

Remediation Work Plan
Edwards 33, 43-9 Production Facility
Weld County, Colorado

Prepared for:



1775 Sherman St, Suite 3000
Denver, CO 80203

Prepared By:



6899 Pecos Street, Unit C
Denver, CO 80221

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1.0 Introduction

This workplan has been developed for implementation of remediation activities at the Edwards 33, 43-9 production facility (Site). Based on evaluation of the current Site conditions and review of candidate remedial alternatives, an optimal remedial strategy has been selected for this Site. Soil mixing using hydrogen peroxide was selected as the remedial strategy based on geology, contaminate type, Site constraints, and previous successful soil mixing and treatment of impacted soil at this location.

Soil mixing is a remedial approach that couples the proven effectiveness of chemical soil oxidation with the rapid results of excavation. The mixing method employed by Tasman is focused on minimizing complex equipment and treatment footprints while maximizing the benefits of on-Site treatment and reuse of soil. Treatment is conducted ex-situ within the footprint of disturbance and eliminates the need for external staging areas, secondary containment of treatment areas, and decontamination zones. Soil mixing reuses the treated soil, so there is an up to 100% reduction in haul truck traffic to disposal facilities and borrow sites.

2.0 Project Background

On July 30, 2015, a dump line release was discovered at the Site. The spill was reported to the Colorado Oil and Gas Conservation Commission (COGCC) on July 31, 2015 in an Initial Form 19 (Doc# 400877827). Between July 31 and August 31, 2015, excavation, environmental sampling, and remediation activities were conducted on Site. A complete summary of Site activities is provided below.

2.1 Initial Excavation Activities

Excavation activities were initiated following the discovery of the release. Between July 31 and August 3, 2015, approximately 280 cubic yards (cy) of impacted material were removed and transported to the Waste Management Facility in Ault, Colorado for disposal under PDC waste manifests. The lateral and vertical extent of the excavation was guided by field screening volatile organic compound (VOC) concentrations in soil using a photoionization detector (PID). Six soil samples (SS01 – SS06) were collected from the base and sidewalls of the excavation area at approximately 20 feet and 16 feet below ground surface (bgs), respectively. Soil samples were submitted to Summit Scientific Laboratories (Summit) 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 8260, and TPH – diesel range organics (DRO) by USEPA Method 8015.

Analytical results indicated benzene, total xylenes and TPH concentrations were in exceedance of COGCC Table 910-1 standards in the soil sample (SS01) collected from the base of the excavation at 20 feet bgs. Constituent concentrations were below regulatory standards in the remaining five soil sample locations.

2.2 Chemical Remediation Activities – Phase I

Based on the soil analytical data collected during initial excavation activities, soil mixing and chemical treatment were selected as an initial measure to address petroleum hydrocarbon impacts on Site.

On August 10, 2015, approximately 300 cy of impacted material between 20 feet and 25 feet bgs were chemically treated using approximately 2,250 gallons of hydrogen peroxide. Soil was treated in the open excavation area and stockpiled for subsequent confirmation soil sampling. In addition, one soil sample

(SS07) was collected from northeast sidewall at approximately 16 feet bgs and submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH.

Analytical results indicated constituent concentrations were below COGCC Table 910-1 standards in soil sample SS07, confirming that hydrocarbon impacts above regulatory standards between surface and 16 feet bgs were successfully removed.

On August 12, 2015, additional soil sampling activities were conducted to determine the vertical extent of remaining hydrocarbon impacts. Five soil samples (SS08 – SS12) were collected from the base and sidewalls of the excavation area at approximately 26 feet and 21 feet bgs, respectively. Due to elevated PID readings observed in the soil sample (SS12) collected from the west sidewall, a test pit was advanced approximately 15 feet west of the excavation boundary and a soil sample (SS13) was collected at 21 feet bgs. All six soil samples were submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH.

Analytical results indicated TPH concentrations were in exceedance of COGCC Table 910-1 standards in the soil samples collected from the west sidewall (SS12) and base of the excavation (SS08). However, constituent concentrations were below regulatory standards in the soil samples collected from the test pit and three remaining sidewalls.

2.3 Chemical Remediation Activities – Phase II

Based on the soil analytical data collected following the first chemical treatment event, hydrocarbon impacts above regulatory standards remained at the base of the excavation at 26 feet bgs, below the extent of the soil mixing zone.

On August 19, 2015, approximately 500 cy of impacted material between 26 feet and 30 feet bgs were chemically treated using 4,500 gallons of hydrogen peroxide. Treated material was subsequently stockpiled for confirmation sampling. Following treatment activities, four soil samples (SS14 – SS17) were collected from the base and sidewalls of the excavation area at 30 feet and 21 feet bgs, respectively. Samples were submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH.

Analytical results indicated benzene concentrations were in exceedance of COGCC Table 910-1 standards in the soil samples (SS14 and SS17) collected from the base of the excavation at 30 feet bgs. However, constituent concentrations were below regulatory standards in the two soil samples (SS15 and SS16) collected from the sidewalls of the final excavation extent.

Based on soil analytical data collected between August 12 and August 19, 2015, hydrocarbon impacts above regulatory standards were successfully addressed between 16 feet and 21 feet bgs in the excavation area.

On August 21, 2015, two test pits were advanced at the base of the excavation in an attempt to delineate the extent of remaining vertical hydrocarbon impacts. Two soil samples (SS18 and SS19) were collected at approximately 32 feet bgs and submitted to Summit for laboratory analysis. Analytical results indicated benzene concentrations were in exceedance of COGCC Table 910-1 standards in both soil samples collected from the base of the excavation at 32 feet bgs.

Between August 21 and August 24, 2015, the impacted material generated during investigation activities, approximately 130 cy, was removed and transported to the Waste Management Facility for disposal under PDC waste manifests.

2.4 Treated Material Confirmation Sampling

Confirmation soil samples were collected for every 100 cy of treated material to confirm constituent concentrations decreased below COGCC Table 910-1 standards. Between August 12 and August 24, 2015, eight composite soil samples (CS01 – CS08) were collected from the treated material and submitted to Summit for laboratory analysis of BTEX, naphthalene and TPH.

Analytical results indicated TPH concentrations were in exceedance of COGCC Table 910-1 soil standards in two (CS04 and CS07) of the eight samples. Consequently, the material was given additional oxidation reaction time and remixed. On August 31, 2015, the material was resampled (CS04-R and CS07-R). Analytical results indicated constituent concentrations were below regulatory standards in both sample locations.

2.5 Additional Site Assessment Activities

Between August 31 and September 1, 2015, a Site investigation was conducted to delineate the lateral and vertical extent of remaining hydrocarbon impacts below 21 feet bgs. Five test pits (TP01 – TP05) were advanced in the cardinal directions of the excavation area to a depth of approximately 32 feet bgs. Soil encountered in the test pits was field screened for VOC concentrations using a PID. Soil samples were collected from each test pit at depths ranging between 27 feet and 32 feet bgs. Samples were submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH. Analytical results indicated constituent concentrations were below COGCC Table 910-1 soil standards in the soil samples collected from all five test pit locations.

The excavation extent and soil sample locations are illustrated on Figure 1. Soil analytical data collected from the excavation area is summarized in Table 1 and soil analytical data collected from the treated material is summarized in Table 2. The laboratory analytical reports are included as Attachment A.

Based on the analytical data collected between July 31 and August 31, 2015, the lateral extent of remaining hydrocarbon impacts above regulatory standards has been defined. Groundwater was not encountered during excavation, sampling, or investigation activities.

3.0 Remediation Plan

The Site specific remediation plan for addressing petroleum hydrocarbons in soil is outlined in the sections below.

3.1 Mobilization and Project Kickoff

Prior to mobilization of remediation equipment, PDC will remove subsurface pipelines and above ground infrastructure from the dig area (Figure 2). Once the production equipment has been removed from the battery, remediation equipment will be brought to the Site which will include the following:

- One or more excavators for soil mixing, overburden removal, stockpile management, sampling, and backfilling
- Bulldozer and/or wheel loader

- Compactor
- Bulk container for hydrogen peroxide (H₂O₂) with secondary containment
- Water tank for H₂O₂ dilution
- H₂O₂ spray manifold, air compressor, pumps, and hoses
- 500 gallon diesel tank – dual contained for equipment refueling
- Ancillary equipment and fittings

Prior to commencing excavation operations, Tasman will create a detour access road to the east of the DCP gas line riser as illustrated in Figure 2. A detour sign will be posted at the entrance to the Site to divert vehicle traffic away from the remediation work area.

Health and Safety Plan (HASP) - Due to the nature of the remediation work, various critical risks will require consideration and definition in a detailed HASP. The HASP will include a summary of principal hazards, Site-specific and activity-specific training to be provided, and methods used in the field to protect workers and equipment. The HASP will also include all requisite figures and graphics necessary to provide a proper understanding of the hazards and the methods used to protect against such hazards. Some of the principal hazards addressed as modules will include the following, among others:

- Excavation Operations;
- Chemical Hazards;
- Site Traffic, and;
- Personal Protective Equipment.

Stormwater Control – Prior to commencement of construction activities, best management practices (BMP's) will be implemented such as straw waddle and earth berms around the work area to prevent uncontrolled migration of sediment. Tasman will install and maintain sedimentation control devices as necessary to prevent the movement of sediment off the Site. Field personnel will make a visual inspection of all erosion and sedimentation control devices once every two weeks and after precipitation events. Sediment controls in need of maintenance will be cleaned or repaired promptly.

3.2 Excavation, Soil Mixing, and Confirmation Sampling

As discussed above, assessment activities indicate that impacted soils are present between 21 and 32 feet bgs. In order to access this material, clean overburden will be removed and stockpiled on-Site. The upper 3 feet of overburden on adjacent agricultural land is topsoil and will be segregated for post-remediation reclamation. Impacted soil will be excavated and mixed with H₂O₂ and allowed to react for 24- to 48-hours. Subsequent to the 24- to 48-hour oxidation reaction period, post-treatment samples will be collected and analyzed on a quick-turn basis. One composite soil sample will be collected per 100 cy of treated material to confirm hydrocarbon impacts have been reduced below COGCC standards and can be used for subsequent backfilling.

Confirmation samples will be submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH. Reductions in petroleum hydrocarbons below COGCC standards are typically experienced after one

round of treatment/mixing. Occasionally, additional treatment time or additional chemical may be needed to further reduce petroleum hydrocarbon concentrations within a 100 cy treatment cell. Treated material that exhibits elevated constituent concentrations above State standards will be further treated and subsequently re-sampled (resample designation - CSXX-R). Treatment volume and sample results will be tabulated and submitted to PDC in a daily activity summary e-mail.

3.3 Determination of Excavation Extents

Standard headspace sampling techniques using a PID will guide the horizontal and vertical progression of the excavation. At the final extent of the excavation, confirmation soil samples will be collected from the sidewalls and base. Soil samples will be submitted to Summit for laboratory analysis of BTEX, naphthalene, and TPH. Excavation and treatment of impacted soil will be considered complete once analytical results indicate constituent concentrations are below COGCC Table 910-1 soil standards. The excavation extent and soil sample locations will be illustrated on a Site figure and summarized in an analytical table. The Site figure and table will be provided to PDC in a daily activity summary e-mail.

3.4 Backfill and Reclamation

Once soil sample analytical results indicate that the extent of petroleum hydrocarbon impacts have been defined and the impacted soil treated, backfilling operations will commence. Native backfill consisting of treated material will be placed in maximum 2-foot lifts using an excavator and compactor at the base of the excavation to an approximate depth between 5-10 feet bgs. Clean fill material will be placed from the surface to between 5-10 feet bgs. In the adjacent agricultural field, topsoil will be placed from 0 to 3 feet bgs. The excavation will be completely backfilled to ground surface and re-contoured to match pre-existing surface conditions. The production facility will then be reconstructed over the former treatment area.

4.0 Excavation Plan

The project will require excavation of impacted soil to an estimated depth of 35 feet bgs. Excavation to this depth will be conducted as summarized in the following sections.

4.1 General Field Conditions

The observed soil characteristics in the proposed excavation area generally consist of the following:

- Granular Material: This material consists of sand and is encountered from the ground surface to an approximate depth of 20 ft bgs. Due to the lack of plasticity, this material is considered to be Type C in accordance with OSHA definitions as set forth in 29 CFR 1926 Subpart P Appendix A.
- Stable Rock: This material is encountered beneath the sand and extends from approximately 20 ft bgs to the total proposed excavation depth of 35 ft bgs.

These classifications have been established by a Competent Person based on field observation of the subgrade materials.

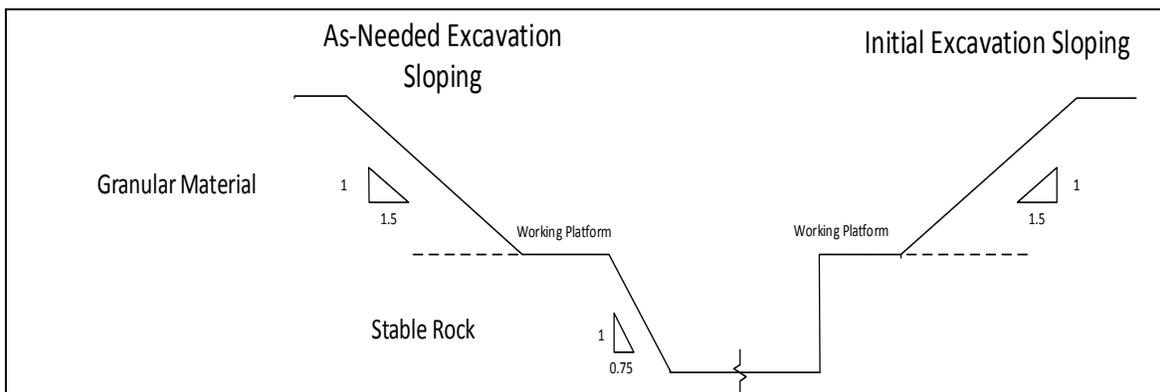
4.2 Sloping and Benching

Based on the soil types identified above, an evaluation of the maximum allowable slope has been assessed for each material. In addition, due to the required excavation depth, a sloping plan has been

established to account for equipment access and development of working platforms. The sloping plan is described below along with a generalized excavation sketch:

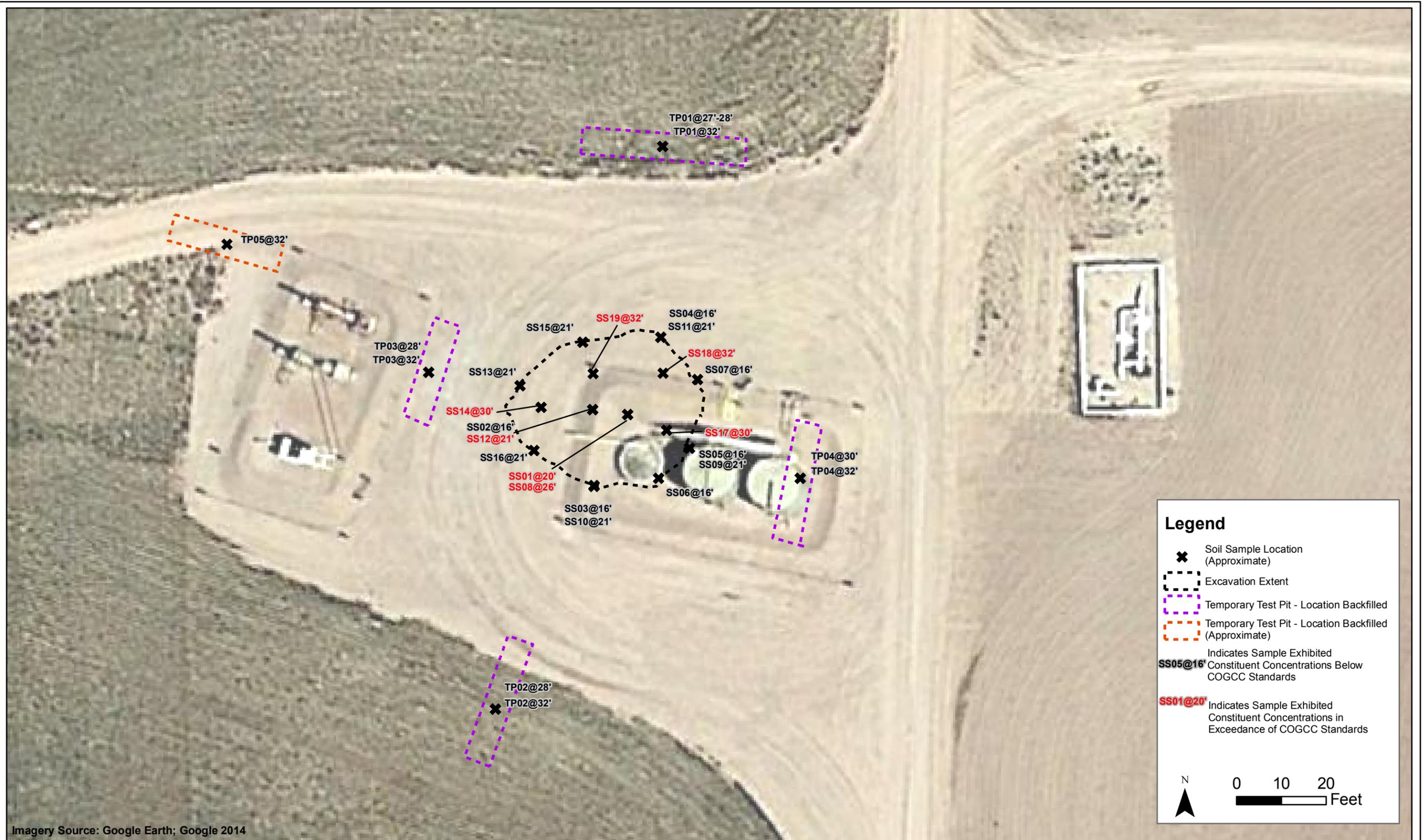
- Granular Material will be sloped at a maximum slope of 1.5H/1V. A lower slope may also be established on one or more sides of the excavation to accommodate equipment access.
- The toe of the Granular Material slope will terminate at the Stable Rock, at which a working platform will be established. The width of the working platform will be determined in the field as necessary to accommodate the width of the equipment to be utilized + a minimum 2 ft buffer.
- The Stable Rock may be excavated at a vertical slope, terminating at the base of the excavation, unless:
 - A revised Stable Rock maximum slope of 0.75H/1V will be established in the event of one of the following:
 - A reduced slope is deemed necessary by the Competent Person
 - Fissures, cracks, or separate is observed at any portion of the working platform
 - Field observations/measurements indicate the presence of material inconsistency that could affect the slope stability, (e.g., unconfined compressive strength, vertical/lateral heterogeneity, saturated soil conditions, etc.)
- In addition to the slope conditions described above, additional excavation conditions include:
 - Daily field observations of the excavation will be made and recorded by the Competent Person.
 - No personnel or equipment may enter the Stable Rock excavation below the working platform area (with exception of the excavator bucket).

Generalized Excavation Sketch



5.0 Schedule

Tasman can commence the project within 1-week of notice to proceed. The project is estimated to take 60-days to complete including final backfill and compaction to ground surface.



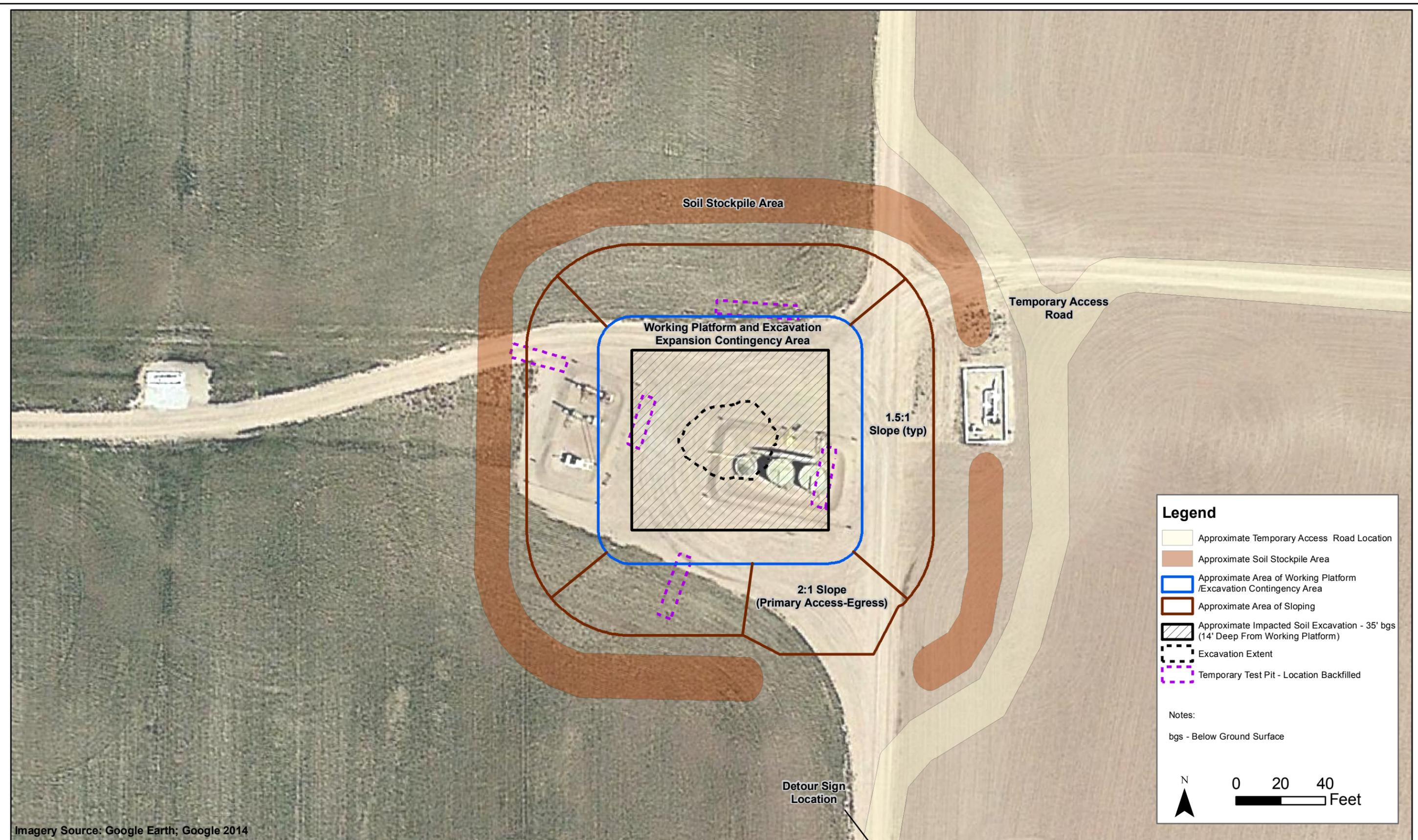
DATE:	August 2015
DESIGNED BY:	C. Wasko
DRAWN BY:	D. Arnold


TASMAN
 GEOSCIENCES
 Tasman Geosciences, Inc.
 6899 Pecos Street - Unit C
 Denver, CO 80221

PDC Energy, Inc.
Edwards 33, 43-9
 NWSE Section 9, Township 5 North, Range 67 West
 Weld County, Colorado

Excavation Site Map

Figure 1



DATE:	September 2015
DESIGNED BY:	C. Wasko
DRAWN BY:	D. Arnold


TASMAN Tasman Geosciences, Inc.
 GEOSCIENCES 6899 Pecos Street - Unit C
 Denver, CO 80221

PDC Energy, Inc.
Edwards 33, 43-9
 NWSE Section 9, Township 5 North, Range 67 West
 Weld County, Colorado

Excavation Detail and
 Area of Disturbance
 Map

Figure
 2

TABLE 1
EDWARDS 33, 43-9 TANK BATTERY
SOIL SAMPLE RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Depth (feet bgs)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH ⁽²⁾ (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾			0.17	85	100	175	23	500
SS01 @ 20	7/31/2015	20	0.82	64	15	230	2.5	4,300
SS02 @ 16	7/31/2015	16	0.0033	0.12	0.022	0.44	0.020	4.4
SS03 @ 16	7/31/2015	16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS04 @ 16	7/31/2015	16	<0.0020	0.019	<0.0050	0.014	<0.010	<50
SS05 @ 16	8/3/2015	16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS06 @ 16	8/3/2015	16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS07 @ 16	8/10/2015	16	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS08 @ 26	8/12/2015	26	0.054	4.0	0.86	25	0.36	800
SS09 @ 21	8/12/2015	21	<0.0020	<0.0050	<0.0050	0.017	<0.010	<50
SS10 @ 21	8/12/2015	21	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS11 @ 21	8/12/2015	21	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS12 @ 21	8/12/2015	21	0.010	5.2	0.84	57	0.48	2,000
SS13 @ 21	8/12/2015	21	<0.0020	<0.0050	<0.0050	0.035	<0.010	2.2
SS14 @ 30	8/19/2015	30	0.37	0.79	0.044	0.77	0.033	24
SS15 @ 21	8/19/2015	21	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SS16 @ 21	8/19/2015	21	0.016	0.0050	<0.0050	0.048	<0.010	<50
SS17 @ 30	8/19/2015	30	0.45	1.1	0.065	1.0	0.030	13
SS18 @ 32	8/21/2015	32	0.23	0.45	0.013	0.19	<0.010	4.0
SS19 @ 32	8/21/2015	32	0.27	0.63	0.02	0.39	<0.010	3.3
TP01 @ 27-28	8/31/2015	27-28	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.54
TP02 @ 28	8/31/2015	28	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
TP02 @ 32	8/31/2015	32	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
TP01 @ 32	9/1/2015	32	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
TP03 @ 28	9/1/2015	28	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
TP03 @ 32	9/1/2015	32	0.15	0.72	0.054	0.87	0.014	8.9
TP04 @ 30	9/1/2015	30	0.029	0.020	0.026	0.14	0.014	7.8
TP04 @ 32	9/1/2015	32	0.019	0.032	<0.0050	0.025	<0.010	<50
TP05 @ 32	9/1/2015	32	<0.0020	0.0059	<0.0050	<0.010	<0.010	<50

Notes:

- Standards for soil are taken from 2 CCR 404-1, Table 910-1, effective February 1, 2014.
 - 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
BOLD = Analytical result is in exceedance of COGCC soil standards.

TABLE 2
EDWARDS 33, 43-9 TANK BATTERY
CONFIRMATION SOIL SAMPLE RESULTS SUMMARY TABLE

Sample ID	Date Sampled	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Naphthalene (mg/kg)	TPH ⁽²⁾ (mg/kg)
COGCC standards for soil (mg/kg) ⁽¹⁾		0.17	85	100	175	23	500
CS01 @ 20	8/12/2015	0.0037	0.27	0.073	1.3	0.041	13
CS02 @ 22.5	8/12/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
CS03 @ 25	8/12/2015	0.011	0.55	0.11	1.9	0.036	12
CS04	8/24/2015	<0.0020	0.058	0.039	22	0.21	1,120
CS05	8/24/2015	0.0088	0.28	0.046	2.8	0.18	320
CS06	8/24/2015	0.026	0.20	<0.0050	2.0	0.075	76
CS07	8/24/2015	0.014	0.28	<0.0050	8.9	0.31	720
CS08	8/24/2015	<0.0020	<0.0050	<0.0050	0.57	0.016	29
CS04-R	8/31/2015	<0.0020	0.010	<0.0050	0.85	0.077	214
CS07-R	8/31/2015	<0.0020	<0.0050	<0.0050	<0.010	<0.010	14

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

BOLD = Analytical result is in exceedance of COGCC soil standards

ATTACHMENT A

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 01, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 07/31/15 18:06. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@20'	1507319-01	Soil	07/31/15 08:40	07/31/15 18:06
SS02@16'	1507319-02	Soil	07/31/15 10:30	07/31/15 18:06
SS03@16'	1507319-03	Soil	07/31/15 10:40	07/31/15 18:06
SS04@16'	1507319-04	Soil	07/31/15 12:55	07/31/15 18:06

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.

S₂

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

Summit Scientific 1507319

S₂

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

Page 1 of 1

Client: PDC/Tasman Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: Eric Siegel Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix		Analysis Requested				Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	GC/MS	GC/MS DRO	
1	SS01e20'	7/31/15	8:40	1			X			X		X	X		
2	SS02e16'	↓	10:30	↓											
3	SS03e16'	↓	10:40	↓											
4	SS04e16'	↓	12:55	↓											
5															
6															
7															
8															
9															
10															

Relinquished by: <u>E. A. Siegel</u> Date/Time: <u>7/31/15</u>	Received by: <u>[Signature]</u> Date/Time: <u>7:44</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: <u>9.8°C</u> Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <u>[Signature]</u> Date/Time: <u>8:06</u>	Received by: <u>[Signature]</u> Date/Time: <u>18:06</u>		
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____		

www.s2scientific.com



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

SS01@20'
1507319-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/31/15 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	1200	50	mg/kg	1	1507337	07/31/15	07/31/15	8015M	

Date Sampled: **07/31/15 08:40**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/31/15 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	2.5	1.0	mg/kg	100	1507338	"	07/31/15	EPA 8260B	
Benzene	0.82	0.20	"	"	"	"	"	"	
Toluene	64	0.50	"	"	"	"	"	"	
Ethylbenzene	15	0.50	"	"	"	"	"	"	
Xylenes (total)	230	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3100	50	"	"	"	"	"	"	

Date Sampled: **07/31/15 08:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		115 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		131 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

SS02@16'
1507319-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/31/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507337	07/31/15	07/31/15	8015M	

Date Sampled: **07/31/15 10:30**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/31/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.020	0.010	mg/kg	1	1507338	"	07/31/15	EPA 8260B	
Benzene	0.0033	0.0020	"	"	"	"	"	"	
Toluene	0.12	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.022	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.44	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	4.4	0.50	"	"	"	"	"	"	

Date Sampled: **07/31/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		94.2 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/15 14:01

SS03@16'
1507319-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/31/15 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507337	07/31/15	07/31/15	8015M	

Date Sampled: **07/31/15 10:40**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/31/15 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507338	"	07/31/15	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: **07/31/15 10:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		91.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

SS04@16'
1507319-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **07/31/15 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1507337	07/31/15	07/31/15	8015M	

Date Sampled: **07/31/15 12:55**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **07/31/15 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1507338	"	07/31/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.019	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.014	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **07/31/15 12:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.0 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/15 14:01

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1507337 - EPA 3550A

Blank (1507337-BLK1)				Prepared & Analyzed: 07/31/15							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.6		"	12.2		103	30-150				
LCS (1507337-BS1)				Prepared & Analyzed: 07/31/15							
C10-C28 (DRO)	453	50	mg/kg	501		90.4	73-134				
<i>Surrogate: o-Terphenyl</i>	12.8		"	12.2		105	30-150				
Matrix Spike (1507337-MS1)				Source: 1507317-02		Prepared & Analyzed: 07/31/15					
C10-C28 (DRO)	469	50	mg/kg	475	ND	98.7	50-148				
<i>Surrogate: o-Terphenyl</i>	12.2		"	11.6		106	30-150				
Matrix Spike Dup (1507337-MSD1)				Source: 1507317-02		Prepared & Analyzed: 07/31/15					
C10-C28 (DRO)	447	50	mg/kg	470	ND	95.1	50-148	4.89		13	
<i>Surrogate: o-Terphenyl</i>	11.6		"	11.4		101	30-150				

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

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

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

Batch 1507338 - EPA 5030 Soil MS

Blank (1507338-BLK1)

Prepared & Analyzed: 07/31/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0396</i>		<i>"</i>	<i>0.0396</i>		<i>100</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0377</i>		<i>"</i>	<i>0.0400</i>		<i>94.2</i>	<i>21-167</i>			

LCS (1507338-BS1)

Prepared & Analyzed: 07/31/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.120	0.0020	"	0.100		120	58-130			
Toluene	0.119	0.0050	"	0.100		119	61-134			
Ethylbenzene	0.129	0.0050	"	0.0992		130	74-139			
m,p-Xylene	0.267	0.010	"	0.200		134	73-137			
o-Xylene	0.131	0.0050	"	0.0984		133	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0390</i>		<i>"</i>	<i>0.0396</i>		<i>98.5</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0373</i>		<i>"</i>	<i>0.0400</i>		<i>93.3</i>	<i>21-167</i>			

Matrix Spike (1507338-MS1)

Source: 1507317-03

Prepared & Analyzed: 07/31/15

Naphthalene	ND	0.010	mg/kg		0.00677		10-158			
Benzene	0.119	0.0020	"	0.0916	0.00617	123	30-131			
Toluene	0.125	0.0050	"	0.0916	0.0180	117	30-134			
Ethylbenzene	0.134	0.0050	"	0.0908	0.00880	138	22-153			
m,p-Xylene	0.300	0.010	"	0.183	0.0741	123	10-159			
o-Xylene	0.153	0.0050	"	0.0901	0.0447	121	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0378</i>		<i>"</i>	<i>0.0363</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0368</i>		<i>"</i>	<i>0.0366</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0349</i>		<i>"</i>	<i>0.0366</i>		<i>95.2</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/01/15 14:01

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

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

Batch 1507338 - EPA 5030 Soil MS

Matrix Spike Dup (1507338-MSD1)	Source: 1507317-03			Prepared & Analyzed: 07/31/15						
Naphthalene	ND	0.010	mg/kg		0.00677		10-158		42	
Benzene	0.127	0.0020	"	0.0978	0.00617	124	30-131	6.95	34	
Toluene	0.137	0.0050	"	0.0978	0.0180	122	30-134	9.50	30	
Ethylbenzene	0.144	0.0050	"	0.0971	0.00880	139	22-153	6.81	24	
m,p-Xylene	0.354	0.010	"	0.195	0.0741	143	10-159	16.6	68	
o-Xylene	0.181	0.0050	"	0.0963	0.0447	142	31-151	16.6	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0385</i>		<i>"</i>	<i>0.0387</i>		<i>99.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0392</i>		<i>"</i>	<i>0.0391</i>		<i>100</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0391</i>		<i>94.4</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/01/15 14:01

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 04, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/03/15 18:27. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS05@16'	1508008-01	Soil	08/03/15 11:00	08/03/15 18:27
SS06@16'	1508008-02	Soil	08/03/15 11:30	08/03/15 18:27

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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

Summit Scientific 1508008

S₂

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

Page 1 of 1

Client: PDX/Tasman Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: Eric Siegel Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	GC/MS	GC/MS	GC/MS	
1	SS05e 16'	8/3/15	1100	1			X			X			X	X		
2	SS06e 16'	8/3/15	1130	1			X			X			X	X		
3																
4																
5																
6																
7																
8																
9																
10																

Relinquished by: <u>E. Siegel</u>	Date/Time: <u>8/3/15</u>	Received by: <u>Mark Longhurst</u>	Date/Time: <u>8-3-2015</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours — 24 hours — Standard — 48 hours — Sample Integrity: Temperature Upon Receipt: <u>4.1°C</u> Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	Notes:
Relinquished by: <u>Mark Longhurst</u>	Date/Time: <u>8-3-15</u>	Received by: <u>Eric Siegel</u>	Date/Time: <u>8/3/15</u>		
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____		

www.s2scientific.com



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

SS05@16'
1508008-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/03/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508005	08/03/15	08/03/15	8015M	

Date Sampled: **08/03/15 11:00**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/03/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508006	08/03/15	08/03/15	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: **08/03/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.9 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

SS06@16'
1508008-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/03/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508005	08/03/15	08/03/15	8015M	

Date Sampled: **08/03/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/03/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508006	08/03/15	08/03/15	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: **08/03/15 11:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.5 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 06:30

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508005 - EPA 3550A

Blank (1508005-BLK1)				Prepared & Analyzed: 08/03/15							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.2		101	30-150				
LCS (1508005-BS1)				Prepared & Analyzed: 08/03/15							
C10-C28 (DRO)	490	50	mg/kg	501		97.9	73-134				
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.2		101	30-150				
Matrix Spike (1508005-MS1)				Source: 1508003-02		Prepared & Analyzed: 08/03/15					
C10-C28 (DRO)	512	50	mg/kg	485	ND	106	50-148				
<i>Surrogate: o-Terphenyl</i>	13.3		"	11.8		112	30-150				
Matrix Spike Dup (1508005-MSD1)				Source: 1508003-02		Prepared & Analyzed: 08/03/15					
C10-C28 (DRO)	487	50	mg/kg	494	ND	98.6	50-148	4.99		13	
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.0		102	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

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

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

Batch 1508006 - EPA 5030 Soil MS

Blank (1508006-BLK1)

Prepared & Analyzed: 08/03/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0400</i>		<i>"</i>	<i>0.0396</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</i>			

LCS (1508006-BS1)

Prepared & Analyzed: 08/03/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.101	0.0020	"	0.100		101	58-130			
Toluene	0.101	0.0050	"	0.100		101	61-134			
Ethylbenzene	0.102	0.0050	"	0.0992		103	74-139			
m,p-Xylene	0.212	0.010	"	0.200		106	73-137			
o-Xylene	0.105	0.0050	"	0.0984		107	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0369</i>		<i>"</i>	<i>0.0396</i>		<i>93.3</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0419</i>		<i>"</i>	<i>0.0400</i>		<i>105</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0378</i>		<i>"</i>	<i>0.0400</i>		<i>94.4</i>	<i>21-167</i>			

Matrix Spike (1508006-MS1)

Source: 1508003-02

Prepared & Analyzed: 08/03/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.111	0.0020	"	0.0956	ND	116	30-131			
Toluene	0.110	0.0050	"	0.0956	ND	115	30-134			
Ethylbenzene	0.117	0.0050	"	0.0948	ND	123	22-153			
m,p-Xylene	0.241	0.010	"	0.191	ND	126	10-159			
o-Xylene	0.118	0.0050	"	0.0941	ND	125	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0383</i>		<i>"</i>	<i>0.0379</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0382</i>		<i>104</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0369</i>		<i>"</i>	<i>0.0382</i>		<i>96.6</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/04/15 06:30

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

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

Batch 1508006 - EPA 5030 Soil MS

Matrix Spike Dup (1508006-MSD1)	Source: 1508003-02			Prepared & Analyzed: 08/03/15						
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158			42	
Benzene	0.119	0.0020	"	0.0984	ND	121	30-131	6.65	34	
Toluene	0.120	0.0050	"	0.0984	ND	122	30-134	9.08	30	
Ethylbenzene	0.130	0.0050	"	0.0976	ND	133	22-153	10.9	24	
m,p-Xylene	0.266	0.010	"	0.196	ND	136	10-159	10.0	68	
o-Xylene	0.132	0.0050	"	0.0969	ND	136	31-151	11.3	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0405</i>		<i>"</i>	<i>0.0390</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0403</i>		<i>"</i>	<i>0.0394</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0381</i>		<i>"</i>	<i>0.0394</i>		<i>96.8</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/04/15 06:30

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 11, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/10/15 16:50. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/11/15 06:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS07@16'	1508065-01	Soil	08/10/15 09:40	08/10/15 16:50

Summit Scientific

1508065

S₂

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

Page 1 of 1

Client: PDC Energy Project Manager: Mark Longhurst
 Address: _____ E-Mail: _____
 City/State/Zip: _____
 Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
 Sampler Name: CW12X16 Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions	
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	8200 BTEX	8015 DRA			
1	SS07@16'	8/10/15	9:40	1			X			X			X	X			
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Turn Around Time (Check)	Notes: on ice
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Same Day <input checked="" type="checkbox"/> 72 hours _____	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	24 hours _____ Standard _____	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	48 hours _____	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Sample Integrity: _____	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Temperature Upon Receipt: 125'	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Intact <input checked="" type="checkbox"/> Yes No	

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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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/11/15 06:55

SS07@16'
1508065-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/10/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508071	08/10/15	08/10/15	8015M	

Date Sampled: **08/10/15 09:40**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/10/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508070	08/10/15	08/10/15	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: **08/10/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.7 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		92.2 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/11/15 06:55

Extractable Petroleum Hydrocarbons by 8015 - Quality Control

Summit Scientific

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

Batch 1508071 - EPA 3550A

Blank (1508071-BLK1)				Prepared & Analyzed: 08/10/15								
C10-C28 (DRO)	ND	50	mg/kg									
Surrogate: o-Terphenyl	12.2		"	12.2		99.9	30-150					
LCS (1508071-BS1)				Prepared & Analyzed: 08/10/15								
C10-C28 (DRO)	492	50	mg/kg	499		98.7	73-134					
Surrogate: o-Terphenyl	12.3		"	12.2		101	30-150					
Matrix Spike (1508071-MS1)				Source: 1508064-06				Prepared & Analyzed: 08/10/15				QM-4X
C10-C28 (DRO)	10200	50	mg/kg	499	8220	392	50-148					
Surrogate: o-Terphenyl	14.7		"	12.2		120	30-150					
Matrix Spike Dup (1508071-MSD1)				Source: 1508064-06				Prepared & Analyzed: 08/10/15				QM-4X
C10-C28 (DRO)	10800	50	mg/kg	499	8220	508	50-148	5.56		13		
Surrogate: o-Terphenyl	12.4		"	12.2		102	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/11/15 06:55

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

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

Batch 1508070 - EPA 5030 Soil MS

Blank (1508070-BLK1)

Prepared & Analyzed: 08/10/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0398</i>		<i>"</i>	<i>0.0396</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0387</i>		<i>"</i>	<i>0.0400</i>		<i>96.7</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0380</i>		<i>"</i>	<i>0.0400</i>		<i>95.0</i>	<i>21-167</i>			

LCS (1508070-BS1)

Prepared & Analyzed: 08/10/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.114	0.0020	"	0.100		114	58-130			
Toluene	0.116	0.0050	"	0.100		116	61-134			
Ethylbenzene	0.124	0.0050	"	0.0992		125	74-139			
m,p-Xylene	0.260	0.010	"	0.200		130	73-137			
o-Xylene	0.125	0.0050	"	0.0984		127	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0381</i>		<i>"</i>	<i>0.0396</i>		<i>96.2</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.0</i>	<i>21-167</i>			

Matrix Spike (1508070-MS1)

Source: 1508064-06

Prepared & Analyzed: 08/10/15

QM-4X

Naphthalene	0.260	0.010	mg/kg		0.392		10-158			
Benzene	0.681	0.0020	"	0.100	0.733	NR	30-131			
Toluene	2.14	0.0050	"	0.100	14.6	NR	30-134			
Ethylbenzene	0.500	0.0050	"	0.0992	0.677	NR	22-153			
m,p-Xylene	3.07	0.010	"	0.200	50.2	NR	10-159			
o-Xylene	1.25	0.0050	"	0.0984	17.1	NR	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0410</i>		<i>"</i>	<i>0.0396</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0514</i>		<i>"</i>	<i>0.0400</i>		<i>129</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0424</i>		<i>"</i>	<i>0.0400</i>		<i>106</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/11/15 06:55

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

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

Batch 1508070 - EPA 5030 Soil MS

Matrix Spike Dup (1508070-MSD1)	Source: 1508064-06			Prepared & Analyzed: 08/10/15					QM-4X
Naphthalene	0.234	0.010	mg/kg		0.392		10-158	10.7	42
Benzene	0.662	0.0020	"	0.100	0.733	NR	30-131	2.89	34
Toluene	2.09	0.0050	"	0.100	14.6	NR	30-134	2.34	30
Ethylbenzene	0.500	0.0050	"	0.0992	0.677	NR	22-153	0.0240	24
m,p-Xylene	3.03	0.010	"	0.200	50.2	NR	10-159	1.11	68
o-Xylene	1.24	0.0050	"	0.0984	17.1	NR	31-151	1.17	38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0413</i>		<i>"</i>	<i>0.0396</i>		<i>104</i>	<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0504</i>		<i>"</i>	<i>0.0400</i>		<i>126</i>	<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0436</i>		<i>"</i>	<i>0.0400</i>		<i>109</i>	<i>21-167</i>		

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/11/15 06:55

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

Summit Scientific

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.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 13, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/12/15 17:55. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS08@26'	1508098-01	Soil	08/12/15 07:05	08/12/15 17:55
SS09@21'	1508098-02	Soil	08/12/15 07:10	08/12/15 17:55
SS10@21'	1508098-03	Soil	08/12/15 07:15	08/12/15 17:55
SS11@21'	1508098-04	Soil	08/12/15 07:20	08/12/15 17:55
SS12@21'	1508098-05	Soil	08/12/15 07:25	08/12/15 17:55
CS01@20'	1508098-06	Soil	08/12/15 07:30	08/12/15 17:55
CS02@22.5'	1508098-07	Soil	08/12/15 07:35	08/12/15 17:55
CS03@25'	1508098-08	Soil	08/12/15 07:40	08/12/15 17:55
SS13@21'	1508098-09	Soil	08/12/15 07:45	08/12/15 17:55

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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

Summit Scientific 1508098

S₂

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

Page 1 of 1

Client: PDC Energy Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: CWASPD Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	Other (Specify)	Other (Specify)	Other (Specify)	
1	SS08 @ 20'	8/12/15	7:05				X			X						
2	SS19 @ 21'		7:10				X									
3	SS10 @ 21'		7:15													
4	SS11 @ 21'		7:20													
5	SS12 @ 21'		7:25													
6	CS01 @ 20'		7:30													
7	CS02 @ 22.5'		7:35													
8	CS03 @ 25'		7:40													
9	SS13 @ 21'		13:45													
10																

Relinquished by: <u>[Signature]</u> Date/Time: <u>8/12/15 14:25</u>	Received by: <u>[Signature]</u> Date/Time: <u>8-12-15 14:25</u>	Turn Around Time (Check): Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___	Notes:
Relinquished by: <u>[Signature]</u> Date/Time: <u>8-12-15 17:55</u>	Received by: <u>[Signature]</u> Date/Time: <u>8-12 17:55</u>	Sample Integrity: <u>8.5</u>	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Temperature Upon Receipt: <u>8.5</u> Intact: <input checked="" type="checkbox"/> Yes No	

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS08@26'
1508098-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	270	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.36	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	0.054	0.0020	"	"	"	"	"	"	
Toluene	4.0	0.50	"	100	"	"	"	"	
Ethylbenzene	0.86	0.0050	"	1	"	"	"	"	
Xylenes (total)	25	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	530	50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		101 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		102 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS09@21'
1508098-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.017	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.4 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS10@21'
1508098-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:15**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508094	08/12/15	08/12/15	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: **08/12/15 07:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		88.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS11@21'
1508098-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:20**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508094	08/12/15	08/12/15	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: **08/12/15 07:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		96.8 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS12@21'
1508098-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	800	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.9 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.48	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	0.010	0.0020	"	"	"	"	"	"	
Toluene	5.2	0.50	"	100	"	"	"	"	
Ethylbenzene	0.84	0.0050	"	1	"	"	"	"	
Xylenes (total)	57	1.0	"	100	"	"	"	"	
Gasoline Range Hydrocarbons	1200	50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		102 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		105 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

CS01@20'
1508098-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:30**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.041	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	0.0037	0.0020	"	"	"	"	"	"	
Toluene	0.27	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.073	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.3	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

CS02@22.5'
1508098-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/12/15	8015M	

Date Sampled: **08/12/15 07:35**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508094	08/12/15	08/12/15	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: **08/12/15 07:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		92.5 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

CS03@25'
1508098-08 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/13/15	8015M	

Date Sampled: **08/12/15 07:40**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.036	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	0.011	0.0020	"	"	"	"	"	"	
Toluene	0.55	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.11	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.9	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	12	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		106 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.0 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

SS13@21'
1508098-09 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/12/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508095	08/12/15	08/13/15	8015M	

Date Sampled: **08/12/15 07:45**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/12/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508094	08/12/15	08/12/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.035	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.2	0.50	"	"	"	"	"	"	

Date Sampled: **08/12/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		95.6 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/13/15 04:32

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508095 - EPA 3550A

Blank (1508095-BLK1)

Prepared & Analyzed: 08/12/15

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

LCS (1508095-BS1)

Prepared & Analyzed: 08/12/15

C10-C28 (DRO)	523	50	mg/kg	499		105	73-134				
<i>Surrogate: o-Terphenyl</i>	12.4		"	12.2		102	30-150				

Matrix Spike (1508095-MS1)

Source: 1508098-02

Prepared & Analyzed: 08/12/15

C10-C28 (DRO)	529	50	mg/kg	480	18.3	106	50-148				
<i>Surrogate: o-Terphenyl</i>	12.3		"	11.7		105	30-150				

Matrix Spike Dup (1508095-MSD1)

Source: 1508098-02

Prepared & Analyzed: 08/12/15

C10-C28 (DRO)	539	50	mg/kg	489	18.3	106	50-148	1.85		13	
<i>Surrogate: o-Terphenyl</i>	12.0		"	12.0		100	30-150				

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

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

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

Batch 1508094 - EPA 5030 Soil MS

Blank (1508094-BLK1)

Prepared & Analyzed: 08/12/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0374</i>		<i>"</i>	<i>0.0396</i>		<i>94.5</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.1</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0384</i>		<i>"</i>	<i>0.0400</i>		<i>95.9</i>	<i>21-167</i>			

LCS (1508094-BS1)

Prepared & Analyzed: 08/12/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.110	0.0020	"	0.100		110	58-130			
Toluene	0.110	0.0050	"	0.100		110	61-134			
Ethylbenzene	0.118	0.0050	"	0.0992		119	74-139			
m,p-Xylene	0.235	0.010	"	0.200		118	73-137			
o-Xylene	0.112	0.0050	"	0.0984		114	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0372</i>		<i>"</i>	<i>0.0396</i>		<i>94.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>21-167</i>			

Matrix Spike (1508094-MS1)

Source: 1508098-02

Prepared & Analyzed: 08/12/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.115	0.0020	"	0.0963	ND	120	30-131			
Toluene	0.119	0.0050	"	0.0963	ND	124	30-134			
Ethylbenzene	0.127	0.0050	"	0.0956	ND	133	22-153			
m,p-Xylene	0.264	0.010	"	0.192	0.0112	132	10-159			
o-Xylene	0.124	0.0050	"	0.0948	0.00548	125	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0396</i>		<i>"</i>	<i>0.0382</i>		<i>104</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0385</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0364</i>		<i>"</i>	<i>0.0385</i>		<i>94.4</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/13/15 04:32

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

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

Batch 1508094 - EPA 5030 Soil MS

Matrix Spike Dup (1508094-MSD1)	Source: 1508098-02			Prepared & Analyzed: 08/12/15						
Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.115	0.0020	"	0.0943	ND	122	30-131	0.356	34	
Toluene	0.120	0.0050	"	0.0943	ND	127	30-134	0.509	30	
Ethylbenzene	0.128	0.0050	"	0.0936	ND	137	22-153	1.27	24	
m,p-Xylene	0.269	0.010	"	0.188	0.0112	137	10-159	1.83	68	
o-Xylene	0.127	0.0050	"	0.0928	0.00548	131	31-151	2.22	38	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0387</i>		<i>"</i>	<i>0.0374</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0368</i>		<i>"</i>	<i>0.0377</i>		<i>97.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0367</i>		<i>"</i>	<i>0.0377</i>		<i>97.3</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/13/15 04:32

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 20, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/19/15 14:35. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. Shrewsbury', written in a cursive style.

Paul Shrewsbury
President



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS14@30	1508152-01	Soil	08/19/15 09:25	08/19/15 14:35
SS15@21	1508152-02	Soil	08/19/15 09:40	08/19/15 14:35
SS16@21	1508152-03	Soil	08/19/15 09:50	08/19/15 14:35
SS17@30	1508152-04	Soil	08/19/15 10:20	08/19/15 14:35

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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

Summit Scientific

S₂

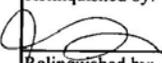
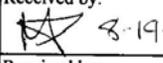
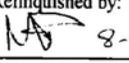
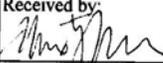
1508152

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

Page 1 of 1

Client: PDC Energy Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: C. Wisk Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions		
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	8200 BTEX	Geo. Para	805 Diox			
1	SS15 C 20	8/19/15	925	1			X			X								
2	SS15 C 21	↓	940	↓			X			X								
3	SS16 C 21	↓	950	↓			X			X								
4	SS17 C 30	↓	1020	↓			X			X								
5																		
6																		
7																		
8																		
9																		
10																		

Relinquished by: 	Date/Time: 8/19/15 14:55	Received by: 	Date/Time: 8-19-15 14:35	Turn Around Time (Check)	Notes:
				Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by: 	Date/Time: 8-19-15 18:00	Received by: 	Date/Time: 8/19/15 18:00	48 hours <input type="checkbox"/>	
				Sample Integrity:	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Temperature Upon Receipt: 11.3°C	
				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

SS14@30
1508152-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/19/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508145	08/19/15	08/20/15	8015M	

Date Sampled: **08/19/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/19/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.033	0.010	mg/kg	1	1508144	08/19/15	08/20/15	EPA 8260B	
Benzene	0.37	0.0020	"	"	"	"	"	"	
Toluene	0.79	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.044	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.77	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	24	0.50	"	"	"	"	"	"	

Date Sampled: **08/19/15 09:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

SS15@21
1508152-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/19/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508145	08/19/15	08/20/15	8015M	

Date Sampled: **08/19/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.0 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/19/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508144	08/19/15	08/20/15	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: **08/19/15 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		112 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.4 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

SS16@21
1508152-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/19/15 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508145	08/19/15	08/20/15	8015M	

Date Sampled: **08/19/15 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/19/15 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508144	08/19/15	08/20/15	EPA 8260B	
Benzene	0.016	0.0020	"	"	"	"	"	"	
Toluene	0.0050	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.048	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **08/19/15 09:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

SS17@30
1508152-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/19/15 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508145	08/19/15	08/20/15	8015M	

Date Sampled: **08/19/15 10:20**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/19/15 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.030	0.010	mg/kg	1	1508144	08/19/15	08/20/15	EPA 8260B	
Benzene	0.45	0.0020	"	"	"	"	"	"	
Toluene	1.1	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.065	0.0050	"	"	"	"	"	"	
Xylenes (total)	1.0	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	13	0.50	"	"	"	"	"	"	

Date Sampled: **08/19/15 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/20/15 07:33

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508145 - EPA 3550A

Blank (1508145-BLK1)				Prepared & Analyzed: 08/19/15							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.2		101	30-150				
LCS (1508145-BS1)				Prepared & Analyzed: 08/19/15							
C10-C28 (DRO)	469	50	mg/kg	499		93.9	73-134				
<i>Surrogate: o-Terphenyl</i>	12.2		"	12.2		100	30-150				
Matrix Spike (1508145-MS1)				Source: 1508150-01		Prepared & Analyzed: 08/19/15					
C10-C28 (DRO)	492	50	mg/kg	499	ND	98.6	50-148				
<i>Surrogate: o-Terphenyl</i>	12.2		"	12.2		100	30-150				
Matrix Spike Dup (1508145-MSD1)				Source: 1508150-01		Prepared & Analyzed: 08/19/15					
C10-C28 (DRO)	463	50	mg/kg	470	ND	98.5	50-148	6.13		13	
<i>Surrogate: o-Terphenyl</i>	11.7		"	11.5		102	30-150				

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

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

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

Batch 1508144 - EPA 5030 Soil MS

Blank (1508144-BLK1)

Prepared & Analyzed: 08/19/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0434</i>		<i>"</i>	<i>0.0396</i>		<i>110</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0400</i>		<i>99.0</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</i>			

LCS (1508144-BS1)

Prepared & Analyzed: 08/19/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.104	0.0020	"	0.100		104	58-130			
Toluene	0.0997	0.0050	"	0.100		99.7	61-134			
Ethylbenzene	0.108	0.0050	"	0.0992		108	74-139			
m,p-Xylene	0.214	0.010	"	0.200		107	73-137			
o-Xylene	0.111	0.0050	"	0.0984		112	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0422</i>		<i>"</i>	<i>0.0396</i>		<i>107</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0406</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>21-167</i>			

Matrix Spike (1508144-MS1)

Source: 1508150-01

Prepared: 08/19/15 Analyzed: 08/20/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.104	0.0020	"	0.0990	ND	105	30-131			
Toluene	0.101	0.0050	"	0.0990	ND	102	30-134			
Ethylbenzene	0.108	0.0050	"	0.0982	ND	110	22-153			
m,p-Xylene	0.218	0.010	"	0.198	ND	110	10-159			
o-Xylene	0.113	0.0050	"	0.0974	ND	116	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0431</i>		<i>"</i>	<i>0.0392</i>		<i>110</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0396</i>		<i>99.5</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0405</i>		<i>"</i>	<i>0.0396</i>		<i>102</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/20/15 07:33

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

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

Batch 1508144 - EPA 5030 Soil MS

Matrix Spike Dup (1508144-MSD1)	Source: 1508150-01			Prepared: 08/19/15	Analyzed: 08/20/15					
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158				42
Benzene	0.100	0.0020	"	0.0958	ND	105	30-131	3.94		34
Toluene	0.0975	0.0050	"	0.0958	ND	102	30-134	3.58		30
Ethylbenzene	0.109	0.0050	"	0.0950	ND	115	22-153	1.67		24
m,p-Xylene	0.220	0.010	"	0.191	ND	115	10-159	0.954		68
o-Xylene	0.114	0.0050	"	0.0943	ND	121	31-151	1.21		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0426</i>		<i>"</i>	<i>0.0379</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0375</i>		<i>"</i>	<i>0.0383</i>		<i>97.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0393</i>		<i>"</i>	<i>0.0383</i>		<i>103</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/20/15 07:33

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 24, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/21/15 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS18@32'	1508168-01	Soil	08/21/15 11:00	08/21/15 18:00
SS19@32'	1508168-02	Soil	08/21/15 11:10	08/21/15 18:00

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

Summit Scientific

1507108

S₂

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

Page 1 of 1

Client: PDC Energy Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 3343-9
Sampler Name: C. LANGSTON Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO ₃	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	SR100 BTX	SR100 PCB	SR100 DDD	SR100 DDT	
1	S18 @ 32'	8/21/15	1100				X			X							
2	S19 @ 32'		1140														
3	S20 @ 28'		1405														
4	S21 @ 28'		1410														HOLD.
5	S22 @ 28'		1420														
6	S23 @ 28'		1425														
7	S24 @ 28'		1445														
8	S25 @ 28'		1450														
9																	
10																	
Relinquished by:		Date/Time: 8/21/15 15:52	Received by:		Date/Time: 8-21-15 15:52		Turn Around Time (Check)				Notes:						
Relinquished by:		Date/Time: 8-21-15 18:00	Received by:		Date/Time: 8/21/15 18:00		Same Day <input checked="" type="checkbox"/> 72 hours —				Monday! preast!						
Relinquished by: _____		Date/Time: _____	Received by: _____		Date/Time: _____		24 hours — Standard —										
Relinquished by: _____		Date/Time: _____	Received by: _____		Date/Time: _____		48 hours —										
Relinquished by: _____		Date/Time: _____	Received by: _____		Date/Time: _____		Sample Integrity: Temperature Upon Receipt: 0.1°C										
Relinquished by: _____		Date/Time: _____	Received by: _____		Date/Time: _____		Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No										

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

SS18@32'
1508168-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/21/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508168	08/21/15	08/22/15	8015M	

Date Sampled: **08/21/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		96.2 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/21/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508171	"	08/22/15	EPA 8260B	
Benzene	0.23	0.0020	"	"	"	"	"	"	
Toluene	0.45	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.013	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.19	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	4.0	0.50	"	"	"	"	"	"	

Date Sampled: **08/21/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		94.1 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		79.2 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

SS19@32'
1508168-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/21/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508168	08/21/15	08/22/15	8015M	

Date Sampled: **08/21/15 11:10**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/21/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508171	"	08/22/15	EPA 8260B	
Benzene	0.27	0.0020	"	"	"	"	"	"	
Toluene	0.63	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.021	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.39	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	3.3	0.50	"	"	"	"	"	"	

Date Sampled: **08/21/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		98.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.8 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.4 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/24/15 07:05

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508168 - EPA 3550A

Blank (1508168-BLK1)				Prepared & Analyzed: 08/21/15							
C10-C28 (DRO)	ND	50	mg/kg								
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.2		98.7	30-150				
LCS (1508168-BS1)				Prepared & Analyzed: 08/21/15							
C10-C28 (DRO)	426	50	mg/kg	499		85.5	73-134				
Surrogate: <i>o</i> -Terphenyl	12.0		"	12.2		98.2	30-150				
Matrix Spike (1508168-MS1)				Source: 1508159-01		Prepared & Analyzed: 08/21/15					
C10-C28 (DRO)	453	50	mg/kg	481	ND	94.3	50-148				
Surrogate: <i>o</i> -Terphenyl	11.8		"	11.8		101	30-150				
Matrix Spike Dup (1508168-MSD1)				Source: 1508159-01		Prepared & Analyzed: 08/21/15					
C10-C28 (DRO)	399	50	mg/kg	484	ND	82.5	50-148	12.8		13	
Surrogate: <i>o</i> -Terphenyl	10.4		"	11.8		87.7	30-150				

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

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

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

Batch 1508171 - EPA 5030 Soil MS

Blank (1508171-BLK1)

Prepared: 08/21/15 Analyzed: 08/22/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0402</i>		<i>"</i>	<i>0.0396</i>		<i>101</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0379</i>		<i>"</i>	<i>0.0400</i>		<i>94.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0370</i>		<i>"</i>	<i>0.0400</i>		<i>92.5</i>	<i>21-167</i>			

LCS (1508171-BS1)

Prepared: 08/21/15 Analyzed: 08/22/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0959	0.0020	"	0.100		95.9	58-130			
Toluene	0.100	0.0050	"	0.100		100	61-134			
Ethylbenzene	0.104	0.0050	"	0.0992		105	74-139			
m,p-Xylene	0.213	0.010	"	0.200		107	73-137			
o-Xylene	0.114	0.0050	"	0.0984		116	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0383</i>		<i>"</i>	<i>0.0396</i>		<i>96.8</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0381</i>		<i>"</i>	<i>0.0400</i>		<i>95.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0376</i>		<i>"</i>	<i>0.0400</i>		<i>94.0</i>	<i>21-167</i>			

Matrix Spike (1508171-MS1)

Source: 1508167-01

Prepared: 08/21/15 Analyzed: 08/22/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0846	0.0020	"	0.0956	ND	88.5	30-131			
Toluene	0.0888	0.0050	"	0.0956	ND	92.9	30-134			
Ethylbenzene	0.0904	0.0050	"	0.0948	ND	95.4	22-153			
m,p-Xylene	0.183	0.010	"	0.191	ND	95.7	10-159			
o-Xylene	0.0964	0.0050	"	0.0941	ND	102	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0380</i>		<i>"</i>	<i>0.0379</i>		<i>100</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0356</i>		<i>"</i>	<i>0.0382</i>		<i>93.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0359</i>		<i>"</i>	<i>0.0382</i>		<i>93.8</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/24/15 07:05

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

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

Batch 1508171 - EPA 5030 Soil MS

Matrix Spike Dup (1508171-MSD1)	Source: 1508167-01			Prepared: 08/21/15	Analyzed: 08/22/15					
Naphthalene	ND	0.010	mg/kg	ND	ND	10-158				42
Benzene	0.0854	0.0020	"	0.0921	ND	92.7	30-131	0.918		34
Toluene	0.0685	0.0050	"	0.0921	ND	74.3	30-134	25.9		30
Ethylbenzene	0.0823	0.0050	"	0.0913	ND	90.2	22-153	9.36		24
m,p-Xylene	0.169	0.010	"	0.184	ND	91.7	10-159	7.98		68
o-Xylene	0.0872	0.0050	"	0.0906	ND	96.2	31-151	10.0		38
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0420</i>		<i>"</i>	<i>0.0365</i>		<i>115</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0285</i>		<i>"</i>	<i>0.0368</i>		<i>77.4</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0319</i>		<i>"</i>	<i>0.0368</i>		<i>86.6</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/24/15 07:05

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

August 25, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/24/15 18:04. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
CS04	1508172-01	Soil	08/24/15 07:45	08/24/15 18:04
CS05	1508172-02	Soil	08/24/15 07:50	08/24/15 18:04
CS06	1508172-03	Soil	08/24/15 07:55	08/24/15 18:04
CS07	1508172-04	Soil	08/24/15 08:00	08/24/15 18:04
CS08	1508172-05	Soil	08/24/15 08:05	08/24/15 18:04

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

Summit Scientific 1508172

S₂

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

Page (of)

Client: PDC Energy Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: C. WASKO Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested	Special Instructions	
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)			
1	CS04	8/24/15	7:45	1			X			X					
2	CS05		7:50												
3	CS06		7:55												
4	CS07		8:00												
5	CS08		8:05												
6															
7															
8															
9															
10															

Relinquished by: <u>[Signature]</u>	Date/Time: <u>8/24/15 11:30</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8-24-15 11:30</u>	Turn Around Time (Check)	Notes:
Relinquished by: <u>[Signature]</u>	Date/Time: <u>8/24/15 5:16</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8/24/15 17:16</u>	Same Day <input checked="" type="checkbox"/> 72 hours — 24 hours — Standard — 48 hours —	on ice
Relinquished by: <u>[Signature]</u>	Date/Time: <u>8/24/15 17:50</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8/24 17:55</u>	Sample Integrity: Temperature Upon Receipt: <u>0.0°C</u> Intact: <input checked="" type="checkbox"/> Yes No	

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

CS04
1508172-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/24/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	120	50	mg/kg	1	1508182	08/24/15	08/24/15	8015M	

Date Sampled: **08/24/15 07:45**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/24/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.21	0.010	mg/kg	1	1508181	08/24/15	08/25/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.058	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.039	0.0050	"	"	"	"	"	"	
Xylenes (total)	22	0.10	"	10	"	"	"	"	
Gasoline Range Hydrocarbons	1000	5.0	"	"	"	"	"	"	E

Date Sampled: **08/24/15 07:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		106 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		138 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		170 %	21-167		"	"	"	"	S-02

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

CS05
1508172-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/24/15 07:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	90	50	mg/kg	1	1508182	08/24/15	08/24/15	8015M	

Date Sampled: **08/24/15 07:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		97.5 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/24/15 07:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.18	0.010	mg/kg	1	1508181	08/24/15	08/25/15	EPA 8260B	
Benzene	0.0088	0.0020	"	"	"	"	"	"	
Toluene	0.28	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.046	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.8	0.10	"	10	"	"	"	"	
Gasoline Range Hydrocarbons	230	5.0	"	"	"	"	"	"	

Date Sampled: **08/24/15 07:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		109 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		116 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		111 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

CS06
1508172-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/24/15 07:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508182	08/24/15	08/24/15	8015M	

Date Sampled: **08/24/15 07:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		106 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/24/15 07:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.075	0.010	mg/kg	1	1508181	08/24/15	08/25/15	EPA 8260B	
Benzene	0.026	0.0020	"	"	"	"	"	"	
Toluene	0.20	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	2.0	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	76	0.50	"	"	"	"	"	"	

Date Sampled: **08/24/15 07:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		141 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		156 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

CS07

1508172-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/24/15 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508182	08/24/15	08/24/15	8015M	

Date Sampled: **08/24/15 08:00**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/24/15 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.31	0.010	mg/kg	1	1508181	08/24/15	08/25/15	EPA 8260B	
Benzene	0.014	0.0020	"	"	"	"	"	"	
Toluene	0.28	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	8.9	0.10	"	10	"	"	"	"	
Gasoline Range Hydrocarbons	720	5.0	"	"	"	"	"	"	

Date Sampled: **08/24/15 08:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		124 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		157 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

CS08
1508172-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/24/15 08:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508182	08/24/15	08/24/15	8015M	

Date Sampled: **08/24/15 08:05**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/24/15 08:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.016	0.010	mg/kg	1	1508181	08/24/15	08/24/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.57	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	29	0.50	"	"	"	"	"	"	

Date Sampled: **08/24/15 08:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		117 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		122 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		130 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/25/15 06:54

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508182 - EPA 3550A

Blank (1508182-BLK1)				Prepared & Analyzed: 08/24/15							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	13.1		"	12.2		107	30-150				
LCS (1508182-BS1)				Prepared & Analyzed: 08/24/15							
C10-C28 (DRO)	476	50	mg/kg	499	95.4	73-134					
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.2		100	30-150				
Matrix Spike (1508182-MS1)				Source: 1508171-01		Prepared & Analyzed: 08/24/15					
C10-C28 (DRO)	469	50	mg/kg	480	ND	97.7	50-148				
<i>Surrogate: o-Terphenyl</i>	11.9		"	11.7		101	30-150				
Matrix Spike Dup (1508182-MSD1)				Source: 1508171-01		Prepared & Analyzed: 08/24/15					
C10-C28 (DRO)	459	50	mg/kg	480	ND	95.7	50-148	2.08		13	
<i>Surrogate: o-Terphenyl</i>	11.8		"	11.7		100	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

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

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

Batch 1508181 - EPA 5030 Soil MS

Blank (1508181-BLK1)

Prepared & Analyzed: 08/24/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0415</i>		<i>"</i>	<i>0.0396</i>		<i>105</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0394</i>		<i>"</i>	<i>0.0400</i>		<i>98.6</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>		<i>21-167</i>		

LCS (1508181-BS1)

Prepared & Analyzed: 08/24/15

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.0963	0.0020	"	0.100		96.3		58-130		
Toluene	0.0954	0.0050	"	0.100		95.4		61-134		
Ethylbenzene	0.104	0.0050	"	0.0992		105		74-139		
m,p-Xylene	0.207	0.010	"	0.200		104		73-137		
o-Xylene	0.105	0.0050	"	0.0984		107		73-141		
Xylenes (total)	0.313	0.010	"					0-200		
Gasoline Range Hydrocarbons	2.02	0.50	"					30-150		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0424</i>		<i>"</i>	<i>0.0396</i>		<i>107</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.7</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0410</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>		<i>21-167</i>		

Matrix Spike (1508181-MS1)

Source: 1508171-01

Prepared & Analyzed: 08/24/15

Naphthalene	ND	0.010	mg/kg		ND			10-158		
Benzene	0.0955	0.0020	"	0.0973	ND	98.1		30-131		
Toluene	0.0950	0.0050	"	0.0973	ND	97.6		30-134		
Ethylbenzene	0.106	0.0050	"	0.0965	ND	110		22-153		
m,p-Xylene	0.215	0.010	"	0.194	ND	111		10-159		
o-Xylene	0.112	0.0050	"	0.0957	ND	117		31-151		
Xylenes (total)	0.326	0.010	"		0.00			0-200		
Gasoline Range Hydrocarbons	2.00	0.50	"		ND			0-0		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0425</i>		<i>"</i>	<i>0.0385</i>		<i>110</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0389</i>		<i>100</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0408</i>		<i>"</i>	<i>0.0389</i>		<i>105</i>		<i>21-167</i>		

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 08/25/15 06:54

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

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

Batch 1508181 - EPA 5030 Soil MS

Matrix Spike Dup (1508181-MSD1)	Source: 1508171-01			Prepared & Analyzed: 08/24/15						
Naphthalene	ND	0.010	mg/kg	ND	ND	102	10-158		42	
Benzene	0.0994	0.0020	"	0.0977	ND	102	30-131	4.02	34	
Toluene	0.0996	0.0050	"	0.0977	ND	102	30-134	4.72	30	
Ethylbenzene	0.109	0.0050	"	0.0969	ND	113	22-153	2.75	24	
m,p-Xylene	0.220	0.010	"	0.195	ND	113	10-159	2.42	68	
o-Xylene	0.113	0.0050	"	0.0961	ND	118	31-151	1.46	38	
Xylenes (total)	0.333	0.010	"	0.00	0.00		0-200	2.09	200	
Gasoline Range Hydrocarbons	2.14	0.50	"		ND		0-0	6.93	0	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0431</i>		<i>"</i>	<i>0.0387</i>		<i>112</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0391</i>		<i>99.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0401</i>		<i>"</i>	<i>0.0391</i>		<i>103</i>	<i>21-167</i>			

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
08/25/15 06:54

Notes and Definitions

- S-02 The surrogate recovery for this sample cannot be accurately quantified due to interference from coeluting organic compounds present in the sample extract.
- E The concentration indicated for this analyte is an estimated value above the calibration range of the instrument.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 01, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 08/31/15 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP01@27-28'	1508237-01	Soil	08/31/15 12:15	08/31/15 18:00
CS04-R	1508237-02	Soil	08/31/15 13:00	08/31/15 18:00
CS05-R	1508237-03	Soil	08/31/15 13:05	08/31/15 18:00
TP02@28'	1508237-04	Soil	08/31/15 14:30	08/31/15 18:00
TP02@32'	1508237-05	Soil	08/31/15 15:45	08/31/15 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

Summit Scientific 1508237

S₂

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

Client: PDC/Tasman Project Manager: Mark Longhurst Page 1 of 1
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33, 43-9
Sampler Name: Eric Siegel Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	B260	GBTEX-N	8/15	
1	TPO1e27-28'	8/31/15	1215	1			X			X			X	X	X	
2	CS04-R		1300	1			X			X			X	X	X	
3	CS05-R		1305	1			X			X			X	X	X	
4	TPO2e 28'		1330	1			X			X			X	X	X	
5	TPO2e 32'		1545	1			X			X			X	X	X	
6																
7																
8																
9																
10																

Relinquished by: <u>Eric Siegel</u>	Date/Time: <u>8/31/15</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8-31-15 15:50</u>	Turn Around Time (Check)	Notes:
Relinquished by: <u>[Signature]</u>	Date/Time: <u>8-31-15 18:00</u>	Received by: <u>[Signature]</u>	Date/Time: <u>8-31 18:00</u>	Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____	24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
Relinquished by: _____	Date/Time: _____	Received by: _____	Date/Time: _____	48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: <u>-3.3°</u>	
				Intact: Yes <input type="checkbox"/> No <input type="checkbox"/>	

www.s2scientific.com



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

TP01@27-28'
1508237-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/31/15 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508254	08/31/15	08/31/15	8015M	

Date Sampled: **08/31/15 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		109 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/31/15 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508253	"	08/31/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.54	0.50	"	"	"	"	"	"	

Date Sampled: **08/31/15 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		106 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.9 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.2 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

CS04-R
1508237-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/31/15 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	160	50	mg/kg	1	1508254	08/31/15	08/31/15	8015M	

Date Sampled: **08/31/15 13:00**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/31/15 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.077	0.010	mg/kg	1	1508253	"	08/31/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.010	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.85	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	54	0.50	"	"	"	"	"	"	

Date Sampled: **08/31/15 13:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		114 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		124 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		162 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

CS05-R
1508237-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/31/15 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508254	08/31/15	08/31/15	8015M	

Date Sampled: **08/31/15 13:05**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/31/15 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508253	"	08/31/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	14	0.50	"	"	"	"	"	"	

Date Sampled: **08/31/15 13:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		119 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		110 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		119 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

TP02@28'
1508237-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/31/15 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508254	08/31/15	08/31/15	8015M	

Date Sampled: **08/31/15 14:30**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/31/15 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508253	"	08/31/15	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: **08/31/15 14:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		100 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

TP02@32'
1508237-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **08/31/15 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1508254	08/31/15	08/31/15	8015M	

Date Sampled: **08/31/15 15:45**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **08/31/15 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1508253	"	08/31/15	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: **08/31/15 15:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		122 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.4 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/01/15 07:08

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1508254 - EPA 3550A

Blank (1508254-BLK1)				Prepared & Analyzed: 08/31/15							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.5		"	12.2		102	30-150				
LCS (1508254-BS1)				Prepared & Analyzed: 08/31/15							
C10-C28 (DRO)	499	50	mg/kg	499	99.9	73-134					
<i>Surrogate: o-Terphenyl</i>	13.9		"	12.2		114	30-150				
Matrix Spike (1508254-MS1)				Source: 1508236-01		Prepared & Analyzed: 08/31/15					
C10-C28 (DRO)	468	50	mg/kg	489	ND	95.7	50-148				
<i>Surrogate: o-Terphenyl</i>	12.3		"	12.0		102	30-150				
Matrix Spike Dup (1508254-MSD1)				Source: 1508236-01		Prepared & Analyzed: 08/31/15					
C10-C28 (DRO)	471	50	mg/kg	489	ND	96.2	50-148	0.516	13		
<i>Surrogate: o-Terphenyl</i>	11.8		"	12.0		98.8	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

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

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

Batch 1508253 - EPA 5030 Soil MS

Blank (1508253-BLK1)

Prepared & Analyzed: 08/31/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0432</i>		<i>"</i>	<i>0.0396</i>		<i>109</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0385</i>		<i>"</i>	<i>0.0400</i>		<i>96.2</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>		<i>21-167</i>		

LCS (1508253-BS1)

Prepared & Analyzed: 08/31/15

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.103	0.0020	"	0.100		103		58-130		
Toluene	0.0981	0.0050	"	0.100		98.1		61-134		
Ethylbenzene	0.101	0.0050	"	0.0992		102		74-139		
m,p-Xylene	0.203	0.010	"	0.200		102		73-137		
o-Xylene	0.106	0.0050	"	0.0984		108		73-141		
Xylenes (total)	0.310	0.010	"					0-200		
Gasoline Range Hydrocarbons	1.96	0.50	"					30-150		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0409</i>		<i>"</i>	<i>0.0396</i>		<i>103</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0416</i>		<i>"</i>	<i>0.0400</i>		<i>104</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>		<i>21-167</i>		

Matrix Spike (1508253-MS1)

Source: 1508236-01

Prepared & Analyzed: 08/31/15

Naphthalene	ND	0.010	mg/kg		ND			10-158		
Benzene	0.103	0.0020	"	0.0969	ND	106		30-131		
Toluene	0.0982	0.0050	"	0.0969	ND	101		30-134		
Ethylbenzene	0.106	0.0050	"	0.0961	ND	110		22-153		
m,p-Xylene	0.213	0.010	"	0.193	ND	110		10-159		
o-Xylene	0.108	0.0050	"	0.0953	ND	113		31-151		
Xylenes (total)	0.321	0.010	"		0.00			0-200		
Gasoline Range Hydrocarbons	2.12	0.50	"		ND			0-0		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0418</i>		<i>"</i>	<i>0.0384</i>		<i>109</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0385</i>		<i>"</i>	<i>0.0388</i>		<i>99.3</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0390</i>		<i>"</i>	<i>0.0388</i>		<i>101</i>		<i>21-167</i>		

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

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

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

Batch 1508253 - EPA 5030 Soil MS

Matrix Spike Dup (1508253-MSD1)	Source: 1508236-01			Prepared & Analyzed: 08/31/15						
Naphthalene	ND	0.010	mg/kg	ND	ND	109	10-158		42	
Benzene	0.109	0.0020	"	0.0998	ND	109	30-131	5.49	34	
Toluene	0.105	0.0050	"	0.0998	ND	105	30-134	6.58	30	
Ethylbenzene	0.110	0.0050	"	0.0990	ND	111	22-153	4.02	24	
m,p-Xylene	0.221	0.010	"	0.199	ND	111	10-159	3.79	68	
o-Xylene	0.115	0.0050	"	0.0982	ND	117	31-151	6.26	38	
Xylenes (total)	0.336	0.010	"		0.00		0-200	4.63	200	
Gasoline Range Hydrocarbons	2.21	0.50	"		ND		0-0	4.01	0	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0447</i>		<i>"</i>	<i>0.0395</i>		<i>113</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0396</i>		<i>"</i>	<i>0.0399</i>		<i>99.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0399</i>		<i>101</i>	<i>21-167</i>			

Summit Scientific

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



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/01/15 07:08

Notes and Definitions

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

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

September 02, 2015

Mark Longhurst
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Edwards 33, 43-9

Enclosed are the results of analyses for samples received by Summit Scientific on 09/01/15 19:20. 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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
TP01@32'	1509024-01	Soil	09/01/15 11:35	09/01/15 19:20
TP03@28'	1509024-02	Soil	09/01/15 14:20	09/01/15 19:20
TP03@32'	1509024-03	Soil	09/01/15 15:05	09/01/15 19:20
TP04@30'	1509024-04	Soil	09/01/15 16:35	09/01/15 19:20
TP04@32'	1509024-05	Soil	09/01/15 16:55	09/01/15 19:20
TP05@32'	1509024-06	Soil	09/01/15 19:10	09/01/15 19:20

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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

Summit Scientific 1509024

S₂

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

Page 1 of 1

Client: PDC/Tasman Project Manager: Mark Longhurst
Address: _____ E-Mail: _____
City/State/Zip: _____
Phone: _____ Fax: _____ Project Name: Edwards 33,43-9
Sampler Name: Eric Siegel Project Number: _____

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO3	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)					
1	TPO1e 32'	9/1/15	11:35	1			X			X							
2	TPO3e 28'		14:20	1			X			X							
3	TPO3e 32'		15:05	1			X			X							
4	TPO4e 30'		16:35	1			X			X							
5	TPO4e 32'		16:55	1			X			X							
6	TPO5e 32'		19:10	1			X			X							
7																	
8																	
9																	
10																	

Relinquished by: <u>E.A. [Signature]</u> 1920 9/1/15	Date/Time:	Received by:	Date/Time:	Turn Around Time (Check)	Notes:
				Same Day <input checked="" type="checkbox"/> 72 hours <input type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
				48 hours <input type="checkbox"/>	
				Sample Integrity:	
				Temperature Upon Receipt: <u>4.4</u>	
				Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	

www.s2scientific.com



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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

TP01@32'
1509024-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1509011	09/01/15	09/01/15	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: **09/01/15 11:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		115 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

TP03@28'
1509024-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 14:20**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1509011	09/01/15	09/01/15	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: **09/01/15 14:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		110 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

TP03@32'
1509024-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 15:05**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.014	0.010	mg/kg	1	1509011	09/01/15	09/02/15	EPA 8260B	
Benzene	0.15	0.0020	"	"	"	"	"	"	
Toluene	0.72	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.054	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.87	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	8.9	0.50	"	"	"	"	"	"	

Date Sampled: **09/01/15 15:05**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		108 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		109 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

TP04@30'
1509024-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 16:35**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.014	0.010	mg/kg	1	1509011	09/01/15	09/02/15	EPA 8260B	
Benzene	0.029	0.0020	"	"	"	"	"	"	
Toluene	0.020	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.026	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.14	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	7.8	0.50	"	"	"	"	"	"	

Date Sampled: **09/01/15 16:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		118 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/02/15 06:36

TP04@32'
1509024-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 16:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 16:55**

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

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 16:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1509011	09/01/15	09/01/15	EPA 8260B	
Benzene	0.019	0.0020	"	"	"	"	"	"	
Toluene	0.032	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.025	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/01/15 16:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		111 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.5 %	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

TP05@32'
1509024-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **09/01/15 19:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1509012	09/01/15	09/01/15	8015M	

Date Sampled: **09/01/15 19:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.8 %	30-150		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **09/01/15 19:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1509011	09/01/15	09/01/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	0.0059	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **09/01/15 19:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		113 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.3 %	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: Edwards 33, 43-9

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 09/02/15 06:36

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch 1509012 - EPA 3550A

Blank (1509012-BLK1)

Prepared & Analyzed: 09/01/15

C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	13.2		"	12.2		108	30-150				

LCS (1509012-BS1)

Prepared & Analyzed: 09/01/15

C10-C28 (DRO)	469	50	mg/kg	499		94.1	73-134				
<i>Surrogate: o-Terphenyl</i>	12.2		"	12.2		100	30-150				

Matrix Spike (1509012-MS1)

Source: 1509017-01

Prepared & Analyzed: 09/01/15

C10-C28 (DRO)	460	50	mg/kg	495	10.1	90.9	50-148				
<i>Surrogate: o-Terphenyl</i>	12.0		"	12.1		98.9	30-150				

Matrix Spike Dup (1509012-MSD1)

Source: 1509017-01

Prepared & Analyzed: 09/01/15

C10-C28 (DRO)	456	50	mg/kg	492	10.1	90.5	50-148	0.980		13	
<i>Surrogate: o-Terphenyl</i>	12.0		"	12.0		99.7	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: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

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

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

Batch 1509011 - EPA 5030 Soil MS

Blank (1509011-BLK1)

Prepared & Analyzed: 09/01/15

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	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0425</i>		<i>"</i>	<i>0.0396</i>		<i>107</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0383</i>		<i>"</i>	<i>0.0400</i>		<i>95.7</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0404</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>		<i>21-167</i>		

LCS (1509011-BS1)

Prepared & Analyzed: 09/01/15

Naphthalene	ND	0.010	mg/kg					66-138		
Benzene	0.110	0.0020	"	0.100		110		58-130		
Toluene	0.103	0.0050	"	0.100		103		61-134		
Ethylbenzene	0.114	0.0050	"	0.0992		115		74-139		
m,p-Xylene	0.233	0.010	"	0.200		117		73-137		
o-Xylene	0.119	0.0050	"	0.0984		121		73-141		
Xylenes (total)	0.351	0.010	"					0-200		
Gasoline Range Hydrocarbons	2.17	0.50	"					30-150		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0434</i>		<i>"</i>	<i>0.0396</i>		<i>109</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0391</i>		<i>"</i>	<i>0.0400</i>		<i>97.6</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>		<i>21-167</i>		

Matrix Spike (1509011-MS1)

Source: 1509017-01

Prepared & Analyzed: 09/01/15

Naphthalene	ND	0.010	mg/kg		ND			10-158		
Benzene	0.104	0.0020	"	0.0978	ND	106		30-131		
Toluene	0.0980	0.0050	"	0.0978	ND	100		30-134		
Ethylbenzene	0.111	0.0050	"	0.0971	ND	114		22-153		
m,p-Xylene	0.224	0.010	"	0.195	ND	115		10-159		
o-Xylene	0.116	0.0050	"	0.0963	ND	121		31-151		
Xylenes (total)	0.341	0.010	"		0.00			30-160		
Gasoline Range Hydrocarbons	2.14	0.50	"		ND			30-160		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0442</i>		<i>"</i>	<i>0.0387</i>		<i>114</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0373</i>		<i>"</i>	<i>0.0391</i>		<i>95.2</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0398</i>		<i>"</i>	<i>0.0391</i>		<i>102</i>		<i>21-167</i>		

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

Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

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

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

Batch 1509011 - EPA 5030 Soil MS

Matrix Spike Dup (1509011-MSD1)	Source: 1509017-01			Prepared & Analyzed: 09/01/15						
Naphthalene	ND	0.010	mg/kg	ND	ND	105	10-158			42
Benzene	0.103	0.0020	"	0.0975	ND	105	30-131	1.33		34
Toluene	0.0958	0.0050	"	0.0975	ND	98.3	30-134	2.33		30
Ethylbenzene	0.108	0.0050	"	0.0967	ND	112	22-153	2.64		24
m,p-Xylene	0.221	0.010	"	0.195	ND	114	10-159	1.36		68
o-Xylene	0.113	0.0050	"	0.0959	ND	118	31-151	3.13		38
Xylenes (total)	0.334	0.010	"		0.00		30-160	1.96		30
Gasoline Range Hydrocarbons	2.14	0.50	"		ND		30-160	0.170		30
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0442</i>		<i>"</i>	<i>0.0386</i>		<i>114</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0377</i>		<i>"</i>	<i>0.0390</i>		<i>96.8</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0402</i>		<i>"</i>	<i>0.0390</i>		<i>103</i>	<i>21-167</i>			

Summit Scientific

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PDC Energy
1775 Sherman St. STE. 3000
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Project: Edwards 33, 43-9

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
09/02/15 06:36

Notes and Definitions

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