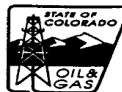


State of Colorado  
Oil and Gas Conservation Commission

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



FOR OGCC USE ONLY

## SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

OGCC Employee:

☐ Spill ☐ Complaint  
☐ Inspection ☐ NOAV

Tracking No:

(describe):

## CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☒ Spill or Release ☒ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☐ Other (describe):

## GENERAL INFORMATION

<b>OGCC Operator Number:</b> 69175		<b>Contact Name and Telephone</b>	
<b>Name of Operator:</b> PDC Energy, Inc.		<b>Name:</b> Charity Fleenor	
<b>Address:</b> 1775 Sherman Street, Suite 3000		<b>No:</b> (303) 860-5800	
<b>City:</b> Denver <b>State:</b> CO <b>Zip:</b> 80203		<b>Fax:</b> (303) 860-5838	
<b>API/Facility No:</b> 05-123-09920		<b>County:</b> Weld	
<b>Facility Name:</b> Ursula #2		<b>Facility Number:</b> 333219	
<b>Well Name:</b> Ursula #2		<b>Well Number:</b> Ursula #2	
<b>Location (QtrQtr, Sec, Twp, Rng, Meridian):</b> NENE S28 T2N R66W		<b>Latitude:</b> 40.112893 <b>Longitude:</b> -104.77705	

## TECHNICAL CONDITIONS

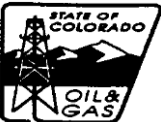
<b>Type of Waste Causing Impact</b> (crude oil, condensate, produced water, etc.):		Produced Water	
<b>Site Conditions:</b> Is location within a sensitive area (according to Rule 901e)?		<input checked="" type="checkbox"/> Y <input type="checkbox"/> N If yes, attach evaluation. ** Please see 'Potential Receptors' section below.	
<b>Adjacent land use</b> (cultivated, irrigated, dry land farming, industrial, residential, etc.):		Cropland	
<b>Soil type</b> , if not previously identified on Form 2A or Federal Surface Use Plan:		Olney loamy sand, 1 to 3 percent slopes	
<b>Potential receptors</b> (water wells within 1/4 mi, surface waters, etc.):		A residence is located approximately 690' southeast of the location. The nearest surface water is 660' north and the nearest water well is 625' southeast of the site. 6 water wells are located within a 1/4-mile radius. Depth to shallow groundwater is about 6 feet.	
<b>Description of Impact</b> (if previously provided, refer to that form or document):			
<b>Impacted Media (check):</b>		<b>How Determined:</b>	
<input checked="" type="checkbox"/> Soils	Refer to the attached Figure 4 and Table 1	Excavation and soil sampling	
<input type="checkbox"/> Vegetation			
<input checked="" type="checkbox"/> Groundwater	Refer to the attached Figure 5 and Table 2	Excavation and groundwater sampling	
<input type="checkbox"/> Surface water			

## REMEDIATION WORKPLAN

<b>Describe initial action taken</b> (if previously provided, refer to that form or document): On March 23, 2015, a historic release was discovered below the produced water vessel during plug and abandonment activities. Excavation activities were summarized in an Initial Form 19 submitted on March 24, 2015 (Document # 400813993) and in a Supplemental Form 19 submitted on April 9, 2015 (Document # 400819286). A topographic map of the site is included as Figure 1.
<b>Describe how source is to be removed:</b> Excavation activities were completed between March 19 and March 23, 2015. Approximately 130 cubic yards of impacted material were removed and transported to the Waste Management Facility in Ault, Colorado for disposal under PDC waste manifests. Groundwater was encountered in the excavation area at approximately 8 feet below ground surface (bgs). The groundwater sample (GW01) collected from the excavation area exhibited benzene and ethylbenzene concentrations in exceedance of COGCC Table 910-1 groundwater standards. The excavation extent and groundwater sample location are illustrated on Figure 2. Groundwater analytical data is summarized in Table 2 and the laboratory analytical report is included as Attachment A.
<b>Describe how remediation of existing impacts is to be accomplished</b> , including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.: Between April 6 and April 10, 2015, site investigation activities were completed to delineate the lateral extent of remaining hydrocarbon impacts in soil and groundwater. Fifteen (15) boreholes were advanced using direct push drilling methods to approximately 10 feet below ground surface (bgs). Soil encountered in the boreholes was field screened for volatile organic compound (VOC) concentrations using a photoionization detector (PID). Soil samples were collected from eleven (11) boreholes at depths ranging between 2 feet and 7 feet bgs. Soil samples were not collected from the remaining four (4) boreholes as elevated VOC concentrations were not detected during field screening activities. Soil samples were submitted Summit Scientific Laboratories (Summit) in Golden, Colorado for analysis of benzene, toluene, ethylbenzene, and 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 TPH concentrations were in exceedance of COGCC Table 910-1 standards in the soil samples collected from three (3) borehole locations (BH07, BH10, and SB01). Groundwater was encountered in the boreholes between 5-6 feet bgs. Consequently, temporary monitoring wells were installed at fourteen borehole locations (BH01 - BH14). Groundwater samples were collected from the temporary wells and submitted to Summit for laboratory analysis of BTEX. Analytical results indicated BTEX concentrations were in exceedance of COGCC Table 910-1 groundwater standards at six (6) temporary well locations. Temporary monitoring wells were abandoned following site investigation and sampling activities. Soil analytical results are summarized in Table 1 and illustrated on Figure 4. Groundwater analytical results are summarized in Table 2 and illustrated on Figure 5. Laboratory analytical reports are included as Attachment A and boring logs are included as Attachment B.  Based on the analytical data collected during investigation activities, PDC selected excavation and chemical treatment to address remaining petroleum hydrocarbon impacts in soil and groundwater within the source area. Impacted material will be excavated and chemically treated on-site using hydrogen peroxide. The proposed excavation extent is illustrated on Figure 6. Confirmation soil samples will be collected for every 100 cubic yards of treated material to confirm constituent concentrations decreased below regulatory standards and material may be used for backfilling. Soil samples will be collected from the sidewalls of the final excavation extent to confirm remaining soil impacts were successfully removed. A summary of remediation and sampling activities will be provided in a supplemental report.

FORM  
27  
Rev 6/99

State of Colorado  
Oil and Gas Conservation Commission  
1120 Lincoln Street, Suite 801, Denver, Colorado  
(303) 894-2100 Fax 894-2109



Tracking Number: \_\_\_\_\_  
Name of Operator: PDC Energy, Inc.  
OGCC Operator No: 69175  
Received Date: \_\_\_\_\_  
Well Name & No: Ursula #2  
Facility Name & No.: Ursula #2

Page 2

REMEDATION WORKPLAN (CONT.)

OGCC Employee: \_\_\_\_\_

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

Groundwater was encountered during excavation and investigation activities between 5-8 feet below ground surface (bgs). Groundwater samples were collected from fourteen (14) temporary monitoring well locations (BH01 - BH14) and submitted to Summit Scientific Laboratories for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8260. Analytical results indicated BTEX concentrations were in exceedance of COGCC Table 910-1 groundwater standards at six (6) temporary well locations. PDC will complete open excavation chemical treatment of impacted groundwater in the source area using hydrogen peroxide. A groundwater monitoring plan and final remedial strategy to address remaining off-site dissolved phase hydrocarbon impacts will be provided in a supplemental report.

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

The excavation will be backfilled and compacted with clean material and the ground surface will be re-contoured to match pre-existing conditions.

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

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

Petroleum hydrocarbon impacts in soil and groundwater remain on site, as determined during site investigation activities. Based on general groundwater flow to the west, point of compliance (POC) for remaining dissolved phase hydrocarbon impacts has not been established off-site. Consequently, additional drilling and site investigation will be completed following excavation and chemical treatment activities. A groundwater elevation contour map is included as Figure 3. Soil analytical results are summarized in Table 1 and groundwater analytical results are summarized on Table 2. The laboratory analytical reports are included as Attachment A.

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

Soil removed during initial excavation activities was disposed of at the Waste Management Facility in Ault, Colorado under PDC waste manifests.

IMPLEMENTATION SCHEDULE

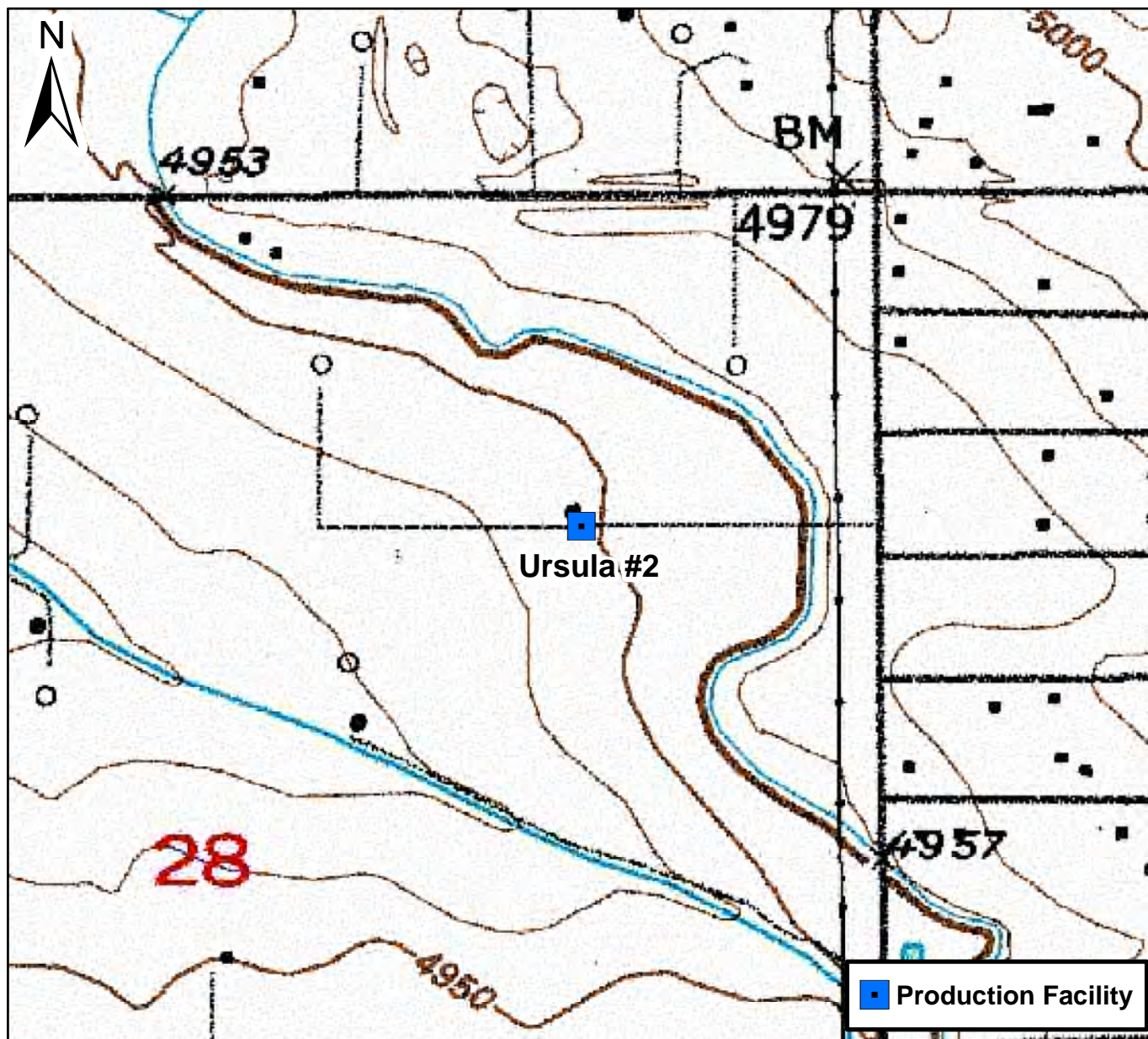
Date Site Investigation Began:	3/19/2015	Date Site Investigation Completed:	NA	Remediation Plan Submitted:	
Remediation Start Date:	10/1/2015	Anticipated Completion Date:	NA	Actual Completion Date:	TBD

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

Print Name: Charity Fleenor

Signed: \_\_\_\_\_ Title: EHS Director Date: \_\_\_\_\_

OGCC Approved: \_\_\_\_\_ Title: \_\_\_\_\_ Date: \_\_\_\_\_



0 750 1,500 Feet

## Figure 1

Site Location Map  
Ursula #2  
NENE S28 T2N R66W  
Weld County, Colorado







DATE:  
April 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. - DJ Basin**  
**Ursula #2**  
NENE Section 28, Township 2 North, Range 66 West  
Weld County, Colorado

Site Overview  
Map

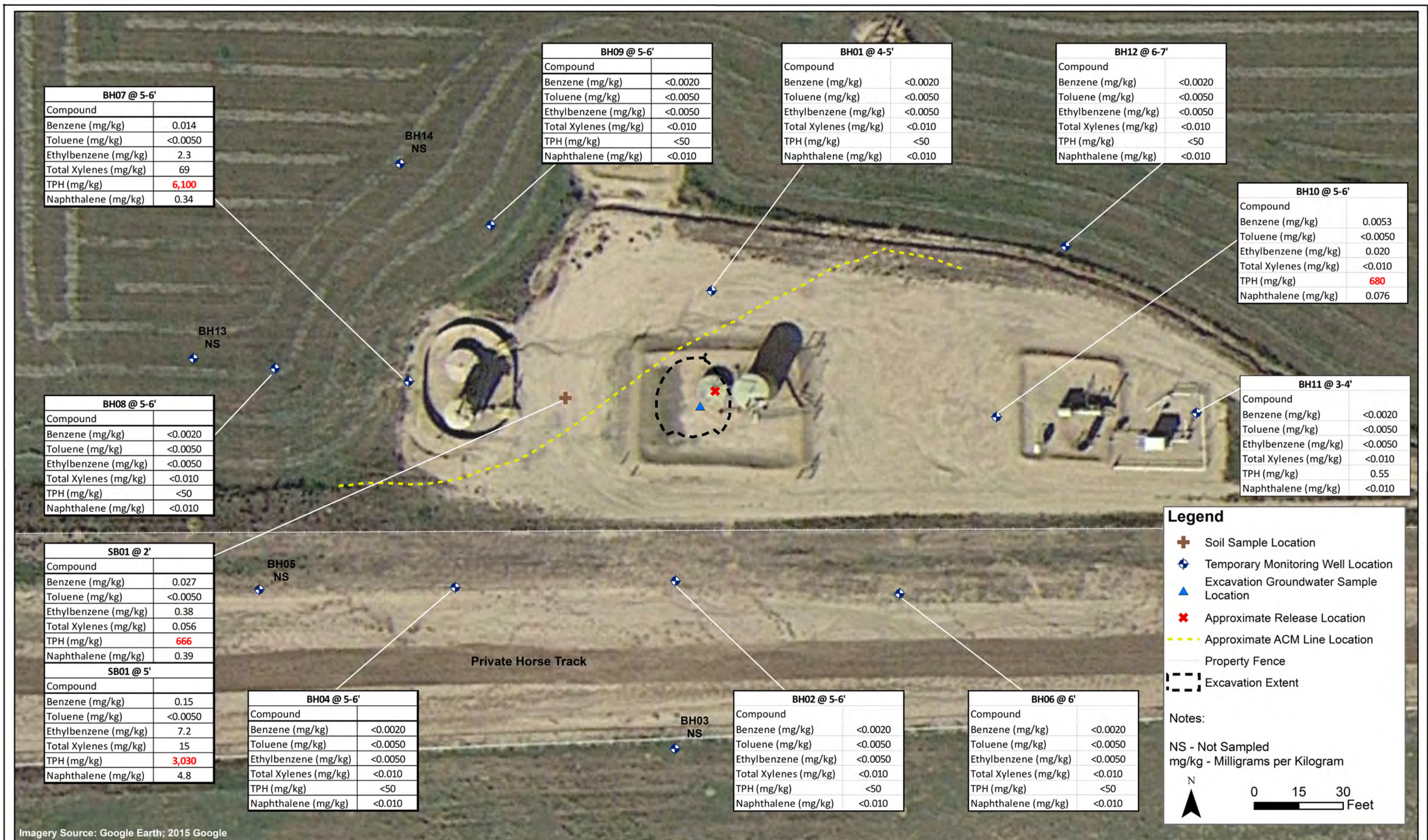
Figure  
2





DATE: April 2015	 <b>TASMAN</b> GEOSCIENCES Tasman Geosciences, Inc. 6899 Pecos Street - Unit C Denver, CO 80221	<b>PDC Energy, Inc. - DJ Basin</b> <b>Ursula #2</b> NENE Section 28, Township 2 North, Range 66 West Weld County, Colorado	Groundwater Elevation Contour Map	<b>Figure</b> 3
DESIGNED BY: C. Wasko				
DRAWN BY: D. Arnold				





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

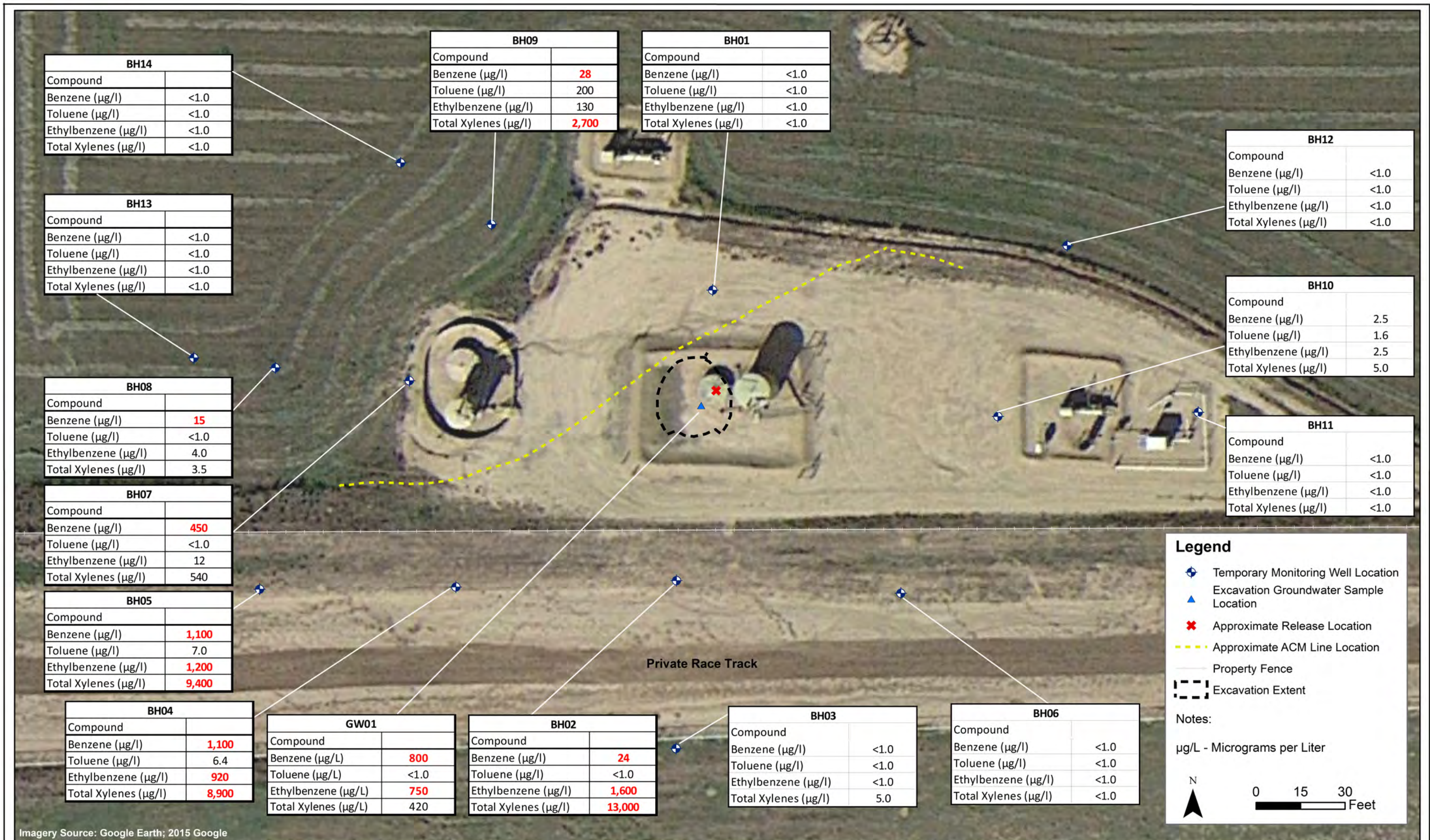
**TASMAN** GEOSCIENCES  
Tasman Geosciences, Inc.  
6899 Pecos Street - Unit C  
Denver, CO 80221

**PDC Energy, Inc. - DJ Basin**  
**Ursula #2**  
NENE Section 28, Township 2 North, Range 66 West  
Weld County, Colorado

Soil Analytical Results  
Map

Figure  
4





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





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



**PDC Energy, Inc. - DJ Basin**  
**Ursula #2**  
 NENE Section 28, Township 2 North, Range 66 West  
 Weld County, Colorado

Proposed Excavation  
 Area

**Figure**  
**6**



**TABLE 1**  
**URSULA #2 TANK BATTERY**  
**SOIL ANALYTICAL 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 <sup>(2)</sup> (mg/kg)
<b>COGCC standards for soil (mg/kg) <sup>(1)</sup></b>			<b>0.17</b>	<b>85</b>	<b>100</b>	<b>175</b>	<b>23</b>	<b>500</b>
BH01 @ 4-5	4/6/2015	4-5	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH02 @ 5-6	4/6/2015	5-6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH04 @ 5-6	4/6/2015	5-6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH06 @ 6	4/6/2015	6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH07 @ 5-6	4/6/2015	5-6	0.014	<0.0050	2.3	69	0.34	<b>6,100</b>
BH08 @ 5-6	4/6/2015	5-6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH09 @ 5-6	4/6/2015	5-6	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
BH10 @ 5-6	4/6/2015	5-6	0.0053	<0.0050	0.020	<0.010	0.076	<b>680</b>
BH11 @ 3-4	4/10/2015	3-4	<0.0020	<0.0050	<0.0050	<0.010	<0.010	0.55
BH12 @ 6-7	4/10/2015	6-7	<0.0020	<0.0050	<0.0050	<0.010	<0.010	<50
SB01 @ 2	4/10/2015	2	0.027	<0.0050	0.38	0.056	0.39	<b>666</b>
SB01 @ 5	4/10/2015	5	0.15	<0.0050	7.2	15	4.8	<b>3,030</b>

**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 Table 910-1 soil standards.



**TABLE 2**  
**URSULA #2 TANK BATTERY**  
**GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)
<b>COGCC Table 910-1 Groundwater Standard (µg/L) <sup>(1)</sup></b>		<b>5</b>	<b>560</b>	<b>700</b>	<b>1,400</b>
GW01	3/23/2015	<b>800</b>	<1.0	<b>750</b>	420
BH01	4/6/2015	<1.0	<1.0	<1.0	<1.0
BH02	4/6/2015	<b>24</b>	<1.0	<b>1,600</b>	<b>13,000</b>
BH03	4/6/2015	<1.0	<1.0	<1.0	5.0
BH04	4/6/2015	<b>1,100</b>	6.4	<b>920</b>	<b>8,900</b>
BH05	4/6/2015	<b>1,100</b>	7.0	<b>1,200</b>	<b>9,400</b>
BH06	4/6/2015	<1.0	<1.0	<1.0	<1.0
BH07	4/6/2015	<b>450</b>	<1.0	12	540
BH08	4/6/2015	<b>15</b>	<1.0	4.0	3.5
BH09	4/6/2015	<b>28</b>	200	130	<b>2,700</b>
BH10	4/6/2015	2.5	1.6	2.5	5.0
BH11	4/10/2015	<1.0	<1.0	<1.0	<1.0
BH12	4/10/2015	<1.0	<1.0	<1.0	<1.0
BH13	4/10/2015	<1.0	<1.0	<1.0	<1.0
BH14	4/10/2015	<1.0	<1.0	<1.0	<1.0

**Notes:**

1. Groundwater standards referenced from 2 CCR 404-1, Table 910-1, effective February 1, 2014.

COGCC = Colorado Oil and Gas Conservation Commission

µg/L= Micrograms per liter

NM = Not Measured

**BOLD** = Analytical result is in exceedance of COGCC groundwater standards.



## **ATTACHMENT A**



# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 24, 2015

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Ursula 2

Enclosed are the results of analyses for samples received by Summit Scientific on 03/23/15 18:10. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President









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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/24/15 07:50

**GW01**  
**1503195-01 (Water)**

**Summit Scientific**

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

Date Sampled: 03/23/15 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>800</b>	100	ug/l	100	1503265	03/23/15	03/23/15	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	03/23/15	"	
<b>Ethylbenzene</b>	<b>750</b>	100	"	100	"	"	03/23/15	"	
<b>Xylenes (total)</b>	<b>420</b>	1.0	"	1	"	"	03/23/15	"	

Date Sampled: 03/23/15 11:00

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		92.7 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		114 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		105 %	45-146		"	"	"	"	

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/24/15 07:50

## Volatile Organic Compounds by EPA Method 8260B - Quality Control

### Summit Scientific

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

#### Batch 1503265 - EPA 5030 Water MS

##### Blank (1503265-BLK1)

Prepared & Analyzed: 03/23/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	11.0		"	13.2		83.0	37-154			
Surrogate: Toluene-d8	12.7		"	13.3		95.3	45-149			
Surrogate: 4-Bromofluorobenzene	15.2		"	13.3		114	45-146			

##### LCS (1503265-BS1)

Prepared & Analyzed: 03/23/15

Benzene	31.3	1.0	ug/l	33.3		93.9	51-132			
Toluene	29.5	1.0	"	33.3		88.6	51-138			
Ethylbenzene	31.4	1.0	"	33.1		94.8	58-146			
m,p-Xylene	64.6	2.0	"	66.5		97.2	57-144			
o-Xylene	30.6	1.0	"	32.8		93.2	53-146			
Surrogate: 1,2-Dichloroethane-d4	11.5		"	13.2		87.0	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	45-149			
Surrogate: 4-Bromofluorobenzene	13.8		"	13.3		103	45-146			

##### Matrix Spike (1503265-MS1)

Source: 1503186-01

Prepared & Analyzed: 03/23/15

Benzene	31.4	1.0	ug/l	33.3	ND	94.3	34-141			
Toluene	29.6	1.0	"	33.3	ND	88.7	27-151			
Ethylbenzene	32.4	1.0	"	33.1	ND	97.8	29-160			
m,p-Xylene	65.9	2.0	"	66.5	ND	99.1	20-166			
o-Xylene	31.6	1.0	"	32.8	ND	96.3	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.2		88.3	37-154			
Surrogate: Toluene-d8	12.6		"	13.3		94.4	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
03/24/15 07:50

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

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

**Batch 1503265 - EPA 5030 Water MS**

Matrix Spike Dup (1503265-MSD1)	Source: 1503186-01			Prepared & Analyzed: 03/23/15						
Benzene	32.2	1.0	ug/l	33.3	ND	96.7	34-141	2.51	32	
Toluene	30.5	1.0	"	33.3	ND	91.4	27-151	3.03	25	
Ethylbenzene	32.5	1.0	"	33.1	ND	98.3	29-160	0.524	50	
m,p-Xylene	66.7	2.0	"	66.5	ND	100	20-166	1.19	36	
o-Xylene	31.7	1.0	"	32.8	ND	96.6	33-159	0.348	26	
Surrogate: 1,2-Dichloroethane-d4	12.4		"	13.2		94.3	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	45-149			
Surrogate: 4-Bromofluorobenzene	14.0		"	13.3		105	45-146			

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
03/24/15 07:50

### 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

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

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



# Summit Scientific

---

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 09, 2015

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Ursula 2

Enclosed are the results of analyses for samples received by Summit Scientific on 04/06/15 16:20. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink, appearing to be 'Ben Shrewsbury', with a long, sweeping horizontal line extending to the right.

Ben Shrewsbury For Paul Shrewsbury  
President





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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01@4-5'	1504044-01	Soil	04/06/15 09:20	04/06/15 16:20
BH02@5-6'	1504044-02	Soil	04/06/15 10:10	04/06/15 16:20
BH04@5-6'	1504044-03	Soil	04/06/15 11:40	04/06/15 16:20
BH06@6'	1504044-04	Soil	04/06/15 12:50	04/06/15 16:20
BH07@5-6'	1504044-05	Soil	04/06/15 13:25	04/06/15 16:20
BH08@5-6'	1504044-06	Soil	04/06/15 13:55	04/06/15 16:20
BH09@5-6'	1504044-07	Soil	04/06/15 14:25	04/06/15 16:20
BH10@5-6'	1504044-08	Soil	04/06/15 14:50	04/06/15 16:20
BH01	1504044-09	Water	04/06/15 10:20	04/06/15 16:20
BH02	1504044-10	Water	04/06/15 11:00	04/06/15 16:20
BH03	1504044-11	Water	04/06/15 11:30	04/06/15 16:20
BH04	1504044-12	Water	04/06/15 12:20	04/06/15 16:20
BH05	1504044-13	Water	04/06/15 12:45	04/06/15 16:20
BH06	1504044-14	Water	04/06/15 13:10	04/06/15 16:20
BH07	1504044-15	Water	04/06/15 13:45	04/06/15 16:20
BH08	1504044-16	Water	04/06/15 14:10	04/06/15 16:20
BH09	1504044-17	Water	04/06/15 14:40	04/06/15 16:20
BH10	1504044-18	Water	04/06/15 15:15	04/06/15 16:20

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: Ursula 2

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/09/15 14:16

# Summit Scientific 1504044.1

S<sub>2</sub>

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

Page 1 of 2

Client: PDC/Tasman

Project Manager: Brandon Bruns

Address:

E-Mail:

City/State/Zip:

Phone:

Fax:

Project Name: Ursula #2

Sampler Name: Eric Sigel

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested								Special Instructions
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	8260 GBXN	8015 DRO						
1	BH01 e 5-6'	4/6/15	920	1			X			X			X	X						
2	BH02 e 5-6'		1010																	
3	BH04 e 5-6'		1140																	
4	BH06 e 6'		1250																	
5	BH07 e 5-6'		1325																	
6	BH08 e 5-6'		1355																	
7	BH09 e 5-6'		1425																	
8	BH10 e 5-6'		1450																	
9																				
10																				

Relinquished by: <u>E. A. Sigel</u>	Date/Time: <u>4/6/15</u>	Received by: <u>Auto Coll</u>	Date/Time: <u>4/6/15</u>	Turn Around Time (Check)	Notes: <u>none</u>
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/> 72 hours <input checked="" type="checkbox"/>	
				24 hours <input type="checkbox"/> Standard <input type="checkbox"/>	
				48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: <u>7.6</u>	
				Temperature Upon Receipt: <u>7.6</u>	
				Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

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Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/09/15 14:16

# Summit Scientific

1504044.2

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

Page 2 of 2

Client: PDC/Tasman

Project Manager: Brandon Bruns

Address:

E-Mail:

City/State/Zip:

Phone:

Fax:

Project Name: Ursula #2

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	BH01	4/6/15	1020	3	X				X			X				
2	BH02		1100		X											
3	BH03		1130		X											
4	BH04		1220		X											
5	BH05		1245		X											
6	BH06		1310		X											
7	BH07		1345		X											
8	BH08		1410		X											
9	BH09		1440		X											
10	BH10		1515		X											

Relinquished by: Eric A. Siegel	Date/Time: 4/6/15	Received by: [Signature]	Date/Time: 4/6/15	Turn Around Time (Check)	Notes: on ice
Relinquished by:	Date/Time:	Received by:	Date/Time:	Same Day <input type="checkbox"/>	72 hours <input checked="" type="checkbox"/>
				24 hours <input type="checkbox"/>	Standard <input type="checkbox"/>
				48 hours <input type="checkbox"/>	
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity:	
				Temperature Upon Receipt: 7.6	
				Intact: Yes <input checked="" type="radio"/> No <input type="radio"/>	

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH01@4-5'**  
**1504044-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/08/15	8015M	

Date Sampled: **04/06/15 09:20**

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

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

Date Sampled: **04/06/15 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 09:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.3 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.2 %	21-167		"	"	"	"	

Summit Scientific

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



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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH02@5-6'**  
**1504044-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 10:10**

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

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

Date Sampled: **04/06/15 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 10:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		105 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.4 %	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH04@5-6'**  
**1504044-03 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/06/15 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 11:40**

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

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

Date Sampled: **04/06/15 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 11:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		101 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		104 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH06@6'**  
**1504044-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 12:50**

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

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

Date Sampled: **04/06/15 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 12:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		104 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH07@5-6'**  
**1504044-05 (Soil)**

### Summit Scientific

#### Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **04/06/15 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>2400</b>	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 13:25**

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

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

Date Sampled: **04/06/15 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.34</b>	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
<b>Benzene</b>	<b>0.014</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>2.3</b>	0.50	"	100	"	"	04/09/15	"	
<b>Xylenes (total)</b>	<b>69</b>	1.0	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>3700</b>	50	"	"	"	"	"	"	

Date Sampled: **04/06/15 13:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		114 %	23-173		"	"	04/09/15	"	
<i>Surrogate: Toluene-d8</i>		701 %	20-170		"	"	"	"	S-02
<i>Surrogate: 4-Bromofluorobenzene</i>		161 %	21-167		"	"	"	"	S-02

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH08@5-6'**  
**1504044-06 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 13:55**

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

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

Date Sampled: **04/06/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 13:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		107 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH09@5-6'**  
**1504044-07 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 14:25**

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

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

Date Sampled: **04/06/15 14:25**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **04/06/15 14:25**

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		103 %	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH10@5-6'**  
**1504044-08 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/06/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>C10-C28 (DRO)</b>	<b>240</b>	50	mg/kg	1	1504063	04/07/15	04/09/15	8015M	

Date Sampled: **04/06/15 14:50**

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

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

Date Sampled: **04/06/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Naphthalene</b>	<b>0.076</b>	0.010	mg/kg	1	1504062	04/07/15	04/09/15	EPA 8260B	
<b>Benzene</b>	<b>0.0053</b>	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>0.020</b>	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>440</b>	5.0	"	10	"	"	04/09/15	"	

Date Sampled: **04/06/15 14:50**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		105 %	23-173		"	"	04/09/15	"	
<i>Surrogate: Toluene-d8</i>		121 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		167 %	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH01**  
**1504044-09 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/06/15 10:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		97.8 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		96.5 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	45-146		"	"	"	"	

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH02**  
**1504044-10 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>24</b>	1.0	ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>1600</b>	100	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>13000</b>	100	"	"	"	"	"	"	

Date Sampled: **04/06/15 11:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		95.2 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		98.8 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		111 %	45-146		"	"	"	"	

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH03**  
**1504044-11 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5.0</b>	1.0		"	"	"	"	"	"	

Date Sampled: **04/06/15 11:30**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		102 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		98.3 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		112 %		45-146		"	"	"	"	

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH04**  
**1504044-12 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>1100</b>	100	ug/l	100	1504061	04/08/15	04/08/15	EPA 8260B	
<b>Toluene</b>	<b>6.4</b>	1.0	"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>920</b>	100	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>8900</b>	100	"	"	"	"	"	"	

Date Sampled: **04/06/15 12:20**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		99.2 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.6 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		107 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH05**  
**1504044-13 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>1100</b>	100	ug/l	100	1504061	04/08/15	04/08/15	EPA 8260B	
<b>Toluene</b>	<b>7.0</b>	1.0	"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>1200</b>	100	"	100	"	"	"	"	
<b>Xylenes (total)</b>	<b>9400</b>	100	"	"	"	"	"	"	

Date Sampled: **04/06/15 12:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>94.4 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>97.7 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>111 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH06**  
**1504044-14 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 13:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	1.0		ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0		"	"	"	"	"	"	
Ethylbenzene	ND	1.0		"	"	"	"	"	"	
Xylenes (total)	ND	1.0		"	"	"	"	"	"	

Date Sampled: **04/06/15 13:10**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		99.7 %		37-154		"	"	"	"	
Surrogate: Toluene-d8		96.9 %		45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		110 %		45-146		"	"	"	"	

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH07**  
**1504044-15 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>450</b>	10	ug/l	10	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0	"	1	"	"	"	"	
<b>Ethylbenzene</b>	<b>12</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>540</b>	1.0	"	"	"	"	"	"	

Date Sampled: **04/06/15 13:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		110 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		113 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH08**  
**1504044-16 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>15</b>	1.0	ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>4.0</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>3.5</b>	1.0	"	"	"	"	"	"	

Date Sampled: **04/06/15 14:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		<i>96.1 %</i>	<i>37-154</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: Toluene-d8</i>		<i>98.9 %</i>	<i>45-149</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>107 %</i>	<i>45-146</i>		<i>"</i>	<i>"</i>	<i>"</i>	<i>"</i>	

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

**BH09**  
**1504044-17 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>28</b>	1.0	ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
<b>Toluene</b>	<b>200</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>130</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>2700</b>	10	"	10	"	"	"	"	

Date Sampled: **04/06/15 14:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		94.8 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		96.3 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		104 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**BH10**  
**1504044-18 (Water)**

**Summit Scientific**

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

Date Sampled: **04/06/15 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<b>Benzene</b>	<b>2.5</b>	1.0	ug/l	1	1504061	04/08/15	04/08/15	EPA 8260B	
<b>Toluene</b>	<b>1.6</b>	1.0	"	"	"	"	"	"	
<b>Ethylbenzene</b>	<b>2.5</b>	1.0	"	"	"	"	"	"	
<b>Xylenes (total)</b>	<b>5.0</b>	1.0	"	"	"	"	"	"	

Date Sampled: **04/06/15 15:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		91.7 %	37-154		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		98.2 %	45-149		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		110 %	45-146		"	"	"	"	

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/09/15 14:16

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1504063 - EPA 3550A**

**Blank (1504063-BLK1)**

Prepared & Analyzed: 04/07/15

C10-C28 (DRO) ND 50 mg/kg

Surrogate: o-Terphenyl 13.9 " 12.2 114 30-150

**LCS (1504063-BS1)**

Prepared & Analyzed: 04/07/15

C10-C28 (DRO) 452 50 mg/kg 501 90.2 73-134

Surrogate: o-Terphenyl 13.2 " 12.2 108 30-150

**Matrix Spike (1504063-MS1)**

Source: 1504052-03

Prepared & Analyzed: 04/07/15

C10-C28 (DRO) 438 50 mg/kg 474 ND 92.3 50-148

Surrogate: o-Terphenyl 13.1 " 11.6 114 30-150

**Matrix Spike Dup (1504063-MSD1)**

Source: 1504052-03

Prepared & Analyzed: 04/07/15

C10-C28 (DRO) 440 50 mg/kg 475 ND 92.6 50-148 0.501 13

Surrogate: o-Terphenyl 13.1 " 11.6 113 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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

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

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

**Batch 1504061 - EPA 5030 Water MS**

**Blank (1504061-BLK1)**

Prepared & Analyzed: 04/07/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.5		"	13.2		95.0	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.4	45-149			
Surrogate: 4-Bromofluorobenzene	14.8		"	13.3		111	45-146			

**LCS (1504061-BS1)**

Prepared & Analyzed: 04/07/15

Benzene	30.8	1.0	ug/l	33.3		92.4	51-132			
Toluene	29.3	1.0	"	33.3		87.9	51-138			
Ethylbenzene	31.2	1.0	"	33.1		94.2	58-146			
m,p-Xylene	62.7	2.0	"	66.5		94.3	57-144			
o-Xylene	30.6	1.0	"	32.8		93.4	53-146			
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.6	37-154			
Surrogate: Toluene-d8	13.3		"	13.3		100	45-149			
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3		106	45-146			

**Matrix Spike (1504061-MS1)**

Source: 1504048-01

Prepared & Analyzed: 04/07/15

Benzene	30.4	1.0	ug/l	33.3	ND	91.2	34-141			
Toluene	28.9	1.0	"	33.3	ND	86.6	27-151			
Ethylbenzene	31.8	1.0	"	33.1	ND	96.3	29-160			
m,p-Xylene	63.7	2.0	"	66.5	ND	95.8	20-166			
o-Xylene	30.8	1.0	"	32.8	ND	94.0	33-159			
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.2		97.0	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.2	45-149			
Surrogate: 4-Bromofluorobenzene	14.2		"	13.3		107	45-146			

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

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

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

**Batch 1504061 - EPA 5030 Water MS**

Matrix Spike Dup (1504061-MSD1)			Source: 1504048-01		Prepared & Analyzed: 04/07/15					
Benzene	30.9	1.0	ug/l	33.3	ND	92.7	34-141	1.66	32	
Toluene	29.4	1.0	"	33.3	ND	88.4	27-151	2.02	25	
Ethylbenzene	32.2	1.0	"	33.1	ND	97.5	29-160	1.22	50	
m,p-Xylene	64.9	2.0	"	66.5	ND	97.6	20-166	1.83	36	
o-Xylene	31.0	1.0	"	32.8	ND	94.6	33-159	0.582	26	
Surrogate: 1,2-Dichloroethane-d4	13.9		"	13.2		105	37-154			
Surrogate: Toluene-d8	13.1		"	13.3		98.0	45-149			
Surrogate: 4-Bromofluorobenzene	14.5		"	13.3		109	45-146			

**Batch 1504062 - EPA 5030 Soil MS**

Blank (1504062-BLK1)			Prepared & Analyzed: 04/07/15							
Naphthalene	ND	0.010	mg/kg							
Benzene	ND	0.0020	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0340		"	0.0396		85.8	23-173			
Surrogate: Toluene-d8	0.0387		"	0.0400		96.8	20-170			
Surrogate: 4-Bromofluorobenzene	0.0437		"	0.0400		109	21-167			

LCS (1504062-BS1)			Prepared & Analyzed: 04/07/15							
Naphthalene	ND	0.010	mg/kg							
Benzene	0.0907	0.0020	"	0.100		90.7	58-130			
Toluene	0.0882	0.0050	"	0.100		88.2	61-134			
Ethylbenzene	0.0961	0.0050	"	0.0992		96.9	74-139			
m,p-Xylene	0.194	0.010	"	0.200		97.1	73-137			
o-Xylene	0.0923	0.0050	"	0.0984		93.8	73-141			
Surrogate: 1,2-Dichloroethane-d4	0.0364		"	0.0396		92.0	23-173			
Surrogate: Toluene-d8	0.0385		"	0.0400		96.2	20-170			
Surrogate: 4-Bromofluorobenzene	0.0424		"	0.0400		106	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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

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

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

**Batch 1504062 - EPA 5030 Soil MS**

**Matrix Spike (1504062-MS1)**

**Source: 1504052-03**

Prepared & Analyzed: 04/07/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0904	0.0020	"	0.0982	ND	92.1	30-131			
Toluene	0.0877	0.0050	"	0.0982	ND	89.3	30-134			
Ethylbenzene	0.0938	0.0050	"	0.0974	ND	96.3	22-153			
m,p-Xylene	0.190	0.010	"	0.196	ND	97.0	10-159			
o-Xylene	0.0913	0.0050	"	0.0967	ND	94.5	31-151			
Surrogate: 1,2-Dichloroethane-d4	0.0354		"	0.0389		91.1	23-173			
Surrogate: Toluene-d8	0.0391		"	0.0393		99.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0393		102	21-167			

**Matrix Spike Dup (1504062-MSD1)**

**Source: 1504052-03**

Prepared & Analyzed: 04/07/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0873	0.0020	"	0.0952	ND	91.7	30-131	3.52	34	
Toluene	0.0864	0.0050	"	0.0952	ND	90.7	30-134	1.46	30	
Ethylbenzene	0.0919	0.0050	"	0.0945	ND	97.3	22-153	2.03	24	
m,p-Xylene	0.184	0.010	"	0.190	ND	96.8	10-159	3.27	68	
o-Xylene	0.0869	0.0050	"	0.0937	ND	92.7	31-151	4.98	38	
Surrogate: 1,2-Dichloroethane-d4	0.0358		"	0.0377		95.0	23-173			
Surrogate: Toluene-d8	0.0381		"	0.0381		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0400		"	0.0381		105	21-167			

Summit Scientific

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/09/15 14:16

### 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.

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

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Summit Scientific

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A handwritten signature in black ink, appearing to be 'Brandon Bruns', written over a horizontal line.



# Summit Scientific

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741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

April 12, 2015

Brandon Bruns  
PDC Energy  
1775 Sherman St. STE. 3000  
Denver, CO 80203  
RE: Ursula 2

Enclosed are the results of analyses for samples received by Summit Scientific on 04/10/15 17:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

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

Paul Shrewsbury  
President



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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/12/15 19:55

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH11@3-4'	1504106-01	Soil	04/10/15 09:45	04/10/15 17:30
BH12@6-7'	1504106-02	Soil	04/10/15 10:30	04/10/15 17:30
SB01@2'	1504106-03	Soil	04/10/15 11:10	04/10/15 17:30
SB01@5'	1504106-04	Soil	04/10/15 11:15	04/10/15 17:30
BH11	1504106-05	Water	04/10/15 10:22	04/10/15 17:30
BH12	1504106-06	Water	04/10/15 11:40	04/10/15 17:30
BH13	1504106-07	Water	04/10/15 11:30	04/10/15 17:30
BH14	1504106-08	Water	04/10/15 12:15	04/10/15 17:30

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

Project: Ursula 2

Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/12/15 19:55

# Summit Scientific *15041660*

S<sub>2</sub>

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

Page 1 of 1

Client: *PDC/Tasman*

Project Manager: *Brandon Bruns*

Address:

E-Mail:

City/State/Zip:

Phone:

Fax:

Project Name: *Ursula #2*

Sampler Name: *Eric Sigel*

Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix				Analysis Requested				Special Instructions
					HCl	HNO <sub>3</sub>	None	Other (Specify)	Groundwater	Soil	Air-Canister #	Other (Specify)	8015 DRO	8020 GIBEN	8260 BTEX		
1	BH11 e3-4'	4/10/15	945	1			X			X			X	X			
2	BH12 e6-7'		1030	1			X			X			X	X			
3	SB01 e2'		1110	1			X			X			X	X			
4	SB01 e5'		1115	1			X			X			X	X			
5	BH11		1022	3	X				X						X		
6	BH12		1140	2			X		X						X		
7	BH13		1130	3	X				X						X		
8	BH14	↓	1215	3	X				X						X		
9																	
10																	

Relinquished by: <i>E. A. Sigel</i>	Date/Time: <i>4/10/15</i>	Received by: <i>[Signature]</i>	Date/Time: <i>4/10/15 1655</i>	Turn Around Time (Check)	Notes:
Relinquished by: <i>[Signature]</i>	Date/Time: <i>4/10/15 1730</i>	Received by: <i>[Signature]</i>	Date/Time: <i>4-10 1730</i>	Same Day <input type="checkbox"/> 72 hours <input type="checkbox"/> 24 hours <input checked="" type="checkbox"/> Standard <input type="checkbox"/> 48 hours <input type="checkbox"/>	<i>on ice</i>
Relinquished by:	Date/Time:	Received by:	Date/Time:	Sample Integrity: Temperature Upon Receipt: <i>3.6°C</i> Intact: <input checked="" type="radio"/> Yes <input type="radio"/> No	

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Denver CO, 80203

Project: Ursula 2  
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Project Manager: Brandon Brunns

Reported:  
04/12/15 19:55

**BH11@3-4'**  
**1504106-01 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/10/15 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504109	04/10/15	04/10/15	8015M	

Date Sampled: **04/10/15 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	70-130		"	"	"	"	

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

Date Sampled: **04/10/15 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504110	04/10/15	04/10/15	EPA 8260B	
Benzene	ND	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
<b>Gasoline Range Hydrocarbons</b>	<b>0.55</b>	0.50	"	"	"	"	"	"	

Date Sampled: **04/10/15 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		101 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		96.2 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.8 %	21-167		"	"	"	"	

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Denver CO, 80203

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/12/15 19:55

**BH12@6-7'**  
**1504106-02 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/10/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	1504109	04/10/15	04/10/15	8015M	

Date Sampled: **04/10/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		112 %	70-130		"	"	"	"	

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

Date Sampled: **04/10/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.010	mg/kg	1	1504110	04/10/15	04/10/15	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: **04/10/15 10:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		102 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		97.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		93.8 %	21-167		"	"	"	"	

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**SB01@2'**  
**1504106-03 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/10/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	610	50	mg/kg	1	1504109	04/10/15	04/10/15	8015M	

Date Sampled: **04/10/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		123 %	70-130		"	"	"	"	

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

Date Sampled: **04/10/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.39	0.010	mg/kg	1	1504110	04/10/15	04/10/15	EPA 8260B	
Benzene	0.027	0.0020	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.38	0.0050	"	"	"	"	"	"	
Xylenes (total)	0.056	0.010	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	56	0.50	"	"	"	"	"	"	

Date Sampled: **04/10/15 11:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		96.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		45.6 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		260 %	21-167		"	"	"	"	S-02

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PDC Energy  
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Denver CO, 80203

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/12/15 19:55

**SB01@5'**  
**1504106-04 (Soil)**

**Summit Scientific**

**Extractable Petroleum Hydrocarbons by 8015**

Date Sampled: **04/10/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	730	50	mg/kg	1	1504109	04/10/15	04/10/15	8015M	

Date Sampled: **04/10/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		114 %	70-130		"	"	"	"	

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

Date Sampled: **04/10/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	4.8	1.0	mg/kg	100	1504110	04/10/15	04/10/15	EPA 8260B	
Benzene	0.15	0.0020	"	1	"	"	04/11/15	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	7.2	0.50	"	100	"	"	04/10/15	"	
Xylenes (total)	15	1.0	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2300	50	"	"	"	"	"	"	

Date Sampled: **04/10/15 11:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		91.6 %	23-173		"	"	04/11/15	"	
Surrogate: Toluene-d8		1780 %	20-170		"	"	"	"	S-02
Surrogate: 4-Bromofluorobenzene		1580 %	21-167		"	"	"	"	S-02

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Project: Ursula 2  
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Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**BH11**  
**1504106-05 (Water)**

**Summit Scientific**

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

Date Sampled: **04/10/15 10:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1504123	04/11/15	04/11/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/10/15 10:22**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		106 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		95.6 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	45-146		"	"	"	"	

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Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**BH12**  
**1504106-06 (Water)**

**Summit Scientific**

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

Date Sampled: **04/10/15 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1504123	04/11/15	04/11/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/10/15 11:40**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		98.7 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.0 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		103 %	45-146		"	"	"	"	

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Denver CO, 80203

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**BH13**  
**1504106-07 (Water)**

**Summit Scientific**

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

Date Sampled: **04/10/15 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1504123	04/11/15	04/11/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/10/15 11:30**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		98.1 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		97.1 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		100 %	45-146		"	"	"	"	

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Denver CO, 80203

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**BH14**  
**1504106-08 (Water)**

**Summit Scientific**

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

Date Sampled: **04/10/15 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	1.0	ug/l	1	1504123	04/11/15	04/11/15	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	1.0	"	"	"	"	"	"	

Date Sampled: **04/10/15 12:15**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		103 %	37-154		"	"	"	"	
Surrogate: Toluene-d8		94.4 %	45-149		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	45-146		"	"	"	"	

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1775 Sherman St. STE. 3000  
Denver CO, 80203

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

**Reported:**  
04/12/15 19:55

**Extractable Petroleum Hydrocarbons by 8015 - Quality Control**  
**Summit Scientific**

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

**Batch 1504109 - EPA 3550A**

**Blank (1504109-BLK1)**

Prepared & Analyzed: 04/10/15

C10-C28 (DRO)	ND	50	mg/kg
C28-C36 (ORO)	ND	50	"

Surrogate: o-Terphenyl	15.0	"	12.2	123	70-130
------------------------	------	---	------	-----	--------

**LCS (1504109-BS1)**

Prepared & Analyzed: 04/10/15

C10-C28 (DRO)	493	50	mg/kg	501	98.3	50-150
Surrogate: o-Terphenyl	13.9	"	12.2	114	70-130	

**Matrix Spike (1504109-MS1)**

Source: 1504081-01

Prepared & Analyzed: 04/10/15

C10-C28 (DRO)	519	50	mg/kg	495	11.5	102	50-150
Surrogate: o-Terphenyl	14.0	"	12.1	116	70-130		

**Matrix Spike Dup (1504109-MSD1)**

Source: 1504081-01

Prepared & Analyzed: 04/10/15

C10-C28 (DRO)	486	50	mg/kg	490	11.5	96.8	50-150	6.45	20
Surrogate: o-Terphenyl	13.3	"	11.9	111	70-130				

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1775 Sherman St. STE. 3000  
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Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/12/15 19:55

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

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

**Batch 1504110 - EPA 5030 Soil MS**

**Blank (1504110-BLK1)**

Prepared & Analyzed: 04/10/15

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>0.0372</i>		<i>"</i>	<i>0.0396</i>		<i>93.9</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0382</i>		<i>"</i>	<i>0.0400</i>		<i>95.6</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0368</i>		<i>"</i>	<i>0.0400</i>		<i>92.0</i>	<i>21-167</i>			

**LCS (1504110-BS1)**

Prepared & Analyzed: 04/10/15

Naphthalene	ND	0.010	mg/kg				66-138			
Benzene	0.0935	0.0020	"	0.100		93.5	58-130			
Toluene	0.103	0.0050	"	0.100		103	61-134			
Ethylbenzene	0.107	0.0050	"	0.0992		108	74-139			
m,p-Xylene	0.223	0.010	"	0.200		112	73-137			
o-Xylene	0.115	0.0050	"	0.0984		117	73-141			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0382</i>		<i>"</i>	<i>0.0396</i>		<i>96.6</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>96.9</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0367</i>		<i>"</i>	<i>0.0400</i>		<i>91.6</i>	<i>21-167</i>			

**Matrix Spike (1504110-MS1)**

Source: 1504057-01

Prepared & Analyzed: 04/10/15

Naphthalene	ND	0.010	mg/kg		ND		10-158			
Benzene	0.0951	0.0020	"	0.0977	ND	97.4	30-131			
Toluene	0.102	0.0050	"	0.0977	ND	104	30-134			
Ethylbenzene	0.0970	0.0050	"	0.0969	ND	100	22-153			
m,p-Xylene	0.204	0.010	"	0.195	0.00776	101	10-159			
o-Xylene	0.105	0.0050	"	0.0961	ND	109	31-151			
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0397</i>		<i>"</i>	<i>0.0387</i>		<i>103</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0383</i>		<i>"</i>	<i>0.0391</i>		<i>98.2</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0356</i>		<i>"</i>	<i>0.0391</i>		<i>91.0</i>	<i>21-167</i>			

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

Project: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

Reported:  
04/12/15 19:55

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

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

**Batch 1504110 - EPA 5030 Soil MS**

**Matrix Spike Dup (1504110-MSD1)**

Source: 1504057-01

Prepared & Analyzed: 04/10/15

Naphthalene	ND	0.010	mg/kg		ND		10-158		42	
Benzene	0.0896	0.0020	"	0.0952	ND	94.1	30-131	5.95	34	
Toluene	0.0933	0.0050	"	0.0952	ND	97.9	30-134	8.79	30	
Ethylbenzene	0.0870	0.0050	"	0.0945	ND	92.1	22-153	10.8	24	
m,p-Xylene	0.185	0.010	"	0.190	0.00776	93.2	10-159	9.84	68	
o-Xylene	0.0936	0.0050	"	0.0937	ND	99.9	31-151	11.6	38	
Surrogate: 1,2-Dichloroethane-d4	0.0381		"	0.0377		101	23-173			
Surrogate: Toluene-d8	0.0371		"	0.0381		97.3	20-170			
Surrogate: 4-Bromofluorobenzene	0.0355		"	0.0381		93.1	21-167			

**Batch 1504123 - EPA 5030 Water MS**

**Blank (1504123-BLK1)**

Prepared & Analyzed: 04/11/15

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
Xylenes (total)	ND	1.0	"							
Surrogate: 1,2-Dichloroethane-d4	12.9		"	13.2		97.4	37-154			
Surrogate: Toluene-d8	13.0		"	13.3		97.7	45-149			
Surrogate: 4-Bromofluorobenzene	12.6		"	13.3		94.3	45-146			

**LCS (1504123-BS1)**

Prepared & Analyzed: 04/11/15

Benzene	46.1	1.0	ug/l	50.0		92.2	51-132			
Toluene	47.2	1.0	"	50.0		94.5	51-138			
Ethylbenzene	47.4	1.0	"	50.0		94.9	58-146			
m,p-Xylene	96.8	2.0	"	100		96.8	57-144			
o-Xylene	48.6	1.0	"	50.0		97.1	53-146			
Surrogate: 1,2-Dichloroethane-d4	11.8		"	13.2		89.8	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		98.7	45-149			
Surrogate: 4-Bromofluorobenzene	13.0		"	13.3		97.6	45-146			

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Brunns

Reported:  
04/12/15 19:55

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

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

**Batch 1504123 - EPA 5030 Water MS**

Matrix Spike (1504123-MS1)				Source: 1504047-01		Prepared & Analyzed: 04/11/15				
Benzene	47.2	1.0	ug/l	50.0	ND	94.3	34-141			
Toluene	48.0	1.0	"	50.0	ND	95.9	27-151			
Ethylbenzene	48.7	1.0	"	50.0	ND	97.4	29-160			
m,p-Xylene	99.3	2.0	"	100	ND	99.3	20-166			
o-Xylene	50.1	1.0	"	50.0	ND	100	33-159			
Surrogate: 1,2-Dichloroethane-d4	11.7		"	13.2		88.9	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.2	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.1	45-146			
Matrix Spike Dup (1504123-MSD1)				Source: 1504047-01		Prepared & Analyzed: 04/11/15				
Benzene	48.3	1.0	ug/l	50.0	ND	96.7	34-141	2.47	32	
Toluene	49.6	1.0	"	50.0	ND	99.3	27-151	3.46	25	
Ethylbenzene	49.8	1.0	"	50.0	ND	99.7	29-160	2.29	50	
m,p-Xylene	101	2.0	"	100	ND	101	20-166	1.96	36	
o-Xylene	51.5	1.0	"	50.0	ND	103	33-159	2.72	26	
Surrogate: 1,2-Dichloroethane-d4	11.9		"	13.2		90.5	37-154			
Surrogate: Toluene-d8	13.2		"	13.3		99.0	45-149			
Surrogate: 4-Bromofluorobenzene	13.1		"	13.3		98.3	45-146			

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: Ursula 2  
Project Number: [none]  
Project Manager: Brandon Bruns

**Reported:**  
04/12/15 19:55

### 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.

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.*


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

## **ATTACHMENT B**



# Borehole Logging Form

Boring/Well ID #: <b>BH01</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>	
Date Started: <b>4/6/15</b>		Location: <b>Weld Co</b>			
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:	
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>			
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>			
Drilling Company: <b>Tasman</b>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1			Recovery %	NR			Gravelly sand, road base.
2		Macro Core	75%	0.0		SP	lt brown fine sand. mod dense, dry. little clay, few oxidation streaks
3				0.0			
4				0.0			
5				0.0	BH01c45' 9:20		Sand, as above
6		Macro Core	100%	0.0		SP	
7				0.0			As above, wet
8							
9		NS	0%	NR			
10							
11							TD=10'
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

# Borehole Logging Form

Boring/Well ID #: <b>BH02</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>			
Date Started: <b>4/6/15</b>		Location: <b>Weld Co</b>					
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:			
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>					
Bit Size: <b>2"</b>		Project Manager: <b>Ch</b>					
Drilling Company: <b>Tasman</b>							

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1		Macro Core	Recovery	NR			NR
2			75%	0.0		ML	Brown, Sandy (fine) silt. loose, dry
3			0.0		SP	lt brown, fine sand w/ little clay. dry. med. density	
4			0.0				
5	sand	MC	75%	NR			NR
6			3.3	BH02e5-6'			lt brown, f-m sand, as above
7			1641	10.10	SP	As above, moist, gray stain MC odor wet at 7'	
8		1540					
9		MC	100%	1427			As above, heavy black stain
10				1160		SP	
11			4.9			As above, lt brown, no stain	
12							TD=11'
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

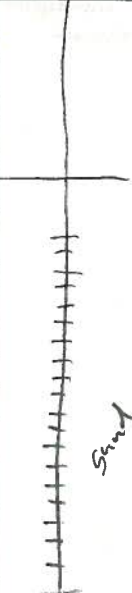
# Borehole Logging Form

Boring/Well ID #: <b>BH03</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>	
Date Started: <b>4/6/15</b>		Location: <b>Weld Co.</b>			
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:	
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>			
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>			
Drilling Company: <b>Tasman</b>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1			<del>Retain</del>	NR			
2		Macro Core	60%	2.0		SPI SM	lt brown, silty fine sand, dry, loose
3				3.6			
4				NR			
5				3.4		SPI SM	As above, med density
6		MC	75%	2.6		SP	lt brown, fine sand w/ little clay, dry, med density
7				2.3			As above, wet
8				0.3		SP	lt brown, fine sand, wet
9			100%	0.0			
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							


# Borehole Logging Form

Boring/Well ID #: <u>B404</u>		SITE NAME: <u>Ursula #2</u>		CLIENT NAME: <u>PDC</u>	
Date Started: <u>4/6/15</u>		Location: <u>Weld Co</u>			
Date Completed: <u>4/6/15</u>		TOC Elevation:		DTW:	
Type of Drill: <u>DPT</u>		Geologist: <u>ES</u>			
Bit Size: <u>2"</u>		Project Manager: <u>CW</u>			
Drilling Company: <u>TASMAN</u>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1		Main Core	Recovery	NR		SM	Brown, silty fine sand, dry, loose
2			75%	0.0			
3			0.0				
4			0.0				
5	ML	75%	NR	NR	B404 5-6' 11:40	SP	As above.
6			0.3				
7			964				
8			1570				
9			335				
10			15.4				
11			3.5			SP	As above, black stain ↓ No stain, slight odor
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							




# Borehole Logging Form

Boring/Well ID #: <b>BH05</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>				
Date Started: <b>4/6/15</b>		Location: <b>Weld Co</b>						
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:				
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>						
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>						
Drilling Company: <b>Tasman</b>								
Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description	
1							No samples	
2								
3								
4								
5								Gray silt, HC odor in saturated soil
6								
7								
8								
9								
10								
11							TD = 10'	
12								
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								



**Borehole Logging Form**

Boring/Well ID #: <b>BH06</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>				
Date Started: <b>4/6/15</b>		Location: <b>Weld Co</b>						
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:				
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>						
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>						
Drilling Company: <b>Tasman</b>								
Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description	
1		Macro Core	Recovery				Brown, fine sand, silty, loose	
2			60%	0.5		SM		
3								
4								
5					NR			No recovery
6		MC	75%	0.0	BH06 6' 12:50	Sp	lt brown, fine sand, dry, med density, no silt/clay	
7				0.0				
8				0.1				As above, wet
9				0.0				
10		MC	100%	0.0		Sp	Wet sand, as above	
11			0.0					
12							TD=11'	
13								
14								
15								
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								

**Borehole Logging Form**

<b>Boring/Well ID #:</b> BH07		<b>SITE NAME:</b> Ursula #2		<b>CLIENT NAME:</b> PDC	
<b>Date Started:</b> 4/6/15		<b>Location:</b> Weld Co.			
<b>Date Completed:</b> 4/6/15		<b>TOC Elevation:</b>		<b>DTW:</b>	
<b>Type of Drill:</b> DPT		<b>Geologist:</b> EB			
<b>Bit Size:</b> 2"		<b>Project Manager:</b> CW			
<b>Drilling Company:</b> Tasman					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1			Recovery	NR			
2		Mud Core	60%	50.8		SP	Brown, fine sand w/ clay, dry, low plastic, med density
3							
4				990		SP	As above, gray stain + HC odor
5				NR			
6	Sand	MC	75%	1442	BH0705-6' 13-25	SP	As above, strong HC odor
7				1085			
8				1174		SP	Wet, dk gray/black stain, odor
9		MC	0%				No recovery, wet sand
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

**Borehole Logging Form**

Boring/Well ID #: <b>BH08</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>	
Date Started: <b>4/6/15</b>		Location: <b>Weld Co</b>			
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW:	
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>			
Bit Size: <b>2"</b>		Project Manager: <b>CHR</b>			
Drilling Company: <b>Tasman</b>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1	Sand		Recovery	NR			
2		Macro Core	75%	4.9		SC	Brown, clayey fine sand, dry, med density, low plasticity
3				5.7			
4				8.4		SP	lt brown, fine sand w/ little clay, dry, med density, non plastic
5				NR			
6		MC	70%	6.1	BH08e5-6 13:58		As above
7				0.3			As above, wet
8				1.0			Little gray stain
9							
10		MC	0%	NR			NO Recovery, wet sand
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

# Borehole Logging Form

Boring/Well ID #: <b>BH09</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>			
Date Started: <b>4/6/15</b>		Location: <b>Weld Co.</b>					
Date Completed: <b>4/6/15</b>		TOC Elevation:		DTW: <b>6'</b>			
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>					
Bit Size: <b>2"</b>		Project Manager: <b>CH</b>					
Drilling Company: <b>Tasman</b>							

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1		Macro Core	Recovery	NR			
2			25%	1.7		SL	Brown clayey f-m sand, dry, med density, low plast., roots
3				1.9			
4				0.9	SP	lt brown, f-m sand w/ little clay, dry, med density	
5	Sand	MC	25%	NR			
6				2.5	BH09e5-6' 14:25	SP	lt brown, f-m sand as above
7				13.8			
8				49.1	SP	f-m sand, wet, slight gray stain	
9							
10			0%	NR			wet sand
11							
12							TD = 11'
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



**Borehole Logging Form**

Boring/Well ID #: <u>BH10</u>		SITE NAME: <u>Ursula #2</u>		CLIENT NAME: <u>PDC</u>	
Date Started: <u>4/6/15</u>		Location: <u>Weld Co</u>			
Date Completed: <u>4/6/15</u>		TOC Elevation:		DTW:	
Type of Drill: <u>DPT</u>		Geologist: <u>ES</u>			
Bit Size: <u>2"</u>		Project Manager: <u>CW</u>			
Drilling Company: <u>Tasman</u>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1	sand	Macro Core	Recovery	NR			
2			75%	0.7		SC	Brown, clayey fine sand, dense med density, oxidation, low pest.
3			0.1				
4			0.0		SP	lt brown, fine sand, dry med density	
5	sand	MC	100%	1.9		SP	As above, brown
6			209	BH10E5-6' 14:50		As above, gray + black stain, HC odor	
7			1464			Wet, gray stain, HC odor	
8			1048		SP		
9	sand	MC	0%	NR		SP	Wet sand, HC stain/odor
10							
11							
12							TD = 11'
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							




**Borehole Logging Form**

Boring/Well ID #: <b>BH11</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>	
Date Started: <b>4/10/15</b>		Location: <b>Weld Co.</b>			
Date Completed: <b>4/10/15</b>		TOC Elevation:		DTW:	
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>			
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>			
Drilling Company: <b>Tasman</b>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1	sand	Macro Core	Recovery	NR			
2			75%	0.1		SP	lt brn. f-m sand, dry,
3			0.2				
4			0.3	BH11 23-4' 9:45		Moist at 4'	
5	sand	MC	75%	NR			
6			0.1		SP	lt brn. f-m sand, wet,	
7			0.4				
8			0.5				
9			0.5		SP	As above	
10	MC	100%	0.6				
11			0.5				
12						TD = 11'	
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

# Borehole Logging Form

Boring/Well ID #: <b>BH12</b>		SITE NAME: <b>Urda #2</b>		CLIENT NAME: <b>PDC</b>			
Date Started: <b>4/10/15</b>		Location: <b>Urda Co.</b>					
Date Completed: <b>4/10/15</b>		TOC Elevation:		DTW:			
Type of Drill: <b>DPT</b>		Geologist: <b>EB</b>					
Bit Size: <b>2"</b>		Project Manager: <b>AW</b>					
Drilling Company: <b>Tasman</b>							


Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1		Macro core	Recovery	NR			
2			60%	0.4		SP	Dk brown, fine sand w/ clay dry, med density
3							
4			0.5				As above, brown
5		MC	50%	NR			
6				0.6	BH1206-7 10:30	SP	lt brown, fine sand, dry, med density
7				0.7			Wet at 7'
8				0.7			
9				100%	0.8		
10							
11							TD = 10'
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



## Borehole Logging Form

Boring/Well ID #: <b>BH13</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>			
Date Started: <b>4/10/15</b>		Location: <b>Weld Co</b>					
Date Completed: <b>4/10/15</b>		TOC Elevation:		DTW:			
Type of Drill: <b>DPT</b>		Geologist: <b>EB</b>					
Bit Size: <b>2"</b>		Project Manager: <b>OW</b>					
Drilling Company: <b>Tasman</b>							
Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1							<b>No Samples</b>
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							<b>TD = 10</b>
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							

# Borehole Logging Form

Boring/Well ID #: <b>BH14</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>			
Date Started: <b>4/10/15</b>		Location: <b>Weld Co.</b>					
Date Completed: <b>4/10/15</b>		TOC Elevation:		DTW:			
Type of Drill: <b>DPT</b>		Geologist: <b>ES</b>					
Bit Size: <b>2"</b>		Project Manager: <b>CLW</b>					
Drilling Company: <b>Tasman</b>							
Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1							<b>No Samples</b>
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							<b>TD = 10'</b>
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							



# Borehole Logging Form

Boring/Well ID #: <b>S801</b>		SITE NAME: <b>Ursula #2</b>		CLIENT NAME: <b>PDC</b>	
Date Started: <b>4/10/15</b>		Location: <b>Weld Co.</b>			
Date Completed: <b>4/10/15</b>		TOC Elevation:		DTW:	
Type of Drill: <b>Hand Auger</b>		Geologist: <b>ES</b>			
Bit Size: <b>2"</b>		Project Manager: <b>CW</b>			
Drilling Company: <b>Tasman</b>					

Depth (feet)	Well Completion	Sample Type	Blows (per 6 in.)	PID (ppm)	Laboratory Sample	USCS	Description
1				945			Brown, gravelly red base.
2				1550	S801c 2' 11:10		Gray stained, fine sand, dry, med density, HC odor
3				1318			
4				1225			
5				1295	S801c 5' 11:15		
6							TD = 5'
7							
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