is associated with Origins project number X406204-01.

The analytical results in the following report were analyzed under the guidelines of EPA Methods. These methods are identified as follows; "SW" are defined in SW-846, "EPA" are defined in 40CFR part 136 and "SM" are defined in the most current revision of Standard Methods For the Examination of Water and Wastewater.

The analytical results apply specifically to the samples and analyses specified per the attached Chain of Custody. As such, this report shall not be reproduced except in full, without the written approval of Origin's laboratory.

Unless otherwise noted, the analytical results for all soil samples are reported on a wet weight basis. All analytical analyses were performed under NELAP guidelines unless noted by a data qualifier.

Any holding time exceedances, deviations from the method specifications or deviations from Origins Laboratory's Standard Operating Procedures are outlined in the case narrative.

Thank you for selecting Origins for your analytical needs. Please contact us with any questions concerning this report, or if we can help with anything at all.

Origins Laboratory, Inc.  
303.433.1322  
o-squad@oelabinc.com



1725 Elk Place, Denver, CO 80211 | Phone: 303.433.1322 | Fax: 303.265.9645

A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

## CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
315-B-15	X406204-01	Soil	June 17, 2014 11:13	06/17/2014 13:08
315-N-11	X406204-02	Soil	June 17, 2014 11:16	06/17/2014 13:08
315-E-11	X406204-03	Soil	June 17, 2014 11:28	06/17/2014 13:08
315-S-11	X406204-04	Soil	June 17, 2014 11:24	06/17/2014 13:08
315-W-11	X406204-05	Soil	June 17, 2014 11:37	06/17/2014 13:08
315-1-2	X406204-06	Soil	June 17, 2014 9:43	06/17/2014 13:08
315-1-1	X406204-07	Soil	June 17, 2014 9:35	06/17/2014 13:08

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

A.G. Wassenaar  
2180 South Ivanhoe Street - Suite 5  
Denver CO 80222

Rachel Peterson  
Project Number: E14315.E2  
Project: E14315.E2

www.originslaboratory.com

page 1 of 1

X406204

**ORIGINS**  
LABORATORY, INC

Client: A.G. Wassenaar, Inc.  
Address: 2180 S Ivanhoe St.  
Denver CO 80222  
Telephone Number: 303.759.8373

Project Manager/Send Report To: Rachel Peterson  
Email Address: petersonr@agwassenaar.com  
Project Name/Number: E14315.E2  
Samples Collected By: R. Peterson

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions
				Unpreserved	HCl	HNO <sub>3</sub>	Other	Groundwater	Soil	Air Summa #		
315-B-15	6/17/14	1113	4	✓							✓	1 hold pending call
315-N-11		1116	2	✓							✓	2
315-E-11		1128	2	✓							✓	3
315-S-11		1134	2	✓							✓	4
315-W-11		1137	2	✓							✓	5
315-1-42		943	2	✓							✓	6 hold.
315-1-1		935	2	✓							✓	7 hold.
												8
												9
												10
Relinquished By: <u>Rachel Peterson</u>	Date: <u>6-17-14</u>	Time: <u>1308</u>	Received By:	Date:	Time:	Turnaround Time: Same Day <input type="checkbox"/> 24 Hr <input type="checkbox"/> 48 Hr <input type="checkbox"/> 72 Hr <input type="checkbox"/> Standard <input type="checkbox"/> <u>will call</u>						
Relinquished By:	Date:	Time:	Received By:	Date:	Time:							

Date Results Needed:

Comments:

Origins Laboratory, Inc.

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A.G. Wassenaar  
2180 South Ivanhoe Street - Suite 5  
Denver CO 80222

Rachel Peterson  
Project Number: E14315.E2  
Project: E14315.E2

Origins Laboratory

F-012207-01-R1  
Effective Date: 01/09/12

## Sample Receipt Checklist

Origins Work Order: X404304

Client: A.G. Wassenaar

Client Project ID: E14315.E2

Checklist Completed by: Jeff Smith

Shipped Via: H/D

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

Date/time completed: 6/17/14 13:14

Airbill #: NA

Matrix(s) Received: (Check all that apply): ☒ Soil/Solid ☐ Water ☐ Other: \_\_\_\_\_

Cooler Number/Temperature: \_\_\_\_\_ / 15.7 °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C \_\_\_\_\_ / \_\_\_\_\_ °C (Describe)

Thermometer ID: 1002

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C <sup>(1)</sup> ?		<input checked="" type="checkbox"/>		
Is there ice present (document if blue ice is used)	<input checked="" type="checkbox"/>			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		<input checked="" type="checkbox"/>		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		<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"/>			
Are short holding time analytes or samples with HTs due within 48 hours present <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			PH
Is a chain-of-custody (COC) 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 with date and time recorded <sup>(1)</sup> ?	<input checked="" type="checkbox"/>			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			<input checked="" type="checkbox"/>	
Are samples preserved that require preservation and was it checked <sup>(1)</sup> ? (note ID of confirmation instrument used in comments) / (preservation is not confirmed for subcontracted analyses in order to insure sample integrity) / (pH < 2 for samples preserved with HNO <sub>3</sub> , HCL, H <sub>2</sub> SO <sub>4</sub> ) / (pH > 10 for samples preserved with NaAsO <sub>2</sub> +NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

<sup>(1)</sup> If NO, then contact the client before proceeding with analysis and note date, time and person contacted as well as the corrective action to in the additional comments (above) and the case narrative.

Reviewed by (Project Manager)

06-17-14 1752  
Date/Time Reviewed

Origins Laboratory, Inc.

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A.G. Wassenaar  
2180 South Ivanhoe Street - Suite 5  
Denver CO 80222

Rachel Peterson  
Project Number: E14315.E2  
Project: E14315.E2

315-B-15

6/17/2014 11:13:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X406204-01 (Soil)

**Conductance/Specific Conductance by EPA 120.1**

Specific Conductance (EC)	0.236		mmhos/cm	1	4F17013	06/17/2014	06/18/2014
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**GRO (TVPH)/DRO (TEPH)by EPA 8015C**

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014
Diesel (C10-C28)	120	50.0	"	"	"	"	"

Surrogate: o-Terphenyl	83.7 %	59-131			"	"	"
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**pH in Soil by EPA 9045D**

pH	9.90		pH Units	1	4F17012	06/17/2014	06/18/2014
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Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-N-11

6/17/2014 11:16:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X406204-02 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	81.2 %	59-131			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-E-11

6/17/2014 11:28:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.  
X406204-03 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014	
Diesel (C10-C28)	63.1	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	83.4 %	59-131			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President

A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-S-11

6/17/2014 11:24:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X406204-04 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014
Diesel (C10-C28)	58.0	50.0	"	"	"	"	"
Surrogate: o-Terphenyl	83.4 %	59-131			"	"	"

Origins Laboratory, Inc.



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A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-W-11

6/17/2014 11:37:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X406204-05 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014
Diesel (C10-C28)	ND	50.0	"	"	"	"	"
Surrogate: o-Terphenyl	75.9 %	59-131			"	"	"

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A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-1-2

6/17/2014 9:43:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X406204-06 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	1020	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014	
Diesel (C10-C28)	1550	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	98.8 %	59-131			"	"	"	

Origins Laboratory, Inc.



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Ross S Hutto For Noelle Doyle Mathis, President



A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

315-1-1

6/17/2014 9:35:00AM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.

X406204-07 (Soil)

## GRO (TVPH)/DRO (TEPH)by EPA 8015C

Gasoline (C6-C10)	1420	50.0	mg/kg	1	4F17009	06/17/2014	06/17/2014	
Diesel (C10-C28)	1940	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	83.4 %	59-131			"	"	"	

Origins Laboratory, Inc.



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A.G. Wassenaar  
2180 South Ivanhoe Street - Suite 5  
Denver CO 80222

Rachel Peterson  
Project Number: E14315.E2  
Project: E14315.E2

**Extractable Petroleum Hydrocarbons by 8015M - Quality Control**  
**Origins Laboratory, Inc.**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4F17009 - EPA 3580</b>										
<b>Blank (4F17009-BLK1)</b>					Prepared: 06/17/2014 Analyzed: 06/17/2014					
Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Surrogate: o-Terphenyl	45		g	50.0		89.0	59-131			
<b>LCS (4F17009-BS1)</b>					Prepared: 06/17/2014 Analyzed: 06/17/2014					
Gasoline (C6-C10)	849	50.0	mg/kg	1000		84.9	59-133			
Diesel (C10-C28)	940	50.0	"	1000		94.0	64-121			
Surrogate: o-Terphenyl	45		g	50.0		89.9	59-131			
<b>LCS Dup (4F17009-BSD1)</b>					Prepared: 06/17/2014 Analyzed: 06/17/2014					
Gasoline (C6-C10)	864	50.0	mg/kg	1000		86.4	59-133	1.65	20	
Diesel (C10-C28)	946	50.0	"	1000		94.6	64-121	0.649	20	
Surrogate: o-Terphenyl	46		g	50.0		91.6	59-131			

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Denver CO 80222

Rachel Peterson  
Project Number: E14315.E2  
Project: E14315.E2

## Classical Chemistry Parameters - Quality Control Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 4F17012 - NO PREP</b>										
<b>Duplicate (4F17012-DUP1)</b>		<b>Source: X406204-01</b>			Prepared: 06/17/2014 Analyzed: 06/18/2014					
pH	9.89		pH Units		9.90			0.0707	25	
<b>Batch 4F17013 - NO PREP</b>										
<b>Blank (4F17013-BLK1)</b>		Prepared: 06/17/2014 Analyzed: 06/18/2014								
Specific Conductance (EC)	0.00190		mmhos/cm							
<b>Duplicate (4F17013-DUP1)</b>		<b>Source: X406204-01</b>			Prepared: 06/17/2014 Analyzed: 06/18/2014					
Specific Conductance (EC)	0.242		mmhos/cm		0.236			2.51	10	

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A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14315.E2

Project: E14315.E2

### Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

Origins Laboratory, Inc.



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