

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:

400870919

Date Received:

SPILL/RELEASE REPORT (SUPPLEMENTAL)

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable; any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:

CANFIELD, CHRIS

Spill/Release Point ID:

442471

OPERATOR INFORMATION

Name of Operator: PDC ENERGY INC	Operator No: 69175	Phone Numbers
Address: 1775 SHERMAN STREET - STE 3000		Phone: (970) 506-9273
City: DENVER	State: CO	Zip: 80203
Contact Person: Zack Liesenfeld		Mobile: (970) 373-6581
		Email: zack.liesenfeld@pdce.com

INITIAL SPILL/RELEASE REPORT

Initial Spill/Release Report Doc# 400864427

Initial Report Date: 07/08/2015 Date of Discovery: 07/06/2015 Spill Type: Historical Release

Spill/Release Point Location:

Location of Spill/Release: QTRQTR NWSE SEC 20 TWP 2N RNG 66W MERIDIAN 6

Latitude: 40.120918 Longitude: -104.797700

Municipality (if within municipal boundaries): County: WELD

Reference Location:

Facility Type: WELL PAD ☒ Facility/Location ID No 327274☐ No Existing Facility or Location ID No.☐ Well API No. (Only if the reference facility is well) 05- -

Fluid(s) Spilled/Released (please answer Yes/No):

Was one (1) barrel or more spilled outside of berms or secondary containment? No

Secondary containment, **including walls & floor regardless of construction material**, must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.

Were Five (5) barrels or more spilled? No

Estimated Total Spill Volume: use same ranges as others for values

Estimated Oil Spill Volume(bbl): Unknown

Estimated Condensate Spill Volume(bbl): 0

Estimated Flow Back Fluid Spill Volume(bbl): 0

Estimated Produced Water Spill Volume(bbl): 0

Estimated Other E&P Waste Spill Volume(bbl): 0

Estimated Drilling Fluid Spill Volume(bbl): 0

Specify: A historic release was discovered during line replacement and production tank removal activities.

Land Use:

Current Land Use: CROP LAND

Other(Specify):

Weather Condition: Cloudy

Surface Owner: FEE

Other(Specify): Gary and Julie Hladky

Check if impacted or threatened by spill/Release (please answer Yes/No to all that apply):

Waters of the State ☐ Residence/Occupied Structure ☐ Livestock ☐ Public Byway ☐ Surface Water Supply Area ☒

As defined in COGCC 100-Series Rules

Describe what is known about the spill/release event (what happened -- including how it was stopped, contained, and recovered):

A historic release was discovered during dump line replacement and production tank removal activities. In addition, an abandoned concrete vault was discovered below the fiberglass tank. Soil encountered during the excavation was field screened for VOC concentrations using a PID. Site assessment activities were completed to delineate the lateral extent of remaining hydrocarbon impacts. Soil excavation activities will continue until contaminated material is removed.

List Agencies and Other Parties Notified:

OTHER NOTIFICATIONS

Date	Agency/Party	Contact	Phone	Response
7/8/2015	State of CO	Rick Allison	-	via email
7/8/2015	Weld County	Roy Rudesil	-	via email

SPILL/RELEASE DETAIL REPORTS

#1	Supplemental Report Date: 07/20/2015		
FLUIDS	BBL's SPILLED	BBL's RECOVERED	Unknown
OIL			<input checked="" type="checkbox"/>
CONDENSATE	0	0	<input type="checkbox"/>
PRODUCED WATER			<input checked="" type="checkbox"/>
DRILLING FLUID	0	0	<input type="checkbox"/>
FLOW BACK FLUID	0	0	<input type="checkbox"/>
OTHER E&P WASTE	0	0	<input type="checkbox"/>
specify: _____			
Was spill/release completely contained within berms or secondary containment? <u>NO</u> Was an Emergency Pit constructed? <u>NO</u>			
Secondary containment, including walls & floor regardless of construction material , must be sufficiently impervious to contain any discharge from primary containment until cleanup occurs.			
A Form 15 Pit Report shall be submitted within 30 calendar days after the construction of an emergency pit			
Impacted Media (Check all that apply) <input type="checkbox"/> Soil <input type="checkbox"/> Groundwater <input type="checkbox"/> Surface Water <input type="checkbox"/> Dry Drainage Feature			
Surface Area Impacted: Length of Impact (feet): 160		Width of Impact (feet): 55	
Depth of Impact (feet BGS): 11		Depth of Impact (inches BGS): _____	
How was extent determined?			
<p>On July 6, 2015, a historic release was discovered during dump line replacement and produced water tank removal activities at the Succo GU 4, 43-20 production facility. Approximately 2,530 cubic yards of impacted material were removed and transported to the Buffalo Ridge Landfill in Keenesburg, Colorado for disposal under PDC waste manifests. Soil encountered in the excavation area was field screened for (VOC) concentrations using a photoionization detector (PID). Soil samples were collected from the sidewalls and base of the excavation area at depths ranging between 6 feet and 11 feet below ground surface (bgs). Soil samples were submitted to Summit Scientific Laboratories in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, total xylenes (BTEX), naphthalene, and total petroleum hydrocarbons (TPH) - gasoline range organics (GRO) by USEPA Method 8260B, and TPH - diesel range organics (DRO) by USEPA Method 8015. The soil sample (SS01) collected from the base of the final excavation extent below the former produced water vessel was also submitted for analysis of pH, electrical conductivity (EC), and sodium adsorption ratio (SAR). Analytical results indicated soil samples collected from the final extent of the excavation area exhibited constituent concentrations below COGCC Table 910-1 soil standards. Soil analytical data is summarized in Table 1 and the laboratory analytical reports are included as Attachment A. The excavation extent and soil sample locations are illustrated on Figure 2. Based on the soil analytical data described herein, PDC is requesting a No Further Action (NFA) determination for this release.</p>			
Soil/Geology Description:			
Shingle loam, 3 to 9 percent slopes			
Depth to Groundwater (feet BGS) 28		Number Water Wells within 1/2 mile radius: 47	
If less than 1 mile, distance in feet to nearest Water Well 245		None <input type="checkbox"/> Surface Water 105 None <input type="checkbox"/>	

Wetlands _____ None ☒ Springs _____ None ☒
Livestock _____ 60 None ☐ Occupied Building _____ 630 None ☐

Additional Spill Details Not Provided Above:

PDC is requesting a produced water tank closure for this location, as described in the attached Form 27.

CORRECTIVE ACTIONS

#1 Supplemental Report Date: 07/20/2015

Cause of Spill (Check all that apply) ☐ Human Error ☐ Equipment Failure ☒ Historical-Unknown
☐ Other (specify) _____

Describe Incident & Root Cause (include specific equipment and point of failure)

A historic release was discovered during dump line replacement and produced water tank removal activities.

Describe measures taken to prevent the problem(s) from reoccurring:

The produced water tank will not be replaced. Dump lines were replaced and routine pressure testing will be completed.

Volume of Soil Excavated (cubic yards): 2530

Disposition of Excavated Soil (attach documentation) ☒ Offsite Disposal ☐ Onsite Treatment
☐ Other (specify) _____

Volume of Impacted Ground Water Removed (bbls): 0

Volume of Impacted Surface Water Removed (bbls): 0

REQUEST FOR CLOSURE

Spill/Release Reports should be closed when impacts have been remediated or when further investigation and corrective actions will take place under an approved Form 27.

Basis for Closure: ☒ Corrective Actions Completed (documentation attached)

☐ Work proceeding under an approved Form 27

Form 27 Remediation Project No: _____

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

Signed: _____ Print Name: Zack Liesenfeld

Title: EHS Professional Date: _____ Email: zack.liesenfeld@pdce.com

Attachment Check List

Att Doc Num	Name
400870936	TOPOGRAPHIC MAP
400870937	SITE MAP
400870938	ANALYTICAL RESULTS
400870943	OTHER

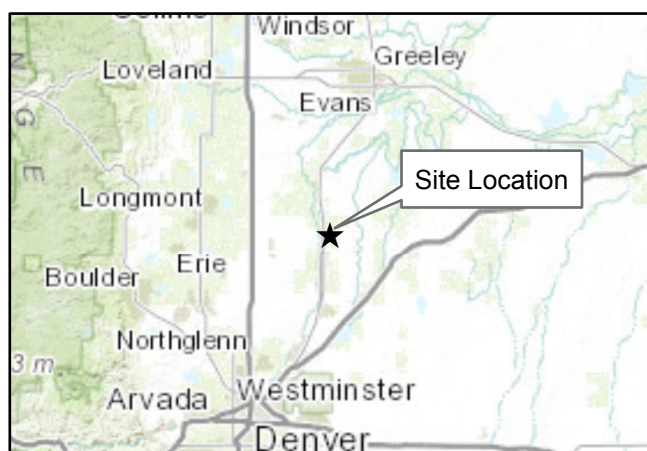
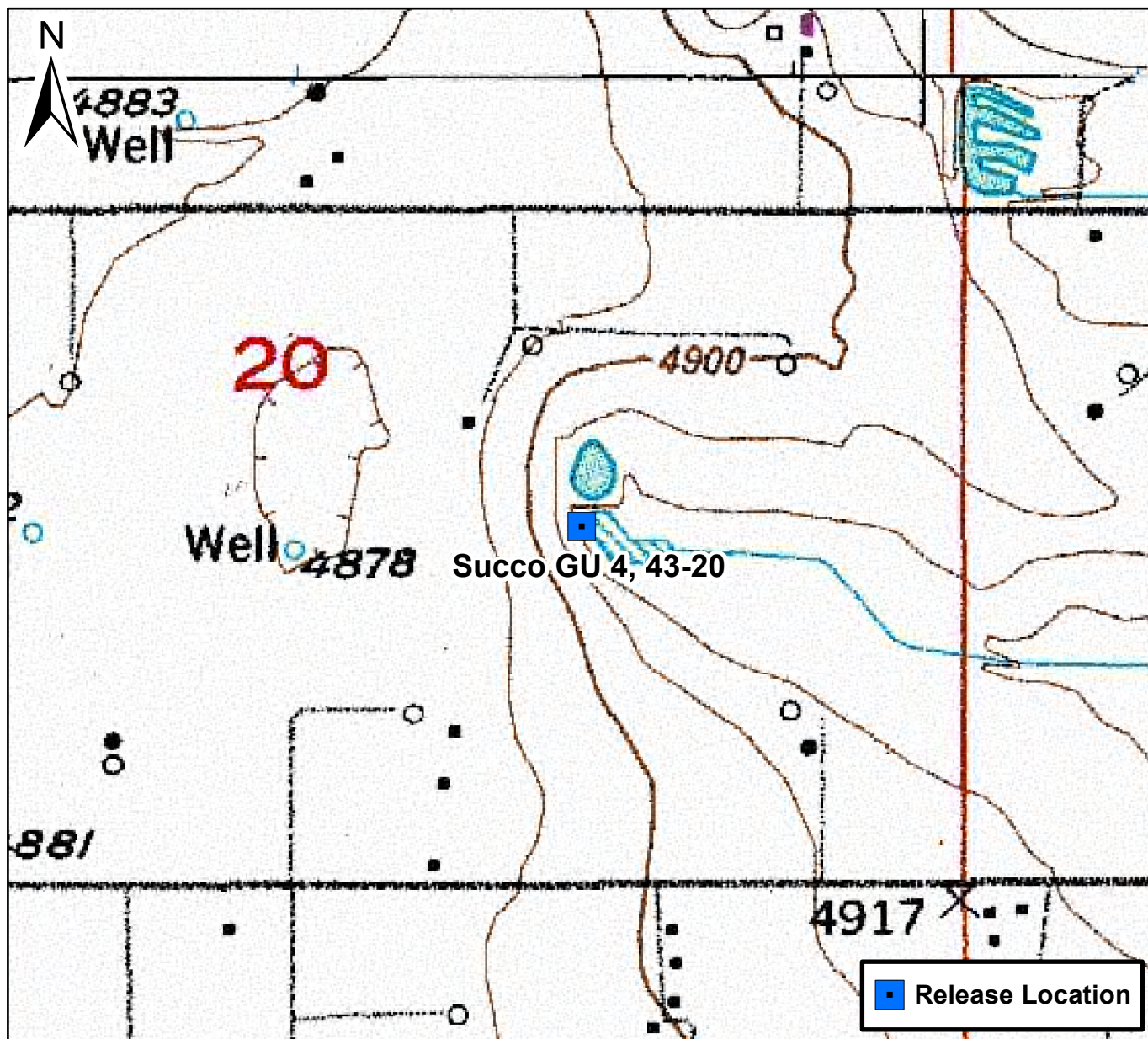
Total Attach: 4 Files

General Comments

<u>User Group</u>	<u>Comment</u>	<u>Comment Date</u>

Total: 0 comment(s)

FIGURES



0 750 1,500 Feet

Figure 1

Site Location Map
Succo GU 4, 43-20
NWSE S20 T2N R66W
Weld County, Colorado





DRAWN BY: MP

DATE: 7/17/2015

Facility Diagram
PDC Energy – DJ Basin
Succo GU 4, 43-20
NWSE S20 T2N R66W
Weld County, CO



TASMAN
GEOSCIENCES

6899 Pecos St., Unit C
Denver, CO 80221

LEGEND

- Former Produced Water Vessel Location
- - - Approximate Excavation Extent
- X Approximate Soil Sample Location
- X Approximate Point of Release

FIGURE 2

**EXCAVATION SITE
MAP**

TABLE

TABLE 1
SUCCO GU 4, 43-20
SOIL ANALYTICAL RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	TPH ⁽²⁾ (mg/kg)	Naphthalene (mg/kg)	pH (units)	EC (mmhos/cm)	SAR (units)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	500	23	7-9	<4	<12
GS01 @ 3'	7/6/2015	3	0.60	<0.0050	0.95	15	330	0.14	NA	NA	NA
SS01 @ 11'	7/7/2015	11	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	7.38	1.26	4.56
SS02 @ 8'	7/8/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
TP01 @ 5'	7/8/2015	5	<0.0020	<0.0050	0.057	0.094	22	0.031	NA	NA	NA
SS03 @ 8'	7/9/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS04 @ 9'	7/9/2015	9	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS05 @ 8'	7/9/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	7.71	5.09	11.0
SS06 @ 6'	7/9/2015	6	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS07 @ 7'	7/10/2015	7	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS08 @ 10'	7/10/2015	10	0.0055	<0.0050	0.019	0.075	6.3	<0.010	NA	NA	NA
SS09 @ 8'	7/10/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS10 @ 8'	7/10/2015	8	<0.0020	<0.0050	<0.0050	<0.010	7.4	<0.010	NA	NA	NA
SS11 @ 8'	7/13/2015	8	0.019	<0.0050	0.21	2.1	159	0.12	NA	NA	NA
SS12 @ 10'	7/13/2015	10	0.011	<0.0050	0.045	0.14	7.1	0.039	NA	NA	NA
SS13 @ 8'	7/14/2015	8	<0.0020	<0.0050	<0.0050	<0.010	2.8	<0.010	NA	NA	NA
SS14 @ 6.5'	7/14/2015	6.5	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS15 @ 8'	7/14/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS16 @ 7'	7/15/2015	7	<0.0020	0.0081	<0.0050	0.089	1.2	<0.010	NA	NA	NA
TP02 @ 8'	7/15/2015	8	<0.0020	0.0078	<0.0050	1.7	1,000	0.31	NA	NA	NA
SS17 @ 8'	7/16/2015	8	0.016	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS18 @ 10'	7/16/2015	10	0.011	0.33	0.072	1.7	17	0.047	NA	NA	NA
SS19 @ 7'	7/16/2015	7	0.0054	<0.0050	<0.0050	0.14	2.3	<0.010	NA	NA	NA
SS20 @ 8'	7/16/2015	8	<0.0020	<0.0050	<0.0050	<0.010	3.1	<0.010	NA	NA	NA
SS21 @ 8'	7/16/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS22 @ 8'	7/17/2015	8	<0.0020	<0.0050	<0.0050	0.20	151	0.14	NA	NA	NA
SS23 @ 8'	7/17/2015	8	<0.0020	<0.0050	<0.0050	<0.010	<50	<0.010	NA	NA	NA
SS24 @ 8'	7/17/2015	8	<0.0020	0.0054	0.0094	0.40	25	0.11	NA	NA	NA
SS25 @ 10'	7/17/2015	10	<0.0020	0.0073	<0.0050	0.18	3.1	0.045	NA	NA	NA

Notes:

1. Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

2. TPH - Total volatile and extractable petroleum hydrocarbons. Value calculated by adding GRO and DRO concentrations.

COGCC = Colorado Oil and Gas Conservation Commission

(<) = Analytical result is less than the indicated laboratory reporting limit.

GRO = Total volatile petroleum hydrocarbons - gasoline range organics

DRO = Total extractable petroleum hydrocarbons - diesel range organics

mg/kg = Milligrams per kilogram

bgs = Below ground surface

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = Millimhos per centimeter

NA = Not analyzed

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

July 20, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Succo GU 4, 43-20

Enclosed are the results of analyses for samples received by Summit Scientific on 07/06/15 17:42-07/17/15 18:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury
President



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
GS01@3	1507064-02	Soil	07/06/15 13:29	07/06/15 17:42
SS01@11'	1507078-01	Soil	07/07/15 12:45	07/07/15 17:10
SS02@8'	1507094-01	Soil	07/08/15 10:38	07/08/15 18:30
TP01@5'	1507094-02	Soil	07/08/15 15:28	07/08/15 18:30
SS03@8	1507108-01	Soil	07/09/15 09:27	07/09/15 17:45
SS04@9	1507108-02	Soil	07/09/15 11:17	07/09/15 17:45
SS05@8	1507108-03	Soil	07/09/15 12:25	07/09/15 17:45
SS06@6	1507108-04	Soil	07/09/15 14:50	07/09/15 17:45
SS07@7'	1507117-01	Soil	07/10/15 10:20	07/10/15 18:15
SS08@10'	1507117-02	Soil	07/10/15 10:36	07/10/15 18:15
SS09@8'	1507117-03	Soil	07/10/15 12:31	07/10/15 18:15
SS10@8'	1507117-04	Soil	07/10/15 14:45	07/10/15 18:15
SS11@8'	1507128-01	Soil	07/13/15 10:52	07/13/15 18:00
SS12@10'	1507128-02	Soil	07/13/15 10:58	07/13/15 18:00
SS13@8'	1507147-01	Soil	07/14/15 11:15	07/14/15 17:45
SS14@6.5'	1507147-02	Soil	07/14/15 12:03	07/14/15 17:45
SS15@8'	1507147-03	Soil	07/14/15 12:27	07/14/15 17:45
SS16@7	1507162-01	Soil	07/15/15 09:49	07/15/15 17:45
TP02@8	1507162-02	Soil	07/15/15 11:44	07/15/15 17:45
SS17@8	1507171-01	Soil	07/16/15 09:25	07/16/15 18:15
SS18@10	1507171-02	Soil	07/16/15 09:46	07/16/15 18:15
SS19@7	1507171-03	Soil	07/16/15 11:15	07/16/15 18:15
SS20@8	1507171-04	Soil	07/16/15 14:20	07/16/15 18:15
SS21@8	1507171-05	Soil	07/16/15 14:28	07/16/15 18:15
SS22@8'	1507210-01	Soil	07/17/15 09:20	07/17/15 18:00
SS23@8'	1507210-02	Soil	07/17/15 09:25	07/17/15 18:00
SS24@8'	1507210-03	Soil	07/17/15 09:55	07/17/15 18:00

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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS25@10'	1507210-04	Soil	07/17/15 10:00	07/17/15 18:00

Summit Scientific

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

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Page 10 of 67



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

GS01@3
1507064-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/06/15 13:29

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507051	07/06/15	07/06/15	8015M	

Date Sampled: 07/06/15 13:29

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: 07/06/15 13:29

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.14	0.010	mg/kg	1	1507050	07/06/15	07/07/15	EPA 8260B	
Benzene	0.60	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.95	0.50	"	100	"	"	07/06/15	"	
Xylenes (total)	15	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	330	50	"	"	"	"	"	"	

Date Sampled: 07/06/15 13:29

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	07/07/15	"	
Surrogate: Toluene-d8		156 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		143 %	21-167		"	"	"	"	

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS01@11'
1507078-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507070	07/07/15	07/07/15	8015M	

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		111 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507069	07/07/15	07/07/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		129 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

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

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS01@11'
1507078-01 (Soil)

Summit Scientific

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

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	596	10.8	mg/kg dry	1	1507063	07/07/15	07/07/15	EPA 6020/Mod. USDA60 6(2, 3A)	
Magnesium	265	5.42	"	"	"	"	"	"	
Sodium	532	5.42	"	"	"	"	"	"	

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.56		units	"	1507072	07/08/15	07/08/15	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	1.26	0.0100	mmhos/cm	1	1507071	07/07/15	07/07/15	SM 2510B	

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.38	0.100	pH Units	"	1507065	07/07/15	07/07/15	EPA 9045	

Date Sampled: 07/07/15 12:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.0		%	"	1507064	07/07/15	07/08/15	% calculation	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS02@8'
1507094-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/08/15 10:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507085	07/08/15	07/08/15	8015M	

Date Sampled: 07/08/15 10:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/08/15 10:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507083	07/08/15	07/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/08/15 10:38

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		121 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.0 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

TP01@5'
1507094-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/08/15 15:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507085	07/08/15	07/09/15	8015M	

Date Sampled: 07/08/15 15:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		97.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/08/15 15:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.031	0.010	mg/kg	1	1507083	07/08/15	07/08/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.057	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.094	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	22	0.50	"	"	"	"	"	"	

Date Sampled: 07/08/15 15:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		81.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		161 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS03@8
1507108-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/09/15 09:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507094	07/09/15	07/09/15	8015M	

Date Sampled: 07/09/15 09:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/09/15 09:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507107	07/09/15	07/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/09/15 09:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS04@9
1507108-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/09/15 11:17

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507094	07/09/15	07/09/15	8015M	

Date Sampled: 07/09/15 11:17

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.3 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/09/15 11:17

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507107	07/09/15	07/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/09/15 11:17

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.5 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS05@8
1507108-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/09/15 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507094	07/09/15	07/09/15	8015M	

Date Sampled: 07/09/15 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/09/15 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507107	07/09/15	07/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/09/15 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		129 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.7 %	21-167		"	"	"	"	

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

Date Sampled: 07/09/15 12:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS05@8
1507108-03 (Soil)

Summit Scientific

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

Calcium	312	10.6 mg/kg dry	1	1507100	07/09/15	07/09/15	EPA 6020/Mod. USDA60 6(2, 3A)
Magnesium	363	5.29	"	"	"	"	"
Sodium	1200	5.29	"	"	"	"	"

Date Sampled: **07/09/15 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	11.0		units	"	1507108	07/10/15	07/10/15	"	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **07/09/15 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	5.09	0.0100 mmhos/cm		1	1507093	07/09/15	07/09/15	SM 2510B	

Date Sampled: **07/09/15 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	7.71	0.100 pH Units		"	1507090	07/09/15	07/09/15	EPA 9045	

Date Sampled: **07/09/15 12:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
% Solids	79.2		%	"	1507101	07/09/15	07/10/15	% calculation	

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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS06@6
1507108-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/09/15 14:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507094	07/09/15	07/09/15	8015M	

Date Sampled: 07/09/15 14:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		98.6 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/09/15 14:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507107	07/09/15	07/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/09/15 14:50

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		133 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.1 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS07@7'
1507117-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/10/15 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507120	07/10/15	07/10/15	8015M	

Date Sampled: 07/10/15 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		96.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/10/15 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507119	07/10/15	07/10/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/10/15 10:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		136 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.4 %	21-167		"	"	"	"	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS08@10'
1507117-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/10/15 10:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507120	07/10/15	07/11/15	8015M	

Date Sampled: **07/10/15 10:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/10/15 10:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507119	07/10/15	07/11/15	EPA 8260B	
Benzene	0.0055	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.019	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.075	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	6.3	0.50	"	"	"	"	"	"	

Date Sampled: **07/10/15 10:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		125 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS09@8'
1507117-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/10/15 12:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507120	07/10/15	07/11/15	8015M	

Date Sampled: 07/10/15 12:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		94.7 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/10/15 12:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507119	07/10/15	07/11/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/10/15 12:31

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		132 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

Summit Scientific

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



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS10@8'
1507117-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/10/15 14:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507120	07/10/15	07/11/15	8015M	

Date Sampled: 07/10/15 14:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		95.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/10/15 14:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507119	07/10/15	07/11/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	7.4	0.50	"	"	"	"	"	"	

Date Sampled: 07/10/15 14:45

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		124 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS11@8'
1507128-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/13/15 10:52

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	120	50	mg/kg	1	1507131	07/13/15	07/13/15	8015M	

Date Sampled: 07/13/15 10:52

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/13/15 10:52

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.12	0.010	mg/kg	1	1507130	07/13/15	07/13/15	EPA 8260B	
Benzene	0.019	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.21	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.1	0.10	"	10	"	"	07/13/15	"	
Gasoline Range Hydrocarbons	39	0.50	"	1	"	"	07/13/15	"	

Date Sampled: 07/13/15 10:52

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		79.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		156 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS12@10'
1507128-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/13/15 10:58

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507131	07/13/15	07/13/15	8015M	

Date Sampled: 07/13/15 10:58

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/13/15 10:58

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.039	0.010	mg/kg	1	1507130	07/13/15	07/14/15	EPA 8260B	
Benzene	0.011	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.045	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.14	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	7.1	0.50	"	"	"	"	"	"	

Date Sampled: 07/13/15 10:58

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		108 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS13@8'
1507147-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/14/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507165	07/14/15	07/14/15	8015M	

Date Sampled: 07/14/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/14/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507164	07/14/15	07/14/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.8	0.50	"	"	"	"	"	"	

Date Sampled: 07/14/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS14@6.5'
1507147-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/14/15 12:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507165	07/14/15	07/14/15	8015M	

Date Sampled: 07/14/15 12:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		104 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/14/15 12:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507164	07/14/15	07/14/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/14/15 12:03

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		130 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.7 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS15@8'
1507147-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/14/15 12:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507165	07/14/15	07/14/15	8015M	

Date Sampled: 07/14/15 12:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/14/15 12:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507164	07/14/15	07/14/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/14/15 12:27

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS16@7
1507162-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/15/15 09:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507179	07/15/15	07/15/15	8015M	

Date Sampled: **07/15/15 09:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/15/15 09:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507178	07/15/15	07/16/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.0081	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.089	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.2	0.50	"	"	"	"	"	"	

Date Sampled: **07/15/15 09:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		114 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

TP02@8
1507162-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/15/15 11:44

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	580	50	mg/kg	1	1507179	07/15/15	07/15/15	8015M	

Date Sampled: 07/15/15 11:44

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		115 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/15/15 11:44

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.31	0.010	mg/kg	1	1507178	07/15/15	07/16/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.0078	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.7	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	420	50	"	100	"	"	07/15/15	"	

Date Sampled: 07/15/15 11:44

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	07/16/15	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.9 %	21-167		"	"	"	"	

Summit Scientific

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



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS17@8
1507171-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/16/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507192	07/16/15	07/16/15	8015M	

Date Sampled: **07/16/15 09:25**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/16/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507191	07/16/15	07/17/15	EPA 8260B	
Benzene	0.016	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/16/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	21-167		"	"	"	"	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS18@10
1507171-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/16/15 09:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507192	07/16/15	07/16/15	8015M	

Date Sampled: 07/16/15 09:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		110 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/16/15 09:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.047	0.010	mg/kg	1	1507191	07/16/15	07/17/15	EPA 8260B	
Benzene	0.011	0.0020	"	"	"	"	"	"	
Toluene	0.33	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.072	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.7	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	17	0.50	"	"	"	"	"	"	

Date Sampled: 07/16/15 09:46

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		115 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS19@7
1507171-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/16/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507192	07/16/15	07/16/15	8015M	

Date Sampled: 07/16/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		116 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/16/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507191	07/16/15	07/17/15	EPA 8260B	
Benzene	0.0054	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.14	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.3	0.50	"	"	"	"	"	"	

Date Sampled: 07/16/15 11:15

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	21-167		"	"	"	"	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS20@8
1507171-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/16/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507192	07/16/15	07/16/15	8015M	

Date Sampled: 07/16/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		107 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/16/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507191	07/16/15	07/17/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.1	0.50	"	"	"	"	"	"	

Date Sampled: 07/16/15 14:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	21-167		"	"	"	"	

Summit Scientific

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



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS21@8
1507171-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/16/15 14:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507192	07/16/15	07/17/15	8015M	

Date Sampled: 07/16/15 14:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		112 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/16/15 14:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507191	07/16/15	07/16/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/16/15 14:28

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS22@8'
1507210-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/17/15 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	120	50	mg/kg	1	1507224	07/17/15	07/17/15	8015M	

Date Sampled: 07/17/15 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/17/15 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.14	0.010	mg/kg	1	1507223	07/17/15	07/18/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.20	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	31	0.50	"	"	"	"	"	"	

Date Sampled: 07/17/15 09:20

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		95.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS23@8'
1507210-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/17/15 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507224	07/17/15	07/17/15	8015M	

Date Sampled: 07/17/15 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/17/15 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507223	07/17/15	07/17/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: 07/17/15 09:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.9 %	21-167		"	"	"	"	

Summit Scientific

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



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS24@8'
1507210-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 07/17/15 09:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507224	07/17/15	07/17/15	8015M	

Date Sampled: 07/17/15 09:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 07/17/15 09:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.11	0.010	mg/kg	1	1507223	07/17/15	07/18/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.0054	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.0097	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.40	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	25	0.50	"	"	"	"	"	"	

Date Sampled: 07/17/15 09:55

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

SS25@10'
1507210-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/17/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507224	07/17/15	07/17/15	8015M	

Date Sampled: **07/17/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		103 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/17/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.045	0.010	mg/kg	1	1507223	07/17/15	07/18/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.0073	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.18	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.1	0.50	"	"	"	"	"	"	

Date Sampled: **07/17/15 10:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507051 - EPA 3550A

Blank (1507051-BLK1)				Prepared & Analyzed: 07/06/15						
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.7		"	12.2		104	30-150			
LCS (1507051-BS1)				Prepared & Analyzed: 07/06/15						
C10-C28 (DRO)	460	50	mg/kg	501		91.7	73-134			
Surrogate: o-Terphenyl	12.5		"	12.2		102	30-150			
Matrix Spike (1507051-MS1)				Source: 1507065-01		Prepared & Analyzed: 07/06/15				
C10-C28 (DRO)	439	50	mg/kg	481	11.0	89.0	50-148			
Surrogate: o-Terphenyl	12.1		"	11.7		103	30-150			
Matrix Spike Dup (1507051-MSD1)				Source: 1507065-01		Prepared & Analyzed: 07/06/15				
C10-C28 (DRO)	451	50	mg/kg	481	11.0	91.6	50-148	2.77	13	
Surrogate: o-Terphenyl	12.2		"	11.7		104	30-150			

Batch 1507070 - EPA 3550A

Blank (1507070-BLK1)				Prepared & Analyzed: 07/07/15						
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.7		"	12.2		104	30-150			
LCS (1507070-BS1)				Prepared & Analyzed: 07/07/15						
C10-C28 (DRO)	540	50	mg/kg	501		108	73-134			
Surrogate: o-Terphenyl	12.7		"	12.2		104	30-150			
Matrix Spike (1507070-MS1)				Source: 1507078-01		Prepared & Analyzed: 07/07/15				
C10-C28 (DRO)	510	50	mg/kg	478	14.8	104	50-148			
Surrogate: o-Terphenyl	13.3		"	11.6		114	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507070 - EPA 3550A

Matrix Spike Dup (1507070-MSD1)		Source: 1507078-01			Prepared & Analyzed: 07/07/15						
C10-C28 (DRO)	498	50	mg/kg	482	14.8	100	50-148	2.55	13		
Surrogate: o-Terphenyl	12.9		"	11.7		110	30-150				

Batch 1507085 - EPA 3550A

Blank (1507085-BLK1)		Prepared & Analyzed: 07/08/15									
C10-C28 (DRO)	ND	50	mg/kg								
Surrogate: o-Terphenyl	12.0		"	12.2		98.6	30-150				

LCS (1507085-BS1)		Prepared & Analyzed: 07/08/15									
C10-C28 (DRO)	503	50	mg/kg	501		100	73-134				
Surrogate: o-Terphenyl	13.2		"	12.2		109	30-150				

Matrix Spike (1507085-MS1)		Source: 1507084-01			Prepared & Analyzed: 07/08/15						
C10-C28 (DRO)	7020	50	mg/kg	483	7640	NR	50-148				QM-4X
Surrogate: o-Terphenyl	13.0		"	11.8		110	30-150				

Matrix Spike Dup (1507085-MSD1)		Source: 1507084-01			Prepared & Analyzed: 07/08/15						
C10-C28 (DRO)	8100	50	mg/kg	500	7640	90.4	50-148	14.2	13		QM-4X
Surrogate: o-Terphenyl	13.4		"	12.2		110	30-150				

Batch 1507094 - EPA 3550A

Blank (1507094-BLK1)		Prepared & Analyzed: 07/09/15									
C10-C28 (DRO)	ND	50	mg/kg								
Surrogate: o-Terphenyl	12.0		"	12.2		98.0	30-150				

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507094 - EPA 3550A

LCS (1507094-BS1) Prepared: 07/09/15 Analyzed: 07/10/15

C10-C28 (DRO)	445	50	mg/kg	501	88.8	73-134
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Surrogate: o-Terphenyl	11.8	"	12.2	96.6	30-150
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Matrix Spike (1507094-MS1) Source: 1507097-01 Prepared: 07/09/15 Analyzed: 07/10/15

C10-C28 (DRO)	448	50	mg/kg	492	8.48	89.3	50-148
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Surrogate: o-Terphenyl	11.6	"	12.0	97.2	30-150
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Matrix Spike Dup (1507094-MSD1) Source: 1507097-01 Prepared: 07/09/15 Analyzed: 07/10/15

C10-C28 (DRO)	492	50	mg/kg	494	8.48	97.9	50-148	9.38	13
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Surrogate: o-Terphenyl	12.7	"	12.0	105	30-150
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Batch 1507120 - EPA 3550A

Blank (1507120-BLK1) Prepared & Analyzed: 07/10/15

C10-C28 (DRO)	ND	50	mg/kg			
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Surrogate: o-Terphenyl	11.6	"	12.2	95.5	30-150
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LCS (1507120-BS1) Prepared & Analyzed: 07/10/15

C10-C28 (DRO)	475	50	mg/kg	501	94.8	73-134
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Surrogate: o-Terphenyl	11.9	"	12.2	97.4	30-150
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Matrix Spike (1507120-MS1) Source: 1507117-01 Prepared & Analyzed: 07/10/15

C10-C28 (DRO)	455	50	mg/kg	476	26.1	90.1	50-148
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Surrogate: o-Terphenyl	11.2	"	11.6	96.5	30-150
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Matrix Spike Dup (1507120-MSD1) Source: 1507117-01 Prepared & Analyzed: 07/10/15

C10-C28 (DRO)	478	50	mg/kg	472	26.1	95.9	50-148	4.94	13
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Surrogate: o-Terphenyl	11.7	"	11.5	101	30-150
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507131 - EPA 3550A

Blank (1507131-BLK1)

Prepared & Analyzed: 07/13/15

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	13.4		"	12.2		110	30-150			

LCS (1507131-BS1)

Prepared & Analyzed: 07/13/15

C10-C28 (DRO)	462	50	mg/kg	501		92.3	73-134			
Surrogate: o-Terphenyl	12.5		"	12.2		103	30-150			

Matrix Spike (1507131-MS1)

Source: 1507127-02

Prepared & Analyzed: 07/13/15

C10-C28 (DRO)	457	50	mg/kg	480	19.4	91.2	50-148			
Surrogate: o-Terphenyl	12.3		"	11.7		105	30-150			

Matrix Spike Dup (1507131-MSD1)

Source: 1507127-02

Prepared & Analyzed: 07/13/15

C10-C28 (DRO)	474	50	mg/kg	492	19.4	92.4	50-148	3.69	13	
Surrogate: o-Terphenyl	12.8		"	12.0		107	30-150			

Batch 1507165 - EPA 3550A

Blank (1507165-BLK1)

Prepared & Analyzed: 07/14/15

C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.8		"	12.2		105	30-150			

LCS (1507165-BS1)

Prepared & Analyzed: 07/14/15

C10-C28 (DRO)	498	50	mg/kg	501		99.4	73-134			
Surrogate: o-Terphenyl	13.0		"	12.2		106	30-150			

Matrix Spike (1507165-MS1)

Source: 1507147-03

Prepared & Analyzed: 07/14/15

C10-C28 (DRO)	475	50	mg/kg	472	25.7	95.2	50-148			
Surrogate: o-Terphenyl	12.1		"	11.5		105	30-150			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507165 - EPA 3550A

Matrix Spike Dup (1507165-MSD1)	Source: 1507147-03			Prepared & Analyzed: 07/14/15						
C10-C28 (DRO)	516	50	mg/kg	470	25.7	104	50-148	8.24	13	
Surrogate: o-Terphenyl	13.1		"	11.4		114	30-150			

Batch 1507179 - EPA 3550A

Blank (1507179-BLK1)	Prepared & Analyzed: 07/15/15									
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	13.6		"	12.2		112	30-150			

LCS (1507179-BS1)	Prepared & Analyzed: 07/15/15									
C10-C28 (DRO)	493	50	mg/kg	501		98.3	73-134			
Surrogate: o-Terphenyl	13.1		"	12.2		108	30-150			

Matrix Spike (1507179-MS1)	Source: 1507160-01			Prepared & Analyzed: 07/15/15						
C10-C28 (DRO)	436	50	mg/kg	443	20.8	93.9	50-148			
Surrogate: o-Terphenyl	11.4		"	10.8		106	30-150			

Batch 1507192 - EPA 3550A

Blank (1507192-BLK1)	Prepared & Analyzed: 07/16/15									
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.6		"	12.2		104	30-150			

LCS (1507192-BS1)	Prepared & Analyzed: 07/16/15									
C10-C28 (DRO)	483	50	mg/kg	501		96.4	73-134			
Surrogate: o-Terphenyl	12.9		"	12.2		105	30-150			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507192 - EPA 3550A

Matrix Spike (1507192-MS1)	Source: 1507169-02			Prepared & Analyzed: 07/16/15						
C10-C28 (DRO)	431	50	mg/kg	477	ND	90.4	50-148			
Surrogate: o-Terphenyl	12.2		"	11.6		105	30-150			

Matrix Spike Dup (1507192-MSD1)	Source: 1507169-02			Prepared & Analyzed: 07/16/15						
C10-C28 (DRO)	441	50	mg/kg	467	ND	94.4	50-148	2.25	13	
Surrogate: o-Terphenyl	12.8		"	11.4		112	30-150			

Batch 1507224 - EPA 3550A

Blank (1507224-BLK1)	Prepared & Analyzed: 07/17/15									
C10-C28 (DRO)	ND	50	mg/kg							
Surrogate: o-Terphenyl	12.7		"	12.2		104	30-150			

LCS (1507224-BS1)	Prepared & Analyzed: 07/17/15									
C10-C28 (DRO)	489	50	mg/kg	501		97.7	73-134			
Surrogate: o-Terphenyl	13.1		"	12.2		107	30-150			

Matrix Spike (1507224-MS1)	Source: 1507210-02			Prepared & Analyzed: 07/17/15						
C10-C28 (DRO)	454	50	mg/kg	477	7.49	93.5	50-148			
Surrogate: o-Terphenyl	12.4		"	11.6		107	30-150			

Matrix Spike Dup (1507224-MSD1)	Source: 1507210-02			Prepared & Analyzed: 07/17/15						
C10-C28 (DRO)	437	50	mg/kg	461	7.49	93.1	50-148	3.75	13	
Surrogate: o-Terphenyl	12.0		"	11.2		107	30-150			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507050 - EPA 5030 Soil MS

Blank (1507050-BLK1)

Prepared & Analyzed: 07/06/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0468		"	0.0396		118	23-173			
Surrogate: Toluene-d8	0.0394		"	0.0400		98.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0399		"	0.0400		99.8	21-167			

LCS (1507050-BS1)

Prepared & Analyzed: 07/06/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0856	0.0020	"	0.100		85.6	58-130			
Toluene	0.0908	0.0050	"	0.100		90.8	61-134			
Ethylbenzene	0.118	0.0050	"	0.0992		119	74-139			
m,p-Xylene	0.231	0.010	"	0.200		116	73-137			
o-Xylene	0.118	0.0050	"	0.0984		120	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0461		"	0.0396		117	23-173			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	20-170			
Surrogate: 4-Bromofluorobenzene	0.0394		"	0.0400		98.6	21-167			

Matrix Spike (1507050-MS1)

Source: 1507065-01

Prepared & Analyzed: 07/06/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0894	0.0020	"	0.0938	ND	95.2	30-131			
Toluene	0.0966	0.0050	"	0.0938	ND	103	30-134			
Ethylbenzene	0.125	0.0050	"	0.0931	ND	134	22-153			
m,p-Xylene	0.246	0.010	"	0.187	ND	131	10-159			
o-Xylene	0.126	0.0050	"	0.0923	ND	136	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0449		"	0.0371		121	23-173			
Surrogate: Toluene-d8	0.0376		"	0.0375		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0377		"	0.0375		100	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507050 - EPA 5030 Soil MS

Matrix Spike Dup (1507050-MSD1)				Source: 1507065-01		Prepared & Analyzed: 07/06/15				
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0878	0.0020	"	0.0929	ND	94.5	30-131	1.72	34	
Toluene	0.0953	0.0050	"	0.0929	ND	103	30-134	1.31	30	
Ethylbenzene	0.128	0.0050	"	0.0922	ND	139	22-153	2.19	24	
m,p-Xylene	0.249	0.010	"	0.186	ND	134	10-159	1.44	68	
o-Xylene	0.129	0.0050	"	0.0914	ND	141	31-151	2.91	38	
Surrogate: 1,2-Dichloroethane-d4	0.0468		"	0.0368		127	23-173			
Surrogate: Toluene-d8	0.0361		"	0.0372		97.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0372		98.7	21-167			

Batch 1507069 - EPA 5030 Soil MS

Blank (1507069-BLK1)				Prepared & Analyzed: 07/07/15						
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0483		"	0.0396		122	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0400		97.1	20-170			
Surrogate: 4-Bromofluorobenzene	0.0388		"	0.0400		97.1	21-167			

LCS (1507069-BS1)				Prepared & Analyzed: 07/07/15						
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0879	0.0020	"	0.100		87.9	58-130			
Toluene	0.0957	0.0050	"	0.100		95.7	61-134			
Ethylbenzene	0.122	0.0050	"	0.0992		123	74-139			
m,p-Xylene	0.236	0.010	"	0.200		118	73-137			
o-Xylene	0.122	0.0050	"	0.0984		124	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0463		"	0.0396		117	23-173			
Surrogate: Toluene-d8	0.0415		"	0.0400		104	20-170			
Surrogate: 4-Bromofluorobenzene	0.0395		"	0.0400		98.8	21-167			

Summit Scientific

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



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507069 - EPA 5030 Soil MS

Matrix Spike (1507069-MS1)

Source: 1507078-01

Prepared & Analyzed: 07/07/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0867	0.0020	"	0.0929	ND	93.3	30-131			
Toluene	0.0936	0.0050	"	0.0929	ND	101	30-134			
Ethylbenzene	0.123	0.0050	"	0.0922	ND	133	22-153			
m,p-Xylene	0.240	0.010	"	0.186	ND	129	10-159			
o-Xylene	0.124	0.0050	"	0.0914	ND	135	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0439		"	0.0368		119	23-173			
Surrogate: Toluene-d8	0.0366		"	0.0372		98.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0367		"	0.0372		98.8	21-167			

Matrix Spike Dup (1507069-MSD1)

Source: 1507078-01

Prepared & Analyzed: 07/07/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0913	0.0020	"	0.0929	ND	98.3	30-131	5.23	34	
Toluene	0.0987	0.0050	"	0.0929	ND	106	30-134	5.31	30	
Ethylbenzene	0.128	0.0050	"	0.0922	ND	139	22-153	3.76	24	
m,p-Xylene	0.247	0.010	"	0.186	ND	133	10-159	2.98	68	
o-Xylene	0.129	0.0050	"	0.0914	ND	141	31-151	4.34	38	
Surrogate: 1,2-Dichloroethane-d4	0.0468		"	0.0368		127	23-173			
Surrogate: Toluene-d8	0.0372		"	0.0372		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0365		"	0.0372		98.2	21-167			

Batch 1507083 - EPA 5030 Soil MS

Blank (1507083-BLK1)

Prepared & Analyzed: 07/08/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0464		"	0.0396		117	23-173			
Surrogate: Toluene-d8	0.0377		"	0.0400		94.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0389		"	0.0400		97.4	21-167			

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507083 - EPA 5030 Soil MS

LCS (1507083-BS1)

Prepared & Analyzed: 07/08/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0898	0.0020	"	0.100		89.8	58-130			
Toluene	0.0970	0.0050	"	0.100		97.0	61-134			
Ethylbenzene	0.129	0.0050	"	0.0992		130	74-139			
m,p-Xylene	0.250	0.010	"	0.200		125	73-137			
o-Xylene	0.128	0.0050	"	0.0984		130	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0465		"	0.0396		117	23-173			
Surrogate: Toluene-d8	0.0383		"	0.0400		95.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.5	21-167			

Matrix Spike (1507083-MS1)

Source: 1507084-05

Prepared & Analyzed: 07/08/15

Naphthalene	0.0115	0.010	mg/kg		ND		10-158			
Benzene	0.0937	0.0020	"	0.0998	ND	93.8	30-131			
Toluene	0.0955	0.0050	"	0.0998	ND	95.7	30-134			
Ethylbenzene	0.124	0.0050	"	0.0990	ND	125	22-153			
m,p-Xylene	0.233	0.010	"	0.199	ND	117	10-159			
o-Xylene	0.118	0.0050	"	0.0982	ND	120	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0474		"	0.0395		120	23-173			
Surrogate: Toluene-d8	0.0365		"	0.0399		91.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0428		"	0.0399		107	21-167			

Matrix Spike Dup (1507083-MSD1)

Source: 1507084-05

Prepared & Analyzed: 07/08/15

Naphthalene	0.0118	0.010	mg/kg		ND		10-158	2.55	42	
Benzene	0.0914	0.0020	"	0.0954	ND	95.8	30-131	2.40	34	
Toluene	0.0913	0.0050	"	0.0954	ND	95.6	30-134	4.55	30	
Ethylbenzene	0.118	0.0050	"	0.0947	ND	124	22-153	5.29	24	
m,p-Xylene	0.222	0.010	"	0.190	ND	117	10-159	4.86	68	
o-Xylene	0.111	0.0050	"	0.0939	ND	118	31-151	5.97	38	
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0378		117	23-173			
Surrogate: Toluene-d8	0.0347		"	0.0382		91.0	20-170			
Surrogate: 4-Bromofluorobenzene	0.0320		"	0.0382		83.8	21-167			

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507107 - EPA 5030 Soil MS

Blank (1507107-BLK1)

Prepared & Analyzed: 07/09/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0396	115	23-173				
Surrogate: Toluene-d8	0.0406		"	0.0400	101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400	95.1	21-167				

LCS (1507107-BS1)

Prepared & Analyzed: 07/09/15

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0947	0.0020	"	0.100	94.7	58-130				
Toluene	0.0999	0.0050	"	0.100	99.9	61-134				
Ethylbenzene	0.106	0.0050	"	0.0992	107	74-139				
m,p-Xylene	0.215	0.010	"	0.200	108	73-137				
o-Xylene	0.106	0.0050	"	0.0984	108	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0449		"	0.0396	113	23-173				
Surrogate: Toluene-d8	0.0400		"	0.0400	99.9	20-170				
Surrogate: 4-Bromofluorobenzene	0.0381		"	0.0400	95.2	21-167				

Matrix Spike (1507107-MS1)

Source: 1507108-01

Prepared & Analyzed: 07/09/15

Naphthalene	ND	0.010	mg/kg		ND	10-158				
Benzene	0.0896	0.0020	"	0.0933	ND	96.0	30-131			
Toluene	0.0927	0.0050	"	0.0933	ND	99.4	30-134			
Ethylbenzene	0.102	0.0050	"	0.0925	ND	110	22-153			
m,p-Xylene	0.207	0.010	"	0.186	ND	111	10-159			
o-Xylene	0.103	0.0050	"	0.0918	ND	112	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0437		"	0.0369	118	23-173				
Surrogate: Toluene-d8	0.0370		"	0.0373	99.1	20-170				
Surrogate: 4-Bromofluorobenzene	0.0366		"	0.0373	98.1	21-167				

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507107 - EPA 5030 Soil MS

Matrix Spike Dup (1507107-MSD1)			Source: 1507108-01		Prepared & Analyzed: 07/09/15					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0916	0.0020	"	0.0956	ND	95.8	30-131	2.24	34	
Toluene	0.0954	0.0050	"	0.0956	ND	99.8	30-134	2.88	30	
Ethylbenzene	0.102	0.0050	"	0.0948	ND	107	22-153	0.383	24	
m,p-Xylene	0.207	0.010	"	0.191	ND	108	10-159	0.0626	68	
o-Xylene	0.102	0.0050	"	0.0941	ND	109	31-151	0.497	38	
Surrogate: 1,2-Dichloroethane-d4	0.0478		"	0.0379		126	23-173			
Surrogate: Toluene-d8	0.0388		"	0.0382		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0371		"	0.0382		97.1	21-167			

Batch 1507119 - EPA 5030 Soil MS

Blank (1507119-BLK1)			Prepared & Analyzed: 07/10/15							
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0396		115	23-173			
Surrogate: Toluene-d8	0.0402		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0380		"	0.0400		95.0	21-167			

LCS (1507119-BS1)			Prepared & Analyzed: 07/10/15							
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0950	0.0020	"	0.100		95.0	58-130			
Toluene	0.102	0.0050	"	0.100		102	61-134			
Ethylbenzene	0.110	0.0050	"	0.0992		111	74-139			
m,p-Xylene	0.223	0.010	"	0.200		112	73-137			
o-Xylene	0.111	0.0050	"	0.0984		113	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0451		"	0.0396		114	23-173			
Surrogate: Toluene-d8	0.0401		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0386		"	0.0400		96.4	21-167			

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507119 - EPA 5030 Soil MS

Matrix Spike (1507119-MS1)

Source: 1507117-01

Prepared & Analyzed: 07/10/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0897	0.0020	"	0.0963	ND	93.1	30-131			
Toluene	0.0955	0.0050	"	0.0963	ND	99.1	30-134			
Ethylbenzene	0.103	0.0050	"	0.0956	ND	107	22-153			
m,p-Xylene	0.210	0.010	"	0.192	ND	109	10-159			
o-Xylene	0.106	0.0050	"	0.0948	ND	112	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0512		"	0.0382		134	23-173			
Surrogate: Toluene-d8	0.0384		"	0.0385		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0385		97.3	21-167			

Matrix Spike Dup (1507119-MSD1)

Source: 1507117-01

Prepared & Analyzed: 07/10/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0962	0.0020	"	0.0984	ND	97.8	30-131	7.01	34	
Toluene	0.102	0.0050	"	0.0984	ND	103	30-134	6.15	30	
Ethylbenzene	0.105	0.0050	"	0.0976	ND	108	22-153	2.37	24	
m,p-Xylene	0.213	0.010	"	0.196	ND	108	10-159	1.42	68	
o-Xylene	0.107	0.0050	"	0.0969	ND	111	31-151	0.912	38	
Surrogate: 1,2-Dichloroethane-d4	0.0529		"	0.0390		136	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0394		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0393		"	0.0394		99.9	21-167			

Batch 1507130 - EPA 5030 Soil MS

Blank (1507130-BLK1)

Prepared & Analyzed: 07/13/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0440		"	0.0396		111	23-173			
Surrogate: Toluene-d8	0.0381		"	0.0400		95.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0398		"	0.0400		99.5	21-167			

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507130 - EPA 5030 Soil MS

LCS (1507130-BS1)

Prepared & Analyzed: 07/13/15

Naphthalene	ND	0.010	mg/kg				66-138		
Benzene	0.103	0.0020	"	0.100		103	58-130		
Toluene	0.104	0.0050	"	0.100		104	61-134		
Ethylbenzene	0.105	0.0050	"	0.0992		106	74-139		
m,p-Xylene	0.212	0.010	"	0.200		106	73-137		
o-Xylene	0.112	0.0050	"	0.0984		114	73-141		
Surrogate: 1,2-Dichloroethane-d4	0.0429		"	0.0396		108	23-173		
Surrogate: Toluene-d8	0.0362		"	0.0400		90.6	20-170		
Surrogate: 4-Bromofluorobenzene	0.0392		"	0.0400		98.1	21-167		

Matrix Spike (1507130-MS1)

Source: 1507127-02

Prepared & Analyzed: 07/13/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		
Benzene	0.0997	0.0020	"	0.0990	ND	101	30-131		
Toluene	0.101	0.0050	"	0.0990	ND	102	30-134		
Ethylbenzene	0.0992	0.0050	"	0.0982	ND	101	22-153		
m,p-Xylene	0.200	0.010	"	0.198	ND	101	10-159		
o-Xylene	0.106	0.0050	"	0.0974	ND	109	31-151		
Surrogate: 1,2-Dichloroethane-d4	0.0458		"	0.0392		117	23-173		
Surrogate: Toluene-d8	0.0353		"	0.0396		89.2	20-170		
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0396		95.4	21-167		

Matrix Spike Dup (1507130-MSD1)

Source: 1507127-02

Prepared & Analyzed: 07/13/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42
Benzene	0.0960	0.0020	"	0.0954	ND	101	30-131	3.81	34
Toluene	0.0970	0.0050	"	0.0954	ND	102	30-134	4.11	30
Ethylbenzene	0.0978	0.0050	"	0.0947	ND	103	22-153	1.44	24
m,p-Xylene	0.196	0.010	"	0.190	ND	103	10-159	2.22	68
o-Xylene	0.103	0.0050	"	0.0939	ND	110	31-151	2.69	38
Surrogate: 1,2-Dichloroethane-d4	0.0422		"	0.0378		112	23-173		
Surrogate: Toluene-d8	0.0340		"	0.0382		89.0	20-170		
Surrogate: 4-Bromofluorobenzene	0.0359		"	0.0382		94.0	21-167		

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507164 - EPA 5030 Soil MS

Blank (1507164-BLK1)

Prepared & Analyzed: 07/14/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0434		"	0.0396	110	23-173				
Surrogate: Toluene-d8	0.0401		"	0.0400	100	20-170				
Surrogate: 4-Bromofluorobenzene	0.0385		"	0.0400	96.3	21-167				

LCS (1507164-BS1)

Prepared & Analyzed: 07/14/15

Naphthalene	ND	0.010	mg/kg			66-138				
Benzene	0.0980	0.0020	"	0.100	98.0	58-130				
Toluene	0.104	0.0050	"	0.100	104	61-134				
Ethylbenzene	0.111	0.0050	"	0.0992	112	74-139				
m,p-Xylene	0.227	0.010	"	0.200	114	73-137				
o-Xylene	0.112	0.0050	"	0.0984	114	73-141				
Surrogate: 1,2-Dichloroethane-d4	0.0450		"	0.0396	114	23-173				
Surrogate: Toluene-d8	0.0405		"	0.0400	101	20-170				
Surrogate: 4-Bromofluorobenzene	0.0377		"	0.0400	94.2	21-167				

Matrix Spike (1507164-MS1)

Source: 1507147-03

Prepared & Analyzed: 07/14/15

Naphthalene	ND	0.010	mg/kg		ND	10-158				
Benzene	0.0973	0.0020	"	0.0963	ND	30-131				
Toluene	0.101	0.0050	"	0.0963	ND	30-134				
Ethylbenzene	0.108	0.0050	"	0.0956	ND	22-153				
m,p-Xylene	0.222	0.010	"	0.192	ND	10-159				
o-Xylene	0.109	0.0050	"	0.0948	ND	31-151				
Surrogate: 1,2-Dichloroethane-d4	0.0454		"	0.0382	119	23-173				
Surrogate: Toluene-d8	0.0384		"	0.0385	99.6	20-170				
Surrogate: 4-Bromofluorobenzene	0.0377		"	0.0385	97.9	21-167				

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507164 - EPA 5030 Soil MS

Matrix Spike Dup (1507164-MSD1)				Source: 1507147-03		Prepared & Analyzed: 07/14/15				
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0986	0.0020	"	0.0977	ND	101	30-131	1.33	34	
Toluene	0.101	0.0050	"	0.0977	ND	104	30-134	0.0491	30	
Ethylbenzene	0.107	0.0050	"	0.0969	ND	110	22-153	1.51	24	
m,p-Xylene	0.222	0.010	"	0.195	ND	114	10-159	0.267	68	
o-Xylene	0.109	0.0050	"	0.0961	ND	114	31-151	0.105	38	
Surrogate: 1,2-Dichloroethane-d4	0.0489		"	0.0387		126	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0391		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0391		96.8	21-167			

Batch 1507178 - EPA 5030 Soil MS

Blank (1507178-BLK1)				Prepared & Analyzed: 07/15/15						
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0396		99.3	23-173			
Surrogate: Toluene-d8	0.0386		"	0.0400		96.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0396		"	0.0400		99.1	21-167			

LCS (1507178-BS1)				Prepared & Analyzed: 07/15/15						
Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.107	0.0020	"	0.100		107	58-130			
Toluene	0.117	0.0050	"	0.100		117	61-134			
Ethylbenzene	0.141	0.0050	"	0.0992		142	74-139			
m,p-Xylene	0.288	0.010	"	0.200		144	73-137			
o-Xylene	0.142	0.0050	"	0.0984		145	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0396		102	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0400		97.7	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.



PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507178 - EPA 5030 Soil MS

Matrix Spike (1507178-MS1)

Source: 1507160-01

Prepared & Analyzed: 07/15/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.101	0.0020	"	0.0928	ND	109	30-131			
Toluene	0.112	0.0050	"	0.0928	ND	121	30-134			
Ethylbenzene	0.132	0.0050	"	0.0920	ND	143	22-153			
m,p-Xylene	0.270	0.010	"	0.185	ND	146	10-159			
o-Xylene	0.135	0.0050	"	0.0913	ND	148	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0387		"	0.0367		105	23-173			
Surrogate: Toluene-d8	0.0363		"	0.0371		97.9	20-170			
Surrogate: 4-Bromofluorobenzene	0.0356		"	0.0371		96.1	21-167			

Matrix Spike Dup (1507178-MSD1)

Source: 1507160-01

Prepared & Analyzed: 07/15/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.108	0.0020	"	0.0988	ND	109	30-131	7.09	34	
Toluene	0.120	0.0050	"	0.0988	ND	122	30-134	7.06	30	
Ethylbenzene	0.139	0.0050	"	0.0980	ND	142	22-153	5.40	24	
m,p-Xylene	0.288	0.010	"	0.197	ND	146	10-159	6.46	68	
o-Xylene	0.141	0.0050	"	0.0972	ND	145	31-151	4.34	38	
Surrogate: 1,2-Dichloroethane-d4	0.0417		"	0.0391		107	23-173			
Surrogate: Toluene-d8	0.0393		"	0.0395		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0391		"	0.0395		98.9	21-167			

Batch 1507191 - EPA 5030 Soil MS

Blank (1507191-BLK1)

Prepared & Analyzed: 07/16/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0396		99.3	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507191 - EPA 5030 Soil MS

LCS (1507191-BS1)

Prepared & Analyzed: 07/16/15

Naphthalene	0.0101	0.010	mg/kg				66-138			
Benzene	0.109	0.0020	"	0.100		109	58-130			
Toluene	0.120	0.0050	"	0.100		120	61-134			
Ethylbenzene	0.134	0.0050	"	0.0992		135	74-139			
m,p-Xylene	0.278	0.010	"	0.200		139	73-137			
o-Xylene	0.135	0.0050	"	0.0984		137	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0410		"	0.0396		103	23-173			
Surrogate: Toluene-d8	0.0399		"	0.0400		99.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0387		"	0.0400		96.8	21-167			

Matrix Spike (1507191-MS1)

Source: 1507169-06

Prepared & Analyzed: 07/16/15

Naphthalene	0.00703	0.010	mg/kg		0.00750		10-158			
Benzene	0.0977	0.0020	"	0.0904	ND	108	30-131			
Toluene	0.106	0.0050	"	0.0904	ND	117	30-134			
Ethylbenzene	0.122	0.0050	"	0.0897	ND	137	22-153			
m,p-Xylene	0.252	0.010	"	0.180	0.00497	137	10-159			
o-Xylene	0.125	0.0050	"	0.0890	0.00552	134	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0370		"	0.0358		103	23-173			
Surrogate: Toluene-d8	0.0356		"	0.0362		98.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0353		"	0.0362		97.7	21-167			

Matrix Spike Dup (1507191-MSD1)

Source: 1507169-06

Prepared & Analyzed: 07/16/15

Naphthalene	0.00826	0.010	mg/kg		0.00750		10-158	16.2	42	
Benzene	0.106	0.0020	"	0.0960	ND	111	30-131	8.40	34	
Toluene	0.115	0.0050	"	0.0960	ND	119	30-134	7.68	30	
Ethylbenzene	0.134	0.0050	"	0.0952	ND	141	22-153	9.31	24	
m,p-Xylene	0.275	0.010	"	0.192	0.00497	141	10-159	8.77	68	
o-Xylene	0.139	0.0050	"	0.0944	0.00552	141	31-151	10.6	38	
Surrogate: 1,2-Dichloroethane-d4	0.0388		"	0.0380		102	23-173			
Surrogate: Toluene-d8	0.0375		"	0.0384		97.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0362		"	0.0384		94.4	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507223 - EPA 5030 Soil MS

Blank (1507223-BLK1)

Prepared & Analyzed: 07/17/15

Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0403		"	0.0396		102	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0400		97.6	20-170			
Surrogate: 4-Bromofluorobenzene	0.0384		"	0.0400		95.9	21-167			

LCS (1507223-BS1)

Prepared & Analyzed: 07/17/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.128	0.0020	"	0.125		102	58-130			
Toluene	0.125	0.0050	"	0.125		100	61-134			
Ethylbenzene	0.139	0.0050	"	0.124		112	74-139			
m,p-Xylene	0.283	0.010	"	0.250		114	73-137			
o-Xylene	0.139	0.0050	"	0.123		113	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0398		"	0.0396		101	23-173			
Surrogate: Toluene-d8	0.0398		"	0.0400		99.5	20-170			
Surrogate: 4-Bromofluorobenzene	0.0390		"	0.0400		97.5	21-167			

Matrix Spike (1507223-MS1)

Source: 1507210-02

Prepared & Analyzed: 07/17/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.127	0.0020	"	0.122	ND	104	30-131			
Toluene	0.126	0.0050	"	0.122	ND	103	30-134			
Ethylbenzene	0.137	0.0050	"	0.121	ND	113	22-153			
m,p-Xylene	0.279	0.010	"	0.243	ND	115	10-159			
o-Xylene	0.137	0.0050	"	0.120	ND	114	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0413		"	0.0386		107	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0390		99.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0375		"	0.0390		96.2	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507223 - EPA 5030 Soil MS

Matrix Spike Dup (1507223-MSD1)		Source: 1507210-02			Prepared & Analyzed: 07/17/15					
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.126	0.0020	"	0.123	ND	102	30-131	1.30	34	
Toluene	0.123	0.0050	"	0.123	ND	99.9	30-134	2.17	30	
Ethylbenzene	0.136	0.0050	"	0.122	ND	111	22-153	0.379	24	
m,p-Xylene	0.277	0.010	"	0.246	ND	113	10-159	0.690	68	
o-Xylene	0.135	0.0050	"	0.121	ND	112	31-151	1.57	38	
Surrogate: 1,2-Dichloroethane-d4		0.0403	"	0.0390		103	23-173			
Surrogate: Toluene-d8		0.0389	"	0.0394		98.7	20-170			
Surrogate: 4-Bromofluorobenzene		0.0383	"	0.0394		97.2	21-167			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507063 - General Preparation

Blank (1507063-BLK1)

Prepared & Analyzed: 07/07/15

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

LCS (1507063-BS1)

Prepared & Analyzed: 07/07/15

Calcium	556	10.0	mg/kg wet	500	111	82.9-118
Magnesium	548	5.00	"	500	110	77.1-123
Sodium	539	5.00	"	500	108	71-129

Duplicate (1507063-DUP1)

Source: 1507042-01

Prepared & Analyzed: 07/07/15

Calcium	10200	15.4	mg/kg dry	5460	60.5	200
Magnesium	1190	7.69	"	659	57.2	200
Sodium	2020	7.69	"	1890	6.82	200

Matrix Spike (1507063-MS1)

Source: 1507042-01

Prepared & Analyzed: 07/07/15

Calcium	7250	11.5	mg/kg dry	576	5460	312	75-125	QM-07
Magnesium	1350	5.76	"	576	659	120	75-125	
Sodium	2430	5.76	"	576	1890	93.4	75-125	

Matrix Spike Dup (1507063-MSD1)

Source: 1507042-01

Prepared & Analyzed: 07/07/15

Calcium	6330	12.3	mg/kg dry	616	5460	141	75-125	13.6	25	QM-07
Magnesium	1090	6.16	"	616	659	69.2	75-125	21.9	25	QM-07
Sodium	2300	6.16	"	616	1890	67.3	75-125	5.21	25	QM-07

Batch 1507100 - General Preparation

Blank (1507100-BLK1)

Prepared & Analyzed: 07/09/15

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

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507100 - General Preparation

LCS (1507100-BS1)

Prepared & Analyzed: 07/09/15

Calcium	493	10.0	mg/kg wet	500		98.6	82.9-118			
Magnesium	517	5.00	"	500		103	77.1-123			
Sodium	508	5.00	"	500		102	71-129			

Duplicate (1507100-DUP1)

Source: 1507102-01

Prepared & Analyzed: 07/09/15

Calcium	2140	10.6	mg/kg dry		2300			7.26	200	
Magnesium	416	5.28	"		445			6.58	200	
Sodium	857	5.28	"		795			7.44	200	

Matrix Spike (1507100-MS1)

Source: 1507102-01

Prepared & Analyzed: 07/09/15

Calcium	3140	12.0	mg/kg dry	579	2300	144	75-125			QM-07
Magnesium	1070	6.02	"	579	445	108	75-125			
Sodium	1440	6.02	"	579	795	111	75-125			

Matrix Spike Dup (1507100-MSD1)

Source: 1507102-01

Prepared & Analyzed: 07/09/15

Calcium	2780	9.95	mg/kg dry	497	2300	95.4	75-125	12.2	25	
Magnesium	980	4.97	"	497	445	108	75-125	8.53	25	
Sodium	1340	4.97	"	497	795	109	75-125	7.16	25	

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507064 - General Preparation

Duplicate (1507064-DUP1) Source: 1507039-01 Prepared: 07/07/15 Analyzed: 07/08/15

% Solids	79.8		%		78.0		2.28	20	
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Batch 1507065 - General Preparation

LCS (1507065-BS1) Prepared & Analyzed: 07/07/15

pH	8.00	0.100	pH Units	8.00	100	95-105			
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Duplicate (1507065-DUP1) Source: 1507074-01 Prepared & Analyzed: 07/07/15

pH	8.87	0.100	pH Units	8.99		1.34	20		
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Batch 1507071 - General Preparation

Blank (1507071-BLK1) Prepared & Analyzed: 07/07/15

Specific Conductance (EC)	ND	0.0100	mmhos/cm						
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LCS (1507071-BS1) Prepared & Analyzed: 07/07/15

Specific Conductance (EC)	483	0.0100	mmhos/cm	500	96.5	90-110			
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Duplicate (1507071-DUP1) Source: 1507074-01 Prepared & Analyzed: 07/07/15

Specific Conductance (EC)	3.38	0.0100	mmhos/cm	3.04		10.6	20		
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Batch 1507090 - General Preparation

LCS (1507090-BS1) Prepared & Analyzed: 07/09/15

pH	8.00	0.100	pH Units	8.00	100	95-105			
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

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 1507090 - General Preparation

Duplicate (1507090-DUP1) Source: **1507102-01** Prepared & Analyzed: 07/09/15

pH	8.71	0.100	pH Units	8.63	0.923	20
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Batch 1507093 - General Preparation

Blank (1507093-BLK1) Prepared & Analyzed: 07/09/15

Specific Conductance (EC)	ND	0.0100	mmhos/cm
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LCS (1507093-BS1) Prepared & Analyzed: 07/09/15

Specific Conductance (EC)	479	0.0100	mmhos/cm	500	95.9	90-110
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Duplicate (1507093-DUP1) Source: **1507084-01** Prepared & Analyzed: 07/09/15

Specific Conductance (EC)	0.857	0.0100	mmhos/cm	0.782	9.09	20
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Batch 1507101 - General Preparation

Duplicate (1507101-DUP1) Source: **1507102-01** Prepared: 07/09/15 Analyzed: 07/10/15

% Solids	83.1		%	83.1	0.00	20
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Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Succo GU 4, 43-20

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
07/20/15 09:37

Notes and Definitions

QM-4X The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to analyte concentration at 4 times or greater the spike concentration. The QC batch was accepted based on LCS and/or LCSD recoveries within the acceptance limits.

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