

September 21, 2018

Great Western Operating Company, LLC
1001 17th Street, Suite 2000
Denver, CO 80202

Attention: Ben Huggins, EHS Manager

Subject: Soil Excavation Activities
Clyde E Williams 2 Production Facility
Weld County, Colorado
Project Number E15101.EC

Dear Mr. Huggins,

As requested, A.G. Wassenaar, Inc. (AGW) documented a release of an unknown quantity of oil from historical usage during site closure and conducted soil sampling at the Clyde E Williams 2 production facility operated by Great Western Operating Company, LLC (GWOC). This letter summarizes the project activities and analytical results.

BACKGROUND

In early March, 2014 GWOC was conducting removal operations for the production equipment at the subject site. During that time some minor petroleum spillage was identified. GWOC retained AGW to conduct an environmental investigation of the area to determine the approximate size of the release and associated concentrations. On April 1, 2014 AGW mobilized to the site and began soil sampling. Results of the sampling indicated petroleum impact was present at the site.

SPILL REPORTING

In accordance with regulatory requirements, AGW and GWOC notified the Colorado Oil and Gas Conservation Commission (COGCC), the surface owner, and Weld County, of a release on April 11, 2014, AGW also submitted a Form 19 Spill/Release Report. A supplemental Spill/Release Report was submitted on November 5, 2014. A Form 27 Site Investigation and Remediation Workplan was submitted on November 5, 2014. Copies of all COGCC forms and notifications are included in Attachment A.

SOIL SAMPLING ACTIVITIES

GWOC completed an initial excavation of the site once impacted soils were discovered. A 12 feet wide by 14 feet long by 9 feet deep excavation was completed. AGW was requested to review the site and completed an initial investigation of the site on April 1, 2014 by using an available backhoe and photo-ionization detector (PID). Soil samples were inspected throughout the site at various depths. Sample results are shown on Figure 1 in Attachment A. AGW collected ten discrete soil samples from the

production facility area for laboratory analysis. The samples were placed into a new laboratory-supplied glass jar for laboratory submittal. During this project, AGW followed sampling procedures, equipment decontamination methods, and chain-of-custody procedures in general accordance with U.S. Environmental Protection Agency (EPA) guidelines. On the day after collection, the soil samples were submitted to Origins Laboratory, Inc. (Origins) in Denver, Colorado for analysis. Origins analyzed the composite soil sample for benzene, toluene, ethylbenzene, and xylenes (BTEX), gasoline range organics (GRO), and diesel range organics (DRO) using appropriate EPA Methods. In accordance with requirements of the COGCC, the GRO and DRO values were added together to obtain the total petroleum hydrocarbon (TPH) concentration for comparison to the COGCC Table 910-1 TPH concentration.

Figure 1 in Attachment A illustrates the site features and soil sampling locations. The soil sample analytical results are included in Table 1, below, and the laboratory analytical reports are included in Attachment B.

**Table 1:
Clyde E Williams Production Facility, Weld County, Colorado
Soil Sampling Analytical Results**

Sample Number	Sample Location	Date of Sample Collection	Analytical Results (mg/kg)	
SS-1-1	Center of excavation 9' depth	04/01/2014	B: 1.11 T: 0.13 E: 2.10 X: 18.50	GRO: 506 DRO: 4,950 (TPH: 5,456)
SS-1-2	Center of excavation 11' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: ND DRO: ND (TPH: ND)
SS-1-3	Center of excavation @ 14' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: 0.249 DRO: ND (TPH: 0.249)
SS-1-4	Center of excavation @ 16' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: 0.303 DRO: ND (TPH: 0.303)
SS-2-1	7' west of excavation wall @ 8' depth	04/01/2014	B: 0.068 T: ND E: 0.152 X: 0.470	GRO: 19.2 DRO: 781 (TPH: 800.2)
SS-3-1	23' west of excavation wall @ 15' depth	04/01/2014	B: 0.009 T: ND E: .030 X: 0.266	GRO: 4.55 DRO: ND (TPH: 4.55)
SS-4-1	13.5' south of excavation wall @ 15' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: 0.245 DRO: ND (TPH: 0.245)

Sample Number	Sample Location	Date of Sample Collection	Analytical Results (mg/kg)	
SS-5-1	28' east of excavation wall @ 14.5' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: ND DRO: ND (TPH: ND)
SS-6-1	11' east of excavation wall @ 1.5' depth	04/01/2014	B: 0.472 T: ND E: 6.26 X: 21.1	GRO: 6,130 DRO: 802 (TPH: 6,932)
SS-7-1	25' north of excavation wall @ 15' depth	04/01/2014	B: ND T: ND E: ND X: ND	GRO: 0.257 DRO: ND (TPH: 255.82)
COGCC Concentration Levels*	B: 0.17 T: 85.0 E: 100 X: 175	TPH: 500		

Legend:

B: Benzene, T: Toluene, E: Ethylbenzene, X: Total Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

TPH: Total Petroleum Hydrocarbons (GRO + DRO)

mg/kg: milligrams per kilogram (parts per million)

ND: Not detected above the laboratory method detection limit.

*From Colorado Oil and Gas Conservation Commission Table 910-1 of their 900 Series Rules, effective January 30, 2015.

Concentrations in **BOLD** exceed their respective COGCC Table 910-1 Concentrations

Based on the analytical results from the soil samples, a specific impacted area was identified which contained concentrations of benzene and TPH at levels greater than their respective Table 910-1 concentrations. It also indicated that impact was limited in area and depth. It appears impacted soil did not exceed more than 11' of depth in the area of the release. Based on that information additional excavation was recommended.

On October 26 and 27th, 2014, GWOC directed the removal of additional visibly impacted soils from the spill location. AGW visited the site on October 27, 2014 to conduct additional soil sampling activities of the new excavation. AGW collected one soil sample from each of the sidewalls based on compass direction and two at the base (total of 6 samples). The excavated area measured 23 feet by 40 feet by 14 feet deep. The soil samples were submitted to Origins for analysis of, GRO, DRO, pH and Specific Conductance (EC). Based on the analytical results, one soil sample contained concentrations of TPH greater than its Table 910-1 concentration.

In accordance with requirements of the COGCC, the GRO and DRO values were added together to obtain the total petroleum hydrocarbon (TPH) concentration for comparison to the COGCC Table 910-1 TPH concentration.

Figure 2 in Attachment A illustrates the site features and soil sampling locations. The soil sample analytical results are included in Table 2, below, and the laboratory analytical reports are included in Attachment B.

**Table 2:
Clyde E Williams Production Facility, Weld County, Colorado
Soil Sampling Analytical Results October 2014**

Sample Number	Sample Location	Date of Sample Collection	Analytical Results (mg/kg)	
SS-clyde2-north	North wall excavation	10/27/2014	pH: 7.94 EC: 0.428	GRO: ND DRO: 176 (TPH: 176)
SS-clyde2-south	South wall excavation	10/27/2014	pH: 8.26 EC: 0.261	GRO: ND DRO: 272 (TPH:272)
SS-clyde2-east	East wall excavation	10/27/2014	pH: 7.84 EC: 0.202	GRO: 3,970 DRO: 8,090 (TPH:12,060)
SS-clyde2-west	West wall excavation	10/27/2014	pH: 7.93 EC: 0.442	GRO: ND DRO: 141 (TPH: 141)
SS-clyde2-Base 1	Base of excavation @ 9'	10/27/2014	pH: 8.94 EC: 0.553	GRO: 430 DRO: 776 (TPH: 1,206)
SS-clyde2-Base-2	Base of excavation @ 14'	10/27/2014	pH: 9.42 EC: 0.170	GRO: ND DRO: ND (TPH: ND)
COGCC Concentration Levels*				TPH: 500

Legend:

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

EC: Mmhos/cm

ND: Not detected above the laboratory method detection limit.

*From Colorado Oil and Gas Conservation Commission Table 910-1 of their 900 Series Rules, effective January 30, 2015.

Concentrations in **BOLD** exceed their respective COGCC Table 910-1 Concentrations

Based on the analytical results from the soil samples, the eastern wall of the excavation contained concentrations of TPH at levels greater than their respective Table 910-1 concentrations. It also indicated that impact was limited in area and depth. Based on that information additional excavation was recommended.

On October 5 and 6th, 2015, GWOC directed the removal of additional impacted soils from eastern wall of the excavation. AGW visited the site on October 6, 2015 to conduct additional soil sampling activities of the new excavation. AGW collected one soil sample from the eastern sidewall which was extended approximately 10' to the east. The excavated area measured 33 feet by 50 feet by 14 feet deep. The soil sample was submitted to Origins for analysis of, GRO, and DRO since the previous samples indicated no issues with BTEX, EH and pH. Figure 3 in Attachment A illustrates the site features and soil sampling locations. The soil sample analytical results are included in Table 2, below, and the laboratory analytical reports are included in Attachment B. Based on the analytical results, the final soil sample indicated that no contaminants were present.

**Table 3:
Clyde E Williams Production Facility, Weld County, Colorado
Soil Sampling Analytical Results October 2015**

Sample Number	Sample Location	Date of Sample Collection	Analytical Results (mg/kg)
SS-clyde2-east-2	East wall excavation	10/06/2015	GRO: ND DRO: ND (TPH: ND)
COGCC Concentration Levels*			TPH: 500

Legend:

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ND: Not detected above the laboratory method detection limit.

*From Colorado Oil and Gas Conservation Commission Table 910-1 of their 900 Series Rules, effective January 30, 2015.

Concentrations in **BOLD** exceed their respective COGCC Table 910-1 Concentrations

CONCLUSIONS

Based on the soil analytical results obtained at the site, impacted soils at the Clyde E Williams 2 production site were present in the water production pit area. Following soil excavation, final soil sampling activities conducted on October 27, 2014 and October 6, 2015 confirmed that impacted soil has been removed from the spill area and remaining soils do not contain TPH or BTEX values greater than Table 910-1 concentrations. AGW recommends that GWOC request closure for this project from the COGCC.

Thank you for allowing AGW to assist you with this project. Please contact us for any clarification of the information presented in this report. We look forward to the opportunity to serve you on future projects.

Sincerely,
A.G. Wassenaar, Inc.

A handwritten signature in black ink that reads "Rachel A. Peterson". The signature is written in a cursive style and is positioned above a solid horizontal line.

Rachel A. Peterson, P.G.
Senior Project Manager

Attachments

ATTACHMENT A

SPILL REPORTING DOCUMENTATION



State of Colorado
Oil and Gas Conservation Commission

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



Document Number:

2148536

Date Received:

04/11/2014

Spill report taken by:

CHESSON BOB

Spill/Release Point ID:

SPILL/RELEASE REPORT (INITIAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Refer to COGCC Rule 906.b. for reporting requirements of spills or releases of E&P Waste or produced fluids. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

OPERATOR INFORMATION

Name of Operator: <u>GREAT WESTERN OPERATING COMPANY LLC</u>	Operator No: <u>10110</u>	Phone Numbers
Address: <u>1801 BROADWAY #500 ATTN: SCOT DONATO</u>		Phone: <u>(303) 398-0537</u>
City: <u>DENVER</u>	State: <u>CO</u>	Zip: <u>80202</u>
Contact Person: <u>SCOT DONATO</u>		Mobile: <u>(866) 742-1784</u>
		Email: _____

One or more parameters were not specified for the subreport, 'zzSpillDet2', located at: W:\Inetpub\Net\Reports\Form19\InitSpill

OPERATOR COMMENTS:

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

Signed: _____ Print Name: SCOT DONATO
 Title: _____ Date: 04/11/2014 Email: _____

<u>COA Type</u>	<u>Description</u>

Attachment Check List

<u>Att Doc Num</u>	<u>Name</u>

Total Attach: 0 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>
		Stamp Upon Approval

Total: 0 comment(s)

State of Colorado
Oil and Gas Conservation Commission



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

FOR OGCC USE ONLY	
OGCC Employee:	
Spill Inspection	Complaint NOAV
Tracking No:	

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):

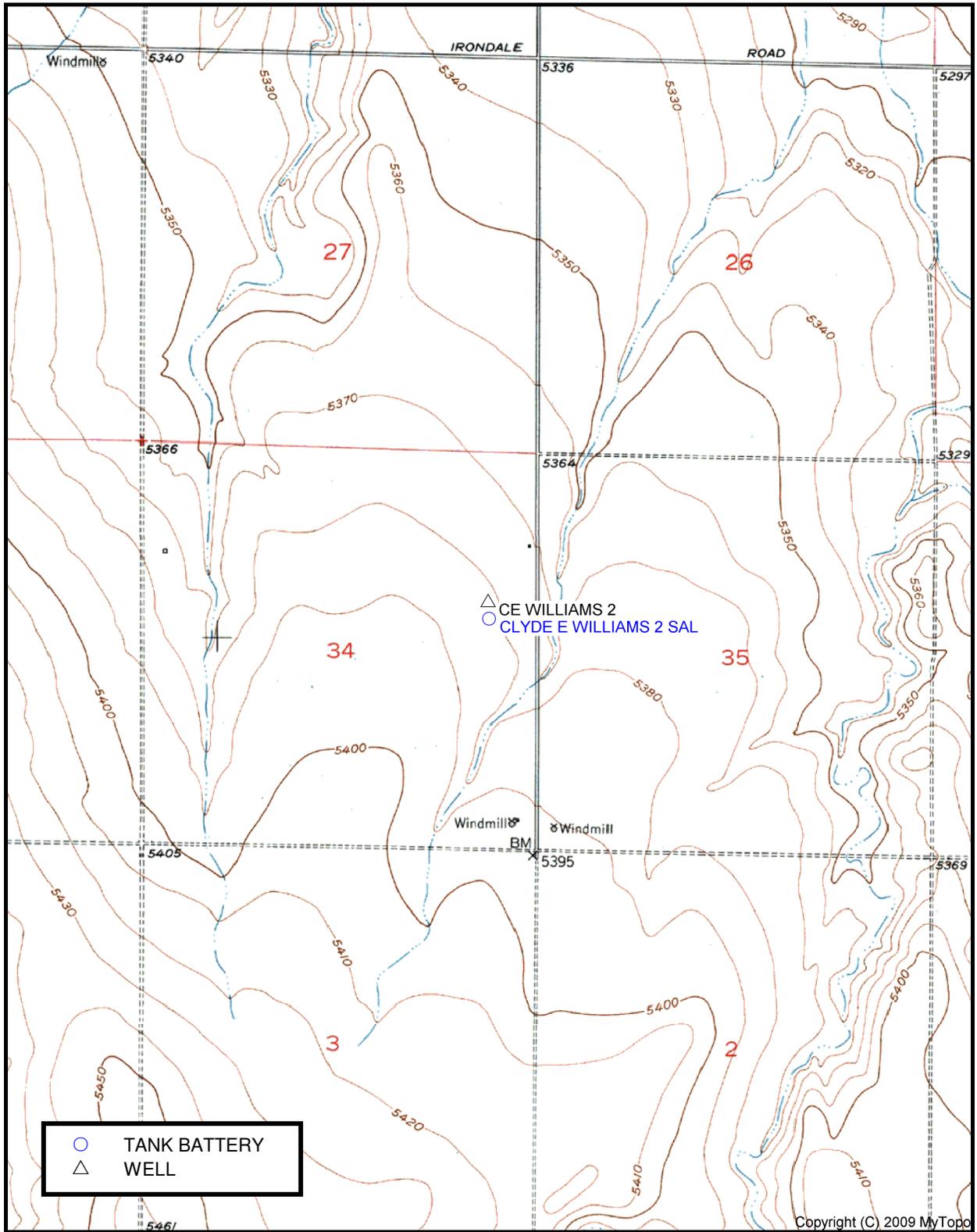
Impacted Media (check):	Extent of Impact:	How Determined:
Soils	_____	_____
Vegetation	_____	_____
Groundwater	_____	_____
Surface Water	_____	_____

REMEDIALTION WORKPLAN

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

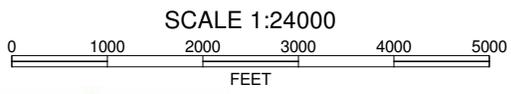
Describe how source is to be removed:

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.:



○ TANK BATTERY
 △ WELL

Copyright (C) 2009 MyTopo



<h2>A.G. Wassenaar</h2> <p style="font-size: 2em; color: green; margin: 0;">Inc.</p>	
<p>CLYDE E WILLIAMS 2 SAL & WELL LOCATION SENE S34-T2S-R64W</p>	<p>PROJECT NO. E12118.EC TOPOGRAPHIC MAP FIGURE 1</p>

ATTACHMENT B

DIAGRAMS



SS-7 - ~25' North of North Wall of Excavation

Laboratory Sample: SS-7-1: ~15 bgs
PID: 0.0 ppm, No Staining or Odors
TPH: 0.257 mg/kg
BTEX: ND

SS-1 - Center of Excavation

Laboratory Sample: SS-1-1: ~9' bgs
PID: 687 ppm, Staining and Odors
TPH: 5,456 ppm
B: 1.11 mg/kg
T: 0.128 mg/kg
E: 2.10 mg/kg
X: 18.5 mg/kg

SS-8 - ~8' North of North Wall of Excavation

Field Screening Sample: ~1.5 bgs
PID: 542 ppm, Staining and Odors

Laboratory Sample: SS-1-2: ~11' bgs
PID: 121 ppm, Staining and Odors
TPH: ND
BTEX: ND

Field Screening Sample: ~12' bgs
PID: 35.1 ppm, Staining and Odors
Field Screening Sample: ~13' bgs
PID: 21.3 ppm, Staining and Odors
Field Screening Sample: ~13.5' bgs
PID: 43.2 ppm, Staining and Odors
Laboratory Sample: SS-1-3: ~14' bgs
PID: 296 ppm, Staining and Odors
TPH: 0.249 mg/kg
BTEX: ND

Laboratory Sample: SS-1-4: ~16' bgs
PID: 0.0 ppm, No Staining or Odors
TPH: 0.303 mg/kg
BTEX: ND

2-Track Road

SS-3 - ~23' West of West Wall of Excavation

Laboratory Sample: SS-3-1: ~15 bgs
PID: 0.0 ppm, No Staining or Odors
TPH: 4.55 mg/kg
B: 0.0088 mg/kg
T: ND
E: 0.0303 mg/kg
X: 0.266 mg/kg

Excavation at Location of Former Produced Water Vessel (~12' x 14')

Buried Pipelines

Buried Pipeline

SS-5 - ~28' East of East Wall of Excavation

Laboratory Sample: SS-5-1: ~14.5 bgs
PID: 0.0 ppm, No Staining or Odors
TPH: ND
BTEX: ND

SS-2 - ~7' West of West Wall of Excavation

Laboratory Sample: SS-2-1: ~8 bgs
PID: 812 ppm, Staining and Odors
TPH: 800.2 mg/kg
B: 0.0068 mg/kg
T: ND
E: 0.152 mg/kg
X: 0.470 mg/kg

Buried Pipeline

SS-6 - ~11' East of East Wall of Excavation

Laboratory Sample: SS-6-1: ~1.5 bgs
PID: 1,295 ppm, Staining and Odors
TPH: 6,932 mg/kg
B: 0.472 mg/kg
T: ND
E: 6.26 mg/kg
X: 21.1 mg/kg

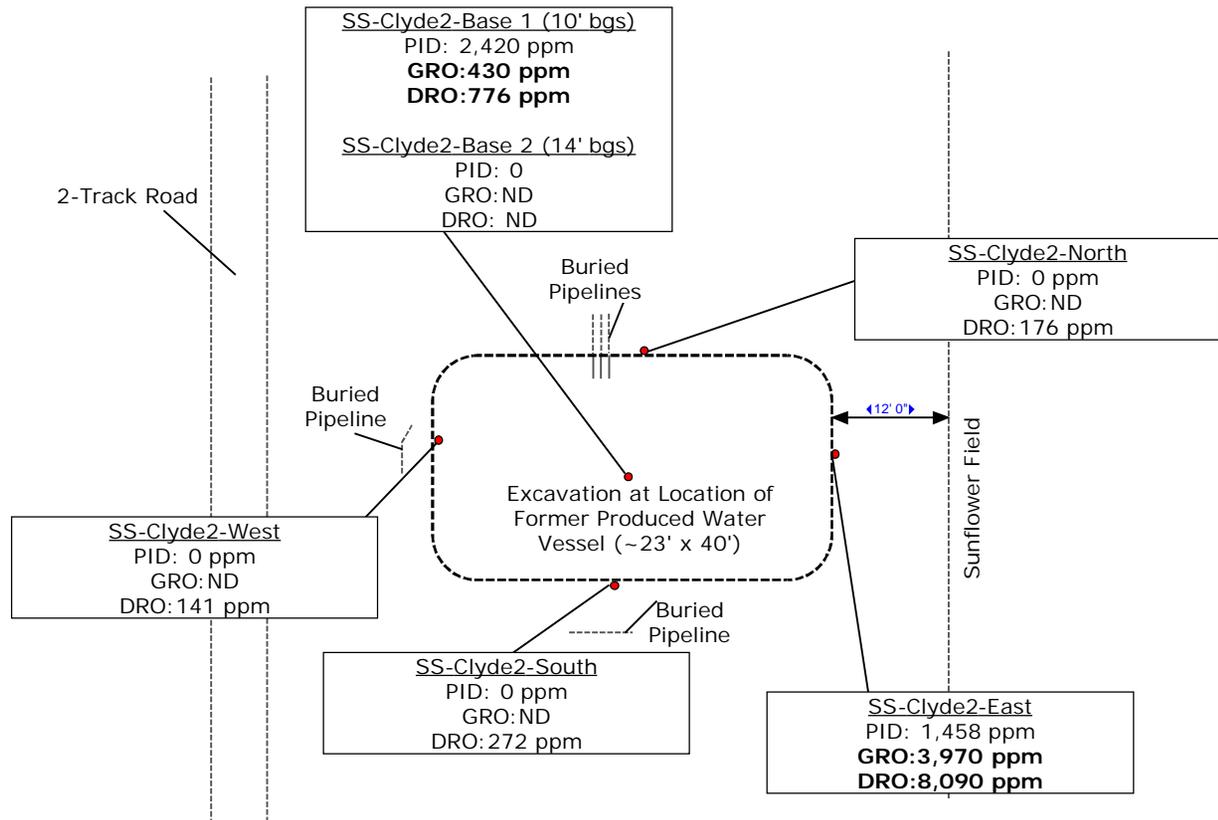
SS-4 - ~13.5' South of South Wall of Excavation

Laboratory Sample: SS-4-1: ~15 bgs
PID: 0.0 ppm, No Staining or Odors
TPH: 0.245 mg/kg
BTEX: ND

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



Field Screening and Soil Sampling Locations
Clyde E Williams 2
SENE 34 T2S R64W
April 1, 2014
Adams County, Colorado
AGW Project Number E14207.EC



A.G. WASSENAAR | INC.



Soil Sampling Locations
 Clyde E Williams 2
 SENE 34 T2S R64W
 October 27, 2014
 Adams County, Colorado
 AGW Project Number E14207.EC

2-Track Road

Buried Pipeline

Buried Pipelines

Excavation at Location of Former Produced Water Vessel (~25' x 50')

Buried Pipeline

Sunflower Field

SS-Clyde2-East-2
GRO: ND
DRO: ND

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



Soil Sampling Locations
Clyde E Williams 2
SENE 34 T2S R64W
October 6, 2015
Adams County, Colorado
AGW Project Number E14207.EC

ATTACHMENT C

LABORATORY ANALYTICAL REPORTS



April 09, 2014

A.G. Wassenaar

Rachel Peterson

2180 South Ivanhoe Street - Suite 5

Denver

CO 80222

Project Name - Clyde E. Williams #2

Project Number - E14207. EC

Attached are your analytical results for Clyde E. Williams #2 received by Origins Laboratory, Inc. April 02, 2014. This project is associated with Origins project number X404022-01.

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



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

Rachel Peterson
Project Number: E14207. EC
Project: Clyde E. Williams #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-1-1	X404022-01	Soil	April 1, 2014 13:30	04/02/2014 09:25
SS-1-2	X404022-02	Soil	April 1, 2014 13:35	04/02/2014 09:25
SS-1-3	X404022-03	Soil	April 1, 2014 13:40	04/02/2014 09:25
SS-1-4	X404022-04	Soil	April 1, 2014 13:45	04/02/2014 09:25
SS-2-1	X404022-05	Soil	April 1, 2014 14:15	04/02/2014 09:25
SS-3-1	X404022-06	Soil	April 1, 2014 15:00	04/02/2014 09:25
SS-4-1	X404022-07	Soil	April 1, 2014 15:20	04/02/2014 09:25
SS-5-1	X404022-08	Soil	April 1, 2014 15:45	04/02/2014 09:25
SS-6-1	X404022-09	Soil	April 1, 2014 15:25	04/02/2014 09:25
SS-7-1	X404022-10	Soil	April 1, 2014 16:20	04/02/2014 09:25

Origins Laboratory, Inc.



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.

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

Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X404022

Client: A.G. Wassenaar

Client Project ID: Clyde E Williams #2

Checklist Completed by: Jeff Smith

Shipped Via: H/D
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 4/2/14 9:52

Airbill #: NA

Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 (Describe)

Cooler Number/Temperature: _____ / 11.7 °C _____ / _____ °C _____ / _____ °C _____ / _____ °C

Thermometer ID: TJ02

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ⁽¹⁾ ?	X			
Was adequate sample volume provided ⁽¹⁾ ?	X			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?		X		
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	X			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	X			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	X			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	Soil
Are samples preserved that require preservation and was it checked ⁽¹⁾ ? (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 ₃ , HCL, H ₂ SO ₄ / (pH > 10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	Soil
Additional Comments (if any):				

⁽¹⁾ 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: [Signature] (Project Manager)

Date/Time Reviewed: 4-2-14 10:52

Origins Laboratory, Inc.

[Signature]

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.

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

Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-1-1
 4/1/2014 1:30:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-01 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	4950	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014
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<i>Surrogate: o-Terphenyl</i>	101 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	506	10.0	mg/kg	50	4D07015	04/07/2014	04/08/2014
Benzene	1.11	0.100	"	"	"	"	"
Toluene	0.128	0.100	"	"	"	"	"
Ethylbenzene	2.10	0.100	"	"	"	"	"
Xylenes, total	18.5	0.100	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	103 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	89.5 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	106 %	70-130			"	"	"

Origins Laboratory, Inc.



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.

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

Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-1-2
 4/1/2014 1:35:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-02 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	84.6 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4D07015	04/07/2014	04/07/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	104 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	103 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	100 %	70-130			"	"	"	

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 Denver CO 80222

Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-1-3
 4/1/2014 1:40:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-03 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	82.6 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.249	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	106 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	101 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	105 %	70-130			"	"	"	

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-1-4
 4/1/2014 1:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-04 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	82.4 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.303	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	108 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	102 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	100 %	70-130			"	"	"	

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Rachel Peterson
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 Project: Clyde E. Williams #2

SS-2-1
 4/1/2014 2:15:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-05 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	781	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014
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<i>Surrogate: o-Terphenyl</i>	98.0 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	19.2	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014
Benzene	0.0068	0.0020	"	"	"	"	"
Toluene	ND	0.0020	"	"	"	"	"
Ethylbenzene	0.152	0.0020	"	"	"	"	"
Xylenes, total	0.470	0.0020	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	112 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	84.7 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	108 %	70-130			"	"	"

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-3-1
 4/1/2014 3:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-06 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	101 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	4.55	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	0.0088	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	0.0303	0.0020	"	"	"	"	"	
Xylenes, total	0.266	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	105 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	111 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	90.4 %	70-130			"	"	"	

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-4-1
 4/1/2014 3:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-07 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	85.9 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.245	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	92.5 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	104 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	99.7 %	70-130			"	"	"	

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-5-1
 4/1/2014 3:45:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-08 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	<i>85.0 %</i>	<i>59-131</i>			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	ND	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>90.0 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: Toluene-d8</i>	<i>104 %</i>	<i>70-130</i>			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>99.2 %</i>	<i>70-130</i>			"	"	"	

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-6-1
 4/1/2014 3:25:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-09 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	6130	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014
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<i>Surrogate: o-Terphenyl</i>	106 %	59-131			"	"	"
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GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	802	10.0	mg/kg	50	4D07015	04/07/2014	04/08/2014
Benzene	0.472	0.100	"	"	"	"	"
Toluene	ND	0.100	"	"	"	"	"
Ethylbenzene	6.26	0.100	"	"	"	"	"
Xylenes, total	21.1	0.100	"	"	"	"	"

<i>Surrogate: 1,2-Dichloroethane-d4</i>	100 %	70-130			"	"	"
<i>Surrogate: Toluene-d8</i>	77.0 %	70-130			"	"	"
<i>Surrogate: 4-Bromofluorobenzene</i>	115 %	70-130			"	"	"

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

SS-7-1
 4/1/2014 4:20:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
 X404022-10 (Soil)

Diesel Range Organics (DRO/TEPH) by EPA 8015C

Diesel (C10-C28)	ND	50.0	mg/kg	1	4D08009	04/08/2014	04/08/2014	
<i>Surrogate: o-Terphenyl</i>	86.3 %	59-131			"	"	"	

GBTEX by EPA 8260C

Gasoline Range Hydrocarbons	0.257	0.200	mg/kg	1	4D07015	04/07/2014	04/08/2014	
Benzene	ND	0.0020	"	"	"	"	"	
Toluene	ND	0.0020	"	"	"	"	"	
Ethylbenzene	ND	0.0020	"	"	"	"	"	
Xylenes, total	ND	0.0020	"	"	"	"	"	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	102 %	70-130			"	"	"	
<i>Surrogate: Toluene-d8</i>	105 %	70-130			"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>	104 %	70-130			"	"	"	

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4D07015 - EPA 5030 (soil)

Blank (4D07015-BLK1)

Prepared: 04/07/2014 Analyzed: 04/07/2014

Gasoline Range Hydrocarbons	ND	0.2	mg/kg							
Benzene	ND	0.002	"							
Toluene	ND	0.002	"							
Ethylbenzene	ND	0.002	"							
Xylenes, total	ND	0.002	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>61.7</i>		<i>ug/kg</i>	<i>62.5</i>		<i>98.7</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>63.9</i>		<i>"</i>	<i>62.5</i>		<i>102</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>63.6</i>		<i>"</i>	<i>62.5</i>		<i>102</i>	<i>70-130</i>			

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Noelle Doyle Mathis, President

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4D07015 - EPA 5030 (soil)

LCS (4D07015-BS1)

Prepared: 04/07/2014 Analyzed: 04/07/2014

Benzene	0.1	0.002	mg/kg	0.100		107	77.1-124			
Toluene	0.1	0.002	"	0.100		106	74.5-128			
Ethylbenzene	0.1	0.002	"	0.100		100	66.4-127			
m,p-Xylene	0.2	0.004	"	0.200		100	76.6-124			
o-Xylene	0.1	0.002	"	0.100		102	76.6-124			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>60.0</i>		<i>ug/kg</i>	<i>62.5</i>		<i>96.1</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>65.6</i>		<i>"</i>	<i>62.5</i>		<i>105</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>63.4</i>		<i>"</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4D07015 - EPA 5030 (soil)

Matrix Spike (4D07015-MS1)	Source: X404022-02			Prepared: 04/07/2014 Analyzed: 04/07/2014						
Benzene	0.08	0.002	mg/kg	0.100	ND	75.8	71.8-126			
Toluene	0.08	0.002	"	0.100	ND	75.2	65.1-130			
Ethylbenzene	0.07	0.002	"	0.100	ND	67.4	62.2-130			
m,p-Xylene	0.1	0.004	"	0.200	0.003	69.8	46.5-137			
o-Xylene	0.07	0.002	"	0.100	0.002	69.0	54.2-134			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>67.3</i>		<i>ug/kg</i>	<i>62.5</i>		<i>108</i>	<i>70-130</i>			
<i>Surrogate: Toluene-d8</i>	<i>64.9</i>		<i>"</i>	<i>62.5</i>		<i>104</i>	<i>70-130</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>63.0</i>		<i>"</i>	<i>62.5</i>		<i>101</i>	<i>70-130</i>			

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Rachel Peterson
 Project Number: E14207. EC
 Project: Clyde E. Williams #2

Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 4D07015 - EPA 5030 (soil)

Matrix Spike Dup (4D07015-MSD1)	Source: X404022-02			Prepared: 04/07/2014 Analyzed: 04/07/2014						
Benzene	0.09	0.002	mg/kg	0.100	ND	90.6	71.8-126	17.8	11.3	QM-07
Toluene	0.09	0.002	"	0.100	ND	89.9	65.1-130	17.9	15.4	QM-07
Ethylbenzene	0.08	0.002	"	0.100	ND	81.9	62.2-130	19.4	19.6	
m,p-Xylene	0.2	0.004	"	0.200	0.003	81.5	46.5-137	15.2	19.2	
o-Xylene	0.08	0.002	"	0.100	0.002	81.7	54.2-134	16.5	17.9	
Surrogate: 1,2-Dichloroethane-d4	65.4		ug/kg	62.5		105	70-130			
Surrogate: Toluene-d8	64.1		"	62.5		103	70-130			
Surrogate: 4-Bromofluorobenzene	63.2		"	62.5		101	70-130			

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Volatile Organic Compounds by GC/MS SW846 8260C - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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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
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Batch 4D08009 - EPA 3580

Blank (4D08009-BLK1)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	41		g	50.0		81.9	59-131			

Blank (4D08009-BLK2)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	ND	50.0	mg/kg							
Surrogate: o-Terphenyl	44		g	50.0		88.7	59-131			

LCS (4D08009-BS1)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	852	50.0	mg/kg	1000		85.2	64-121			
Surrogate: o-Terphenyl	43		g	50.0		86.9	59-131			

LCS (4D08009-BS2)

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	890	50.0	mg/kg	1000		89.0	64-121			
Surrogate: o-Terphenyl	45		g	50.0		90.3	59-131			

Matrix Spike (4D08009-MS1)

Source: X404034-01

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	806	50.0	mg/kg	1000	ND	80.6	53-125			
Surrogate: o-Terphenyl	42		g	50.0		85.0	59-131			

Matrix Spike (4D08009-MS2)

Source: X404034-02

Prepared: 04/08/2014 Analyzed: 04/08/2014

Diesel (C10-C28)	922	50.0	mg/kg	1000	ND	92.2	53-125			
Surrogate: o-Terphenyl	46		g	50.0		91.6	59-131			

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 Project: Clyde E. Williams #2

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
Batch 4D08009 - EPA 3580										
Matrix Spike Dup (4D08009-MSD1)		Source: X404034-01			Prepared: 04/08/2014 Analyzed: 04/08/2014					
Diesel (C10-C28)	946	50.0	mg/kg	1000	ND	94.6	53-125	16.0	20	
<i>Surrogate: o-Terphenyl</i>	<i>47</i>		<i>g</i>	<i>50.0</i>		<i>94.5</i>	<i>59-131</i>			
Matrix Spike Dup (4D08009-MSD2)		Source: X404034-02			Prepared: 04/08/2014 Analyzed: 04/08/2014					
Diesel (C10-C28)	810	50.0	mg/kg	1000	ND	81.0	53-125	12.9	20	
<i>Surrogate: o-Terphenyl</i>	<i>43</i>		<i>g</i>	<i>50.0</i>		<i>86.7</i>	<i>59-131</i>			

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Rachel Peterson

Project Number: E14207. EC

Project: Clyde E. Williams #2

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 recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

Noelle Doyle Mathis, President

October 31, 2014

A.G. Wassenaar

Rachel Peterson

2180 South Ivanhoe Street - Suite 5

Denver

CO 80222

Project Name - E14207.EC

Project Number - E14207.EC

Attached are your analytical results for E14207.EC received by Origins Laboratory, Inc. October 27, 2014. This project is associated with Origins project number X410299-01.

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



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

Rachel Peterson
Project Number: E14207.EC
Project: E14207.EC

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-CLYDE2-North	X410299-01	Soil	October 27, 2014 12:00	10/27/2014 13:38
SS-CLYDE2-South	X410299-02	Soil	October 27, 2014 12:00	10/27/2014 13:38
SS-CLYDE2-East	X410299-03	Soil	October 27, 2014 12:00	10/27/2014 13:38
SS-CLYDE2-West	X410299-04	Soil	October 27, 2014 12:00	10/27/2014 13:38
SS-CLYDE2-Base 1	X410299-05	Soil	October 27, 2014 12:00	10/27/2014 13:38
SS-CLYDE2-Base Bottom	X410299-06	Soil	October 27, 2014 12:00	10/27/2014 13:38

Origins Laboratory, Inc.



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.

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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

www.originslaboratory.com

X410299

ORIGINS
 LABORATORY, INC

page 1 of 1

Client: AG WASSenaar, LLC Project Manager/Send Report To: RACHEL PETERSON
 Address: 2180 S IVANHOE ST Email Address: PETERSON.R@AGWASSenaar.COM
Denver CO 80222 Project Name/Number: E14207.EC
 Telephone Number: 303-759-8373 Samples Collected By: DAVID SHARKEY

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

Sample ID Description	Date Sampled	Time Sampled	# of Containers	Preservative				Matrix			Analysis/Method	Sample Instructions		
				Unpreserved	HCl	HNO ₃	Other	Groundwater	Soil	Air Summa #			Other	
SS-CLYDE 2 - NOSTH	10/27/14	12:00	1	X					X				1	
SS-CLYDE 2 - JWSH													2	
SS-CLYDE 2 - EAS													3	
SS-CLYDE 2 - WST													4	
SS-CLYDE 2 - BAE 1													5	
SS-CLYDE 2 - HX-BSPM													6	
													7	
													8	
													9	
													10	
Relinquished By: <u>Ad M</u>	Date: <u>10/27/14</u>	Time: <u>1:38</u>	Received By: <u>JP</u>	Date: <u>10/27/14</u>	Time: <u>1338</u>	Turnaround Time: <u>0.9</u>	Standard <input checked="" type="checkbox"/>	Same Day <input type="checkbox"/>	24 Hr <input type="checkbox"/>	48 Hr <input type="checkbox"/>	72 Hr <input type="checkbox"/>			

Comments: _____ Date Results Needed: _____

Origins Laboratory, Inc.

Jefe Pellegrini

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.

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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X410299

Client: A.G. Wassenaar

Client Project ID: E14207.EC

Checklist Completed by: Jefer Smith

Shipped Via: 4/D
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)

Date/time completed: 10/27/14

Airbill #: DN

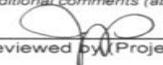
Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____

Cooler Number/Temperature: 1 / 10.9 °C 1 / _____ °C 1 / _____ °C (Describe)

Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ⁽¹⁾ ?	<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 ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Are short holding time analytes or samples with HTs due within 48 hours present ⁽¹⁾ ?	<input checked="" type="checkbox"/>			PH
Is a chain-of-custody (COC) present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>			
Is the COC properly relinquished by the client with date and time recorded ⁽¹⁾ ?	<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 ⁽¹⁾ ? (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 HNO3, HCL, H2SO4) / (pH >10 for samples preserved with NaAsO2+NaOH, ZnAc+NaOH)			<input checked="" type="checkbox"/>	
Additional Comments (if any):				

⁽¹⁾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

10-28-14
 Date/Time Reviewed

Origins Laboratory, Inc.



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.

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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-North
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
X410299-01 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	176	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	84.1 %	59-131			"	"	"	
------------------------	--------	--------	--	--	---	---	---	--

pH in Soil by EPA 9045D

pH	7.94		pH Units	1	4J28006	10/28/2014	10/28/2014	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.428		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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.

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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-South
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410299-02 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	272	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	92.0 %	59-131			"	"	"	
------------------------	--------	--------	--	--	---	---	---	--

pH in Soil by EPA 9045D

pH	8.26		pH Units	1	4J28006	10/28/2014	10/28/2014	
----	-------------	--	----------	---	---------	------------	------------	--

Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.261		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-East
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410299-03 (Soil)

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

Gasoline (C6-C10)	3970	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	8090	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	94.0 %	59-131			"	"	"	
------------------------	--------	--------	--	--	---	---	---	--

pH in Soil by EPA 9045D

pH	7.84		pH Units	1	4J28006	10/28/2014	10/28/2014	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.202		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-West
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410299-04 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	141	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	85.3 %	59-131			"	"	"	
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pH in Soil by EPA 9045D

pH	7.93		pH Units	1	4J28006	10/28/2014	10/28/2014	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.442		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-Base 1
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
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Origins Laboratory, Inc.
X410299-05 (Soil)

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

Gasoline (C6-C10)	430	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	776	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl	70.2 %	59-131			"	"	"	
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pH in Soil by EPA 9045D

pH	8.94		pH Units	1	4J28006	10/28/2014	10/28/2014	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.553		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

SS-CLYDE2-Base Bottom
10/27/2014 12:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	-----------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
X410299-06 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	4J27013	10/27/2014	10/29/2014	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	

Surrogate: o-Terphenyl 64.4 % 59-131 " " "

pH in Soil by EPA 9045D

pH	9.42		pH Units	1	4J28006	10/28/2014	10/28/2014	
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Specific Conductance by Modified 9050A

Specific Conductance (EC)	0.170		mmhos/cm	"	4J28007	10/28/2014	10/29/2014	
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Origins Laboratory, Inc.



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

Rachel Peterson
 Project Number: E14207.EC
 Project: E14207.EC

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
Batch 4J27013 - EPA 3580										
Blank (4J27013-BLK1)					Prepared: 10/27/2014 Analyzed: 10/28/2014					
Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Surrogate: o-Terphenyl	40		g	50.0		80.8	59-131			
LCS (4J27013-BS1)					Prepared: 10/27/2014 Analyzed: 10/28/2014					
Gasoline (C6-C10)	785	50.0	mg/kg	1000		78.5	59-133			
Diesel (C10-C28)	1130	50.0	"	1000		113	64-121			
Surrogate: o-Terphenyl	41		g	50.0		82.0	59-131			
Matrix Spike (4J27013-MS1)					Source: X410220-06		Prepared: 10/27/2014 Analyzed: 10/28/2014			
Gasoline (C6-C10)	815	50.0	mg/kg	1000	ND	81.5	57-139			QM-07
Diesel (C10-C28)	804	50.0	"	1000	ND	80.4	53-125			QM-07
Surrogate: o-Terphenyl	42		g	50.0		84.9	59-131			QM-07
Matrix Spike Dup (4J27013-MSD1)					Source: X410220-06		Prepared: 10/27/2014 Analyzed: 10/28/2014			
Gasoline (C6-C10)	915	50.0	mg/kg	1000	ND	91.5	57-139	11.6	20	QM-07
Diesel (C10-C28)	983	50.0	"	1000	ND	98.3	53-125	20.0	20	QM-07
Surrogate: o-Terphenyl	43		g	50.0		86.3	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: E14207.EC
 Project: E14207.EC

Classical Chemistry Parameters - Quality Control
Origins Laboratory, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4J28006 - NO PREP										
Duplicate (4J28006-DUP1)		Source: X410298-01			Prepared: 10/28/2014 Analyzed: 10/28/2014					
pH	7.59		pH Units		7.50			1.26	25	
Batch 4J28007 - NO PREP										
Blank (4J28007-BLK1)					Prepared: 10/28/2014 Analyzed: 10/29/2014					
Specific Conductance (EC)	0.00200		mmhos/cm							
Duplicate (4J28007-DUP1)		Source: X410298-01			Prepared: 10/28/2014 Analyzed: 10/29/2014					
Specific Conductance (EC)	0.669		mmhos/cm		0.655			2.11	25	

Origins Laboratory, Inc.



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.

A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Rachel Peterson

Project Number: E14207.EC

Project: E14207.EC

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 recovery.

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

October 07, 2015

A.G. Wassenaar

Brian J. Glade, P.E.

2180 South Ivanhoe Street - Suite 5

Denver

CO 80222

Project Name - Clyde E. Williams #2

Project Number - 14207

Attached are your analytical results for Clyde E. Williams #2 received by Origins Laboratory, Inc. October 06, 2015. This project is associated with Origins project number X510061-01.

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



A.G. Wassenaar

2180 South Ivanhoe Street - Suite 5

Denver CO 80222

Brian J. Glade, P.E.

Project Number: 14207

Project: Clyde E. Williams #2

CROSS REFERENCE REPORT

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS-Clyde-2 East-2	X510061-01	Soil	October 6, 2015 14:00	10/06/2015 15:00

Origins Laboratory, Inc.



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.

Jen Pellegrini For Noelle Doyle Mathis, President

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

Brian J. Glade, P.E.
 Project Number: 14207
 Project: Clyde E. Williams #2

Origins Laboratory

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

Sample Receipt Checklist

Origins Work Order: X510061 Client: AG Wassenaar
 Client Project ID: Clyde-2
 Checklist Completed by: Jeff Anderson Shipped Via: HD
 (UPS, FedEx, Hand Delivered, Pick-up, etc.)
 Date/time completed: 10/15 1505 Airbill #: NA
 Matrix(s) Received: (Check all that apply): Soil/Solid Water Other: _____
 Cooler Number/Temperature: 1 / 30 °c _____ °c _____ °c _____ °c (Describe)
 Thermometer ID: T003

Requirement Description	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature between 0°C to ≤ 6°C ^{(1)?}	X			
Is there ice present (document if blue ice is used)	X			
Are custody seals present on cooler? (if so, document in comments if they are signed and dated, broken or intact)		X		
Are custody seals present on each sample container? (if so, document in comments if they are signed and dated, broken or intact)		X		
Were all samples received intact ^{(1)?}	X			
Was adequate sample volume provided ^{(1)?}	X			
Are short holding time analytes or samples with HTs due within 48 hours present ^{(1)?}		X		
Is a chain-of-custody (COC) present and filled out completely ^{(1)?}	X			
Does the COC agree with the number and type of sample bottles received ^{(1)?}	X			
Do the sample IDs on the bottle labels match the COC ^{(1)?}	X			
Is the COC properly relinquished by the client with date and time recorded ^{(1)?}	X			
For volatiles in water – is there headspace (> ¼ inch bubble) present? If yes, contact client and note in narrative.			X	
Are samples preserved that require preservation and was it checked ^{(1)?} (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 ₃ , HCl, H ₂ SO ₄) / (pH >10 for samples preserved with NaAsO ₂ +NaOH, ZnAc+NaOH)			X	
Additional Comments (if any):				

⁽¹⁾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.

Jeff Anderson
 Reviewed by (Project Manager)

10/15
 Date/Time Reviewed

Origins Laboratory, Inc.



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.

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

Brian J. Glade, P.E.
Project Number: 14207
Project: Clyde E. Williams #2

SS-Clvde-2 East-2
10/6/2015 2:00:00PM

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Notes
---------	--------	--------------------	-------	----------	-------	----------	----------	-------

Origins Laboratory, Inc.
X510061-01 (Soil)

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

Gasoline (C6-C10)	ND	50.0	mg/kg	1	5J06008	10/06/2015	10/06/2015	
Diesel (C10-C28)	ND	50.0	"	"	"	"	"	
Surrogate: o-Terphenyl	90.6 %	59-131			"	"	"	

Origins Laboratory, Inc.



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.

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

Brian J. Glade, P.E.
 Project Number: 14207
 Project: Clyde E. Williams #2

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

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 5J06008 - EPA 3580										
Blank (5J06008-BLK1)					Prepared: 10/06/2015 Analyzed: 10/06/2015					
Gasoline (C6-C10)	ND	50.0	mg/kg							
Diesel (C10-C28)	ND	50.0	"							
Surrogate: o-Terphenyl	41		"	50.0		81.4	59-131			
LCS (5J06008-BS1)					Prepared: 10/06/2015 Analyzed: 10/06/2015					
Gasoline (C6-C10)	770	50.0	mg/kg				59-133			
Diesel (C10-C28)	771	50.0	"	1000		77.1	64-121			
Surrogate: o-Terphenyl	41		"	50.0		81.0	59-131			
Matrix Spike (5J06008-MS1)		Source: X510046-01			Prepared: 10/06/2015 Analyzed: 10/06/2015					
Gasoline (C6-C10)	907	50.0	mg/kg		33.1		57-139			
Diesel (C10-C28)	930	50.0	"	1000	ND	93.0	53-125			
Surrogate: o-Terphenyl	49		"	50.0		98.1	59-131			
Matrix Spike Dup (5J06008-MSD1)		Source: X510046-01			Prepared: 10/06/2015 Analyzed: 10/06/2015					
Gasoline (C6-C10)	927	50.0	mg/kg		33.1		57-139	2.15	20	
Diesel (C10-C28)	997	50.0	"	1000	ND	99.7	53-125	6.97	20	
Surrogate: o-Terphenyl	52		"	50.0		105	59-131			

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Brian J. Glade, P.E.

Project Number: 14207

Project: Clyde E. Williams #2

Notes and Definitions

ND Analyte NOT DETECTED at or above the reporting limit

RPD Relative Percent Difference

All soil results are reported at a wet weight basis.

Origins Laboratory, Inc.



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Jen Pellegrini For Noelle Doyle Mathis, President