

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

#7431

RECEIVED
8/3/2012

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: 2224261

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

GENERAL INFORMATION

OGCC Operator Number: 69175	Contact Name and Telephone
Name of Operator: Petroleum Development Corporation	Name: Brandon Bruns
Address: 1775 Sherman Street, Suite 3000	No: (303) 860-5800
City: Denver State: CO Zip: 80203	Fax: (303) 860-5838
API/Facility No: 05-123-20040	County: Weld
Facility Name: Capehart 1, 31, 42-29	Facility Number: 05-123-20040
Well Name: Capehart 1, 31, 42-29	Well Number: Capehart 1, 31, 42-29
Location (QtrQtr, Sec, Twp, Rng, Meridian): SWNE 29 T6N R64W 6th PM	Latitude: 40.45824 Longitude: -104.57311

TECHNICAL CONDITIONS

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

Site Conditions: Is location within a sensitive area (according to Rule 901e)? Y N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): _____ Oil and gas production, livestock grazing, and cultivated

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Silt/Sand

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Surface water area is located approximately 25 feet east of the Tank Battery.

Depth to shallowest groundwater is approximately 5 ft bgs.

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
<input checked="" type="checkbox"/> Soils	Form 19 submitted on April 25, 2012	Excavation and soil sampling
<input type="checkbox"/> Vegetation	_____	_____
<input checked="" type="checkbox"/> Groundwater	Form 19 submitted on April 25, 2012	Groundwater sampling
<input type="checkbox"/> Surface water	_____	_____

REMEDIATION WORKPLAN

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

A Form 19 was submitted on April 25, 2012, COGCC assigned Spill Tracking #2224261 to the incident. An aerial map of the site is included on Figure 1.

Describe how source is to be removed:

The source area was previously excavated and impacted material was transported and disposed of as described in the Form 19 submitted on April 25, 2012.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

PDC plans to perform enhanced fluid recovery (EFR) and/or air sparging at the site well locations to address residual hydrocarbon impacts in groundwater. The well locations are illustrated on Figure 2. Additionally, PDC will conduct groundwater sampling activities at the well locations to assess dissolved phase petroleum hydrocarbon concentrations. Subsequent to four quarters of groundwater monitoring, should groundwater samples indicate that hydrocarbon impacts degrade to below the COGCC Table 910-1 limits, PDC will submit a request for Site closure. If groundwater concentrations remain above COGCC standards, additional remediation options may be evaluated.

State of Colorado Oil and Gas Conservation Commission

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



Tracking Number: 2224261
Name of Operator: Petroleum Development Corporation
OGCC Operator No: 69175
Received Date:
Well Name & No: Capehart 1, 31, 42-29
Facility Name & No.: Capehart 1, 31, 42-29

OGCC Employee

REMEDIATION WORKPLAN (CONT.)

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):
Groundwater was impacted at the site. As described in the April 25, 2012 Form 19, two extraction locations were installed at the base of the excavation prior to backfilling the excavated area. However, PDC proposes to install two vertical temporary monitoring wells within the extents of the excavation for groundwater sampling purposes. Groundwater will be sampled quarterly for BTEX and Napthalene using USEPA Method 8260B.

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 area where the excavation is located is used as an equipment access area to the tank battery location and consists of road base. The excavation has been backfilled and compacted with clean material and the ground surface was 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 [x] N If yes, describe:
No further Site investigation is required at this time. The excavation extents, test pit locations, soil sample and groundwater sample locations, and the extraction well locations are illustrated on Figure 2. Groundwater analytical results are summarized in Table 1 and soil analytical results are summarized in Table 2.

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):
Waste was disposed of at the Waste Management Facility in Ault, CO.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 3/12/2012 Date Site Investigation Completed: 3/16/2012 Remediation Plan Submitted:
Remediation Start Date: 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: Brandon Bruns

Signed: [Signature] Title: EHS Professional Date: 8/3/12

OGCC Approved: ACE for John Axelsson Title: EPS NE Region Date: 8/8/12

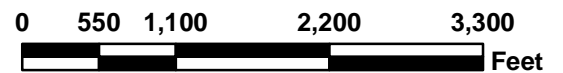
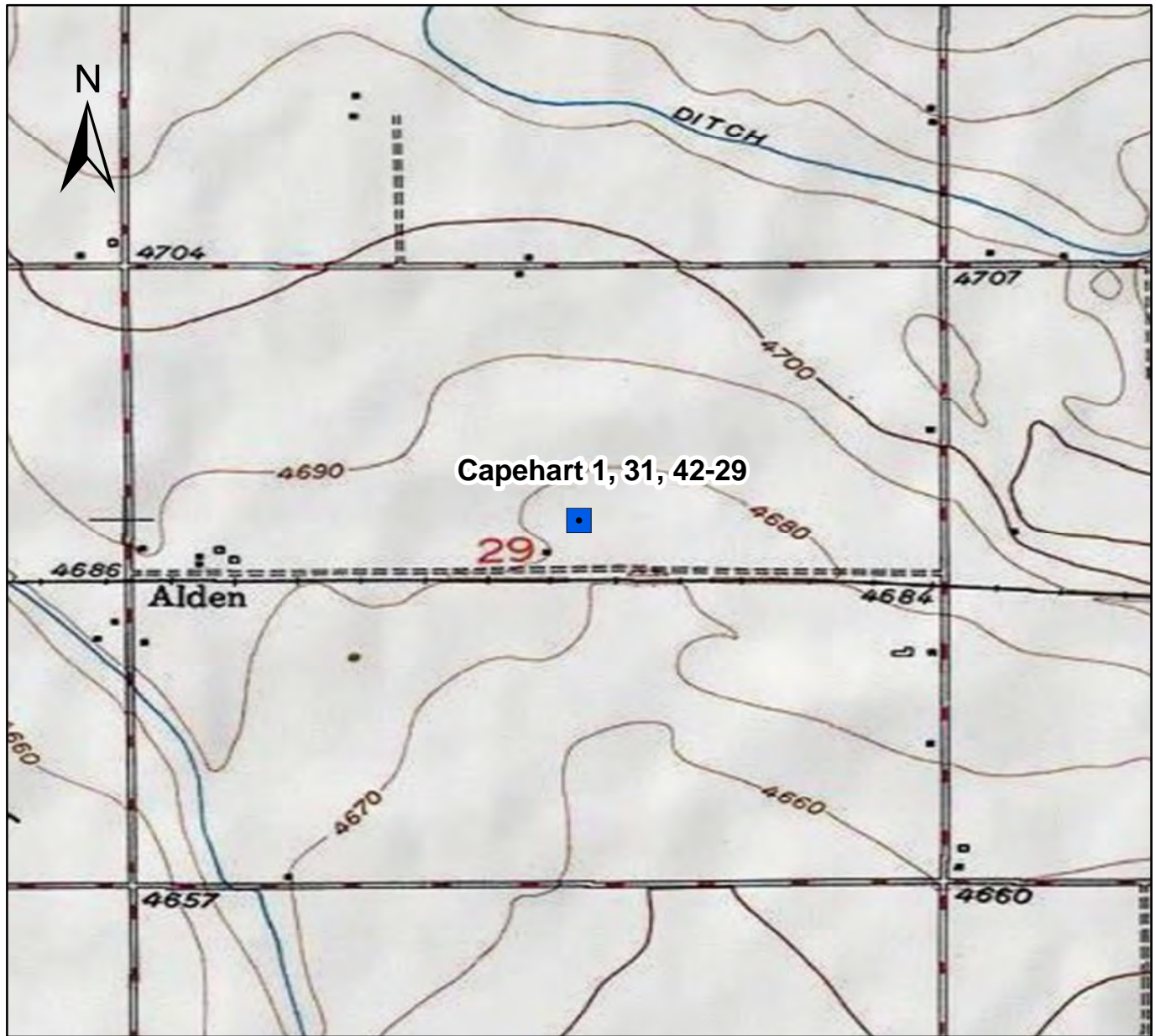


Figure 1

Site Location Map
 Capehart 1, 31, 42-29
 SWNE S29 T6N R64W
 Weld County, Colorado

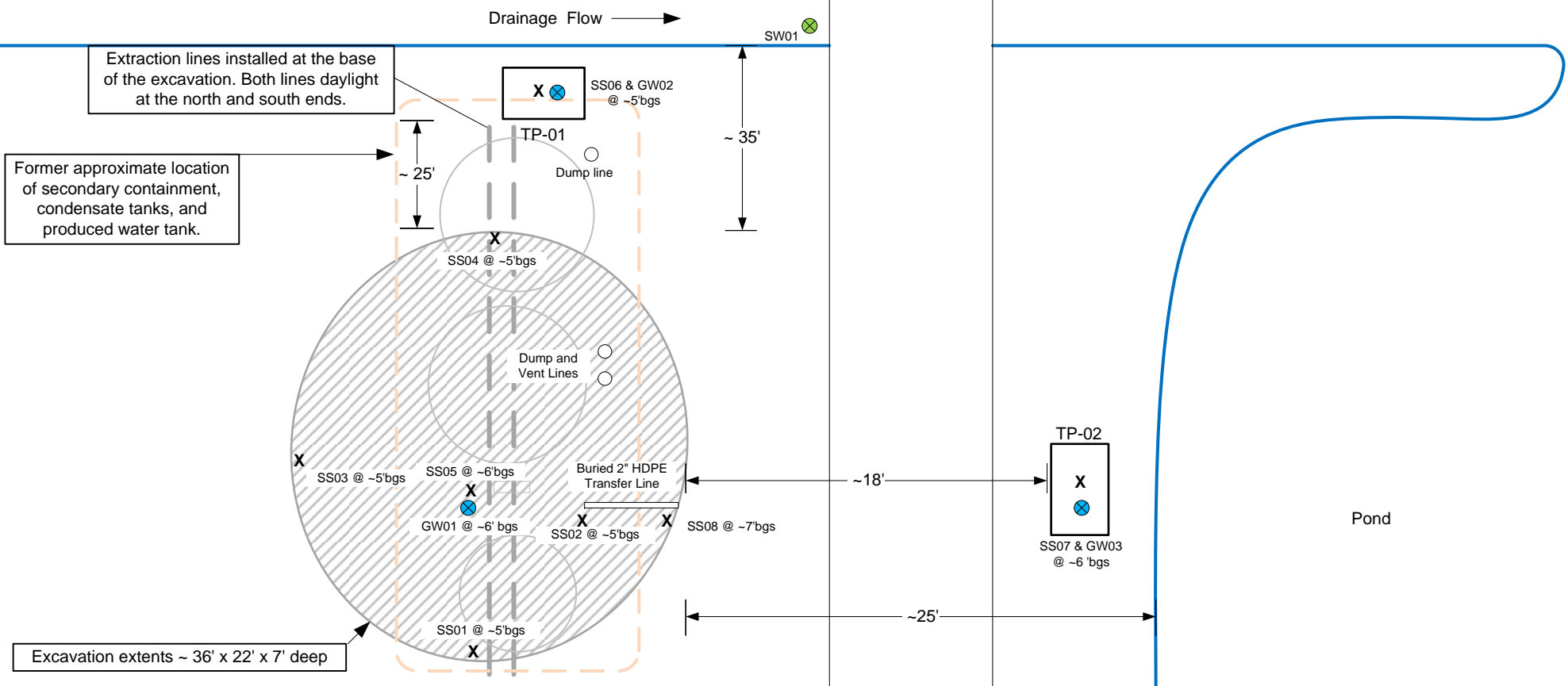
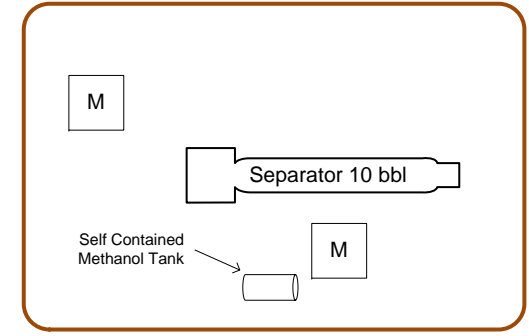
Drawn By: CAW
 Date: 03/15/2012





Surface
Drainage

Access Road



DRAWN BY: BDH

DATE: 03/16/2012

Facility Diagram
 PDC Energy – DJ Basin
 Capehart 1, 31, 42-29
 SWNE S29 T6N R64W
 Weld County, CO



5690 Webster Street
 Arvada, CO 80002
 (720) 988-2024

LEGEND	
	Earthen Berm
	Former secondary containment location
	Approximate extent of excavation
	Meter Shed
	Soil Sample Location
	Groundwater Sample Location
	Surface Water Sample Location

FIGURE 2
 Not to Scale

TABLE 1
CAPEHART 1, 31, 42-29
GROUNDWATER ANALYTICAL RESULTS

Sample ID	Date Sampled	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzne (ug/L)	Total Xylenes (ug/L)
SW01	3/16/2012	ND	ND	ND	ND
GW01	3/13/2012	100	280	16	175
GW02	3/14/2012	12	14	ND	5
GW03	3/14/2012	ND	ND	ND	ND
COGCC standards for Groundwater (ug/L) ⁽¹⁾		5	560	700	1,400

Notes:

1). The environmental cleanup standards for groundwater that are applicable to this site are the Colorado Oil and Gas Conservation Commission (COGCC) standards for contaminants in groundwater according to Table 910-1 of the COGCC 900 Series Rule for E&P Waste Management.

Bold red values indicate an exceedance of the COGCC soil standards for the Site.

Sample locations are shown on Figure 2.

ug/L= Micrograms per liter. ND = Not detected

TABLE 2
Capehart 1, 31, 42-29
SOIL ANALYTICAL RESULTS TABLE

Sample ID	Date Sampled	PID Readings (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzne (mg/kg)	Total Xylenes (mg/kg)	Napthalene (mg/kg)	TPH ⁽²⁾ (mg/kg)
SS01	3/12/2012	0.0	0.037	0.15	0.01	0.107	ND	0.94
SS02	3/12/2012	1,050	5.8	21	3.9	31.3	0.46	1130
SS03	3/12/2012	0	ND	ND	ND	ND	ND	ND
SS04	3/12/2012	0	ND	0.013	ND	0.0279	0.033	2.2
SS05	3/12/2012	0	ND	0.0058	ND	ND	ND	0.63
SS06	3/12/2012	0	ND	ND	ND	ND	ND	ND
SS07	3/12/2012	0	ND	ND	ND	ND	ND	ND
SS08	3/12/2012	0	ND	ND	ND	ND	ND	ND
COGCC standards for Soil (mg/kg) ⁽¹⁾			0.17	85	100	175	23	500

Notes:

1). Standards for Soil are taken from 2 CCR 404-1, Table 910-1, effective April 1, 2009.

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

GRO - Gasoline range organics.

mg/kg= Milligrams per kilogram.

ND = Not detected

ppm - Parts per million

Bold red values indicate an exceedance of the COGCC soil standards for the Site.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 15, 2012

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Cape Hart 1,31,42-29

Enclosed are the results of analyses for samples received by Summit Scientific on 03/14/12 11:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Director



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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/15/12 07:30

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01	R203093-01	Soil	03/14/12 08:25	03/14/12 11:30
SS02	R203093-02	Soil	03/14/12 08:35	03/14/12 11:30
SS03	R203093-03	Soil	03/14/12 08:49	03/14/12 11:30
SS04	R203093-04	Soil	03/14/12 08:55	03/14/12 11:30
SS05	R203093-05	Soil	03/14/12 09:00	03/14/12 11:30
SS06	R203093-06	Soil	03/14/12 09:10	03/14/12 11:30
SS07	R203093-07	Soil	03/14/12 09:15	03/14/12 11:30
GW02	R203093-08	Water	03/14/12 09:30	03/14/12 11:30
GW03	R203093-09	Water	03/14/12 09:40	03/14/12 11:30

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: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/15/12 07:30

1303093

Summit Scientific

S:

711 Corporate Circle Suite 1 Golden, Colorado 80401
303-277-9310 • 303-277-9531 Fax

Client: PDC Energy
Address: 1775 Sherman St. Suite 3000
City/State/Zip: Denver, CO 80203
Phone: (303) 900-5800
Project Manager: Brandon Bruns
E-Mail: bbruns@pdc.com
Project Name: Cape Hart 1,31,42-29
Project Number: [blank]

Page 1 of 1

Sample Description	Date Sampled	Time Sampled	Number of Containers	Preservative				Matrix				Analyze For:	Special Instructions	
				HCl	HNO ₃	None	Other (Specify)	Air - Canister Serial #	Soil	Groundwater	Other (Specify)			
5501	3/14/12	0825	1	X	X	X		X						
5502		0835	1											
5503		0849												
5504		0855												
5505		0900												
5506		0910												
5507		0915												
6002		0920	3	X	X	X		X						
6003		0940	3	X	X	X		X						

Retransmitted by: [Signature]	Date Time: 3/14/12-130	Received by: [Signature]	Date Time: 3/14/12-130
Retransmitted by:	Date Time:	Received by:	Date Time:
Retransmitted by:	Date Time:	Received in Lab by:	Date Time:

Turn Around Time (Check)	72 Hours	Standard
Sample Integrity	Temperature	Open Receipt
	Yes	No
		5

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

SS01
R203093-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: 03/14/12 08:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: 03/14/12 08:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.2 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: 03/14/12 08:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	0.037	0.0050	"	"	"	"	"	"	
Toluene	0.15	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.010	0.0050	"	"	"	"	"	"	
m,p-Xylene	0.080	0.010	"	"	"	"	"	"	
o-Xylene	0.027	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.94	0.50	"	"	"	"	"	"	

Date Sampled: 03/14/12 08:25

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		90.5 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		112 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		106 %	78.4-125		"	"	"	"	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/15/12 07:30

SS02
R203093-02 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	270	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: o-Terphenyl</i>		98.5 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.46	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	5.8	0.050	"	10	"	"	"	"	
Toluene	21	0.050	"	"	"	"	"	"	E
Ethylbenzene	3.9	0.050	"	"	"	"	"	"	
m,p-Xylene	22	0.10	"	"	"	"	"	"	E
o-Xylene	9.3	0.050	"	"	"	"	"	"	E
Gasoline Range Hydrocarbons	860	5.0	"	"	"	"	"	"	E

Date Sampled: **03/14/12 08:35**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		100 %	67.4-143		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		107 %	77.3-114		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		103 %	78.4-125		"	"	"	"	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

SS03
R203093-03 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 08:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 08:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		97.9 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 08:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/14/12 08:49**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		132 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		106 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	78.4-125		"	"	"	"	

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/15/12 07:30

SS04
R203093-04 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.9 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	0.033	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	0.013	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	0.021	0.010	"	"	"	"	"	"	
o-Xylene	0.0069	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	2.2	0.50	"	"	"	"	"	"	

Date Sampled: **03/14/12 08:55**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		109 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		99.2 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		102 %	78.4-125		"	"	"	"	

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/15/12 07:30

SS05
R203093-05 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		99.1 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	0.0058	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	0.63	0.50	"	"	"	"	"	"	

Date Sampled: **03/14/12 09:00**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		127 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		106 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	78.4-125		"	"	"	"	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

SS06
R203093-06 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		100 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/14/12 09:10**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		131 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		104 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	78.4-125		"	"	"	"	

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: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

SS07
R203093-07 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/14/12 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031405	03/14/12	03/14/12	8015 Full Carbon Chain	

Date Sampled: **03/14/12 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		102 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031404	03/14/12	03/15/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
o-Xylene	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/14/12 09:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		142 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		113 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		108 %	78.4-125		"	"	"	"	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/15/12 07:30

GW02
R203093-08 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	12	1.0	ug/l	1	2031407	03/14/12	03/15/12	EPA 8260B	
Toluene	14	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
m,p-Xylene	3.6	2.0	"	"	"	"	"	"	
o-Xylene	1.6	1.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/14/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		116 %	57.9-139		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		99.8 %	83.1-115		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		100 %	80.8-120		"	"	"	"	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/15/12 07:30

GW03
R203093-09 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/14/12 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	2031407	03/14/12	03/15/12	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
m,p-Xylene	ND	2.0	"	"	"	"	"	"	
o-Xylene	ND	1.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/14/12 09:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		116 %	57.9-139		"	"	"	"	
Surrogate: Toluene-d8		103 %	83.1-115		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		99.9 %	80.8-120		"	"	"	"	

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: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/15/12 07:30

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 2031405 - EPA 3550A

Blank (2031405-BLK1)				Prepared: 03/14/12 Analyzed: 03/15/12							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	<i>13.0</i>		<i>"</i>	<i>12.5</i>		<i>104</i>	<i>80-124</i>				
LCS (2031405-BS1)				Prepared: 03/14/12 Analyzed: 03/15/12							
C10-C28 (DRO)	520	50	mg/kg	501		104	81.4-129			9.26	
LCS Dup (2031405-BSD1)				Prepared: 03/14/12 Analyzed: 03/15/12							
C10-C28 (DRO)	565	50	mg/kg	501		113	81.4-129	8.35		9.26	
Matrix Spike (2031405-MS1)				Source: R203093-01 Prepared: 03/14/12 Analyzed: 03/15/12							
C10-C28 (DRO)	536	50	mg/kg	501	15.0	104	77.8-133			8.48	
Matrix Spike Dup (2031405-MSD1)				Source: R203093-01 Prepared: 03/14/12 Analyzed: 03/15/12							
C10-C28 (DRO)	513	50	mg/kg	501	15.0	99.4	77.8-133	4.32		8.48	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

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 2031404 - EPA 5030 Soil MS

Blank (2031404-BLK1)

Prepared: 03/14/12 Analyzed: 03/15/12

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
m,p-Xylene	ND	0.010	"							
o-Xylene	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0416</i>		<i>"</i>	<i>0.0397</i>		<i>105</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0409</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0401</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>78.4-125</i>			

LCS (2031404-BS1)

Prepared: 03/14/12 Analyzed: 03/15/12

Naphthalene	ND	0.0050	mg/kg				67.8-151		20	
Benzene	0.0815	0.0050	"	0.100		81.5	61-139	4.46	11.1	
Toluene	0.0976	0.0050	"	0.100		97.6	64-132	2.58	10.9	
Ethylbenzene	0.102	0.0050	"	0.100		102	68.7-135	12.3	20	
m,p-Xylene	0.206	0.010	"	0.200		103	70.4-129	11.6	20	
o-Xylene	0.0988	0.0050	"	0.100		98.8	66.9-126	11.4	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0342</i>		<i>"</i>	<i>0.0397</i>		<i>86.2</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0395</i>		<i>"</i>	<i>0.0400</i>		<i>98.8</i>	<i>78.4-125</i>			

LCS Dup (2031404-BSD1)

Prepared: 03/14/12 Analyzed: 03/15/12

Naphthalene	ND	0.0050	mg/kg				67.8-151		20	
Benzene	0.0853	0.0050	"	0.100		85.3	61-139	4.46	11.1	
Toluene	0.0951	0.0050	"	0.100		95.1	64-132	2.58	10.9	
Ethylbenzene	0.0905	0.0050	"	0.100		90.5	68.7-135	12.3	20	
m,p-Xylene	0.184	0.010	"	0.200		91.8	70.4-129	11.6	20	
o-Xylene	0.0882	0.0050	"	0.100		88.2	66.9-126	11.4	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0410</i>		<i>"</i>	<i>0.0397</i>		<i>103</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0445</i>		<i>"</i>	<i>0.0400</i>		<i>111</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>100</i>	<i>78.4-125</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

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 2031404 - EPA 5030 Soil MS

Matrix Spike (2031404-MS1)	Source: R203093-01			Prepared: 03/14/12		Analyzed: 03/15/12				
Naphthalene	ND	0.0050	mg/kg		0.00		26.4-144		20	
Benzene	0.113	0.0050	"	0.100	0.0374	76.0	42.9-137		17.9	
Toluene	0.158	0.0050	"	0.100	0.146	12.7	42.6-130		11.9	QM-07
Ethylbenzene	0.103	0.0050	"	0.100	0.0100	93.2	39-133		20	
m,p-Xylene	0.236	0.010	"	0.200	0.0798	77.9	34.7-134		20	
o-Xylene	0.114	0.0050	"	0.100	0.0274	86.5	41.3-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0449</i>		<i>"</i>	<i>0.0397</i>		<i>113</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0399</i>		<i>"</i>	<i>0.0400</i>		<i>99.8</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0400</i>		<i>"</i>	<i>0.0400</i>		<i>99.9</i>	<i>78.4-125</i>			

Matrix Spike Dup (2031404-MSD1)	Source: R203093-01			Prepared: 03/14/12		Analyzed: 03/15/12				
Naphthalene	ND	0.0050	mg/kg		0.00		26.4-144		20	
Benzene	0.124	0.0050	"	0.100	0.0374	86.5	42.9-137	8.90	17.9	
Toluene	0.220	0.0050	"	0.100	0.146	74.4	42.6-130	32.6	11.9	QM-07
Ethylbenzene	0.0980	0.0050	"	0.100	0.0100	88.0	39-133	5.22	20	
m,p-Xylene	0.251	0.010	"	0.200	0.0798	85.4	34.7-134	6.18	20	
o-Xylene	0.113	0.0050	"	0.100	0.0274	85.6	41.3-126	0.820	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0438</i>		<i>"</i>	<i>0.0397</i>		<i>110</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.6</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0397</i>		<i>"</i>	<i>0.0400</i>		<i>99.2</i>	<i>78.4-125</i>			

Batch 2031407 - EPA 5030 Water MS

Blank (2031407-BLK1)				Prepared: 03/14/12		Analyzed: 03/15/12				
Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
m,p-Xylene	ND	2.0	"							
o-Xylene	ND	1.0	"							
Naphthalene	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.7</i>		<i>"</i>	<i>13.2</i>		<i>119</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>13.4</i>		<i>"</i>	<i>13.3</i>		<i>101</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>80.8-120</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

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 2031407 - EPA 5030 Water MS

LCS (2031407-BS1)

Prepared: 03/14/12 Analyzed: 03/15/12

Benzene	23.9	1.0	ug/l	33.3		71.6	60.1-131		10.9	
Toluene	24.4	1.0	"	33.3		73.2	65.9-127		11.3	
Ethylbenzene	22.8	1.0	"	33.3		68.3	65.1-129		20	
m,p-Xylene	47.4	2.0	"	66.7		71.1	66.8-127		20	
o-Xylene	24.6	1.0	"	33.3		73.9	61.2-120		20	
Naphthalene	ND	1.0	"				85-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.5</i>		<i>"</i>	<i>13.2</i>		<i>117</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>15.0</i>		<i>"</i>	<i>13.3</i>		<i>112</i>	<i>80.8-120</i>			

LCS Dup (2031407-BSD1)

Prepared: 03/14/12 Analyzed: 03/15/12

Benzene	24.3	1.0	ug/l	33.3		73.0	60.1-131	1.91	10.9	
Toluene	25.0	1.0	"	33.3		74.9	65.9-127	2.27	11.3	
Ethylbenzene	24.6	1.0	"	33.3		73.7	65.1-129	7.48	20	
m,p-Xylene	50.8	2.0	"	66.7		76.1	66.8-127	6.82	20	
o-Xylene	26.5	1.0	"	33.3		79.6	61.2-120	7.43	20	
Naphthalene	ND	1.0	"				85-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.0</i>		<i>"</i>	<i>13.2</i>		<i>113</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>14.1</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.5</i>		<i>"</i>	<i>13.3</i>		<i>109</i>	<i>80.8-120</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/15/12 07:30

Notes and Definitions

- QM-07 The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS/LCSD recovery.
- 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

March 14, 2012

Brian Humphrey
Tasman Geosciences
5690 Webster Street
Arvada, CO 80002

RE: PDC - Cape Hart 1,31,42-29

Enclosed are the results of analyses for samples received by Summit Scientific on 03/13/12 18:30. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Director



Tasman Geosciences
5690 Webster Street
Arvada CO, 80002

Project: PDC - Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
03/14/12 07:29

GW01
R203089-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/13/12 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	100	1.0	ug/l	1	2031308	03/13/12	03/14/12	EPA 8260B	
Toluene	280	1.0	"	"	"	"	"	"	
Ethylbenzene	16	1.0	"	"	"	"	"	"	
m,p-Xylene	120	2.0	"	"	"	"	"	"	
o-Xylene	55	1.0	"	"	"	"	"	"	
Naphthalene	7.8	1.0	"	"	"	"	"	"	

Date Sampled: **03/13/12 16:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		122 %	57.9-139		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		106 %	83.1-115		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		101 %	80.8-120		"	"	"	"	

Summit Scientific

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Tasman Geosciences
5690 Webster Street
Arvada CO, 80002

Project: PDC - Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
03/14/12 07:29

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch 2031308 - EPA 5030 Water MS

Blank (2031308-BLK1)

Prepared: 03/13/12 Analyzed: 03/14/12

Benzene	ND	1.0	ug/l								
Toluene	ND	1.0	"								
Ethylbenzene	ND	1.0	"								
m,p-Xylene	ND	2.0	"								
o-Xylene	ND	1.0	"								
Naphthalene	ND	1.0	"								
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>14.5</i>		<i>"</i>	<i>13.2</i>		<i>109</i>	<i>57.9-139</i>				
<i>Surrogate: Toluene-d8</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>		<i>104</i>	<i>83.1-115</i>				
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>12.6</i>		<i>"</i>	<i>13.3</i>		<i>94.8</i>	<i>80.8-120</i>				

LCS (2031308-BS1)

Prepared: 03/13/12 Analyzed: 03/14/12

Benzene	26.3	1.0	ug/l	33.3	78.8	60.1-131		10.9
Toluene	28.8	1.0	"	33.3	86.3	65.9-127		11.3
Ethylbenzene	24.6	1.0	"	33.3	73.9	65.1-129		20
m,p-Xylene	52.4	2.0	"	66.7	78.6	66.8-127		20
o-Xylene	27.1	1.0	"	33.3	81.3	61.2-120		20
Naphthalene	ND	1.0	"			85-126		20
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.5</i>		<i>"</i>	<i>13.2</i>	<i>117</i>	<i>57.9-139</i>		
<i>Surrogate: Toluene-d8</i>	<i>13.8</i>		<i>"</i>	<i>13.3</i>	<i>103</i>	<i>83.1-115</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.0</i>		<i>"</i>	<i>13.3</i>	<i>105</i>	<i>80.8-120</i>		

LCS Dup (2031308-BSD1)

Prepared: 03/13/12 Analyzed: 03/14/12

Benzene	26.8	1.0	ug/l	33.3	80.6	60.1-131	2.18	10.9
Toluene	29.0	1.0	"	33.3	87.1	65.9-127	0.865	11.3
Ethylbenzene	25.7	1.0	"	33.3	77.2	65.1-129	4.41	20
m,p-Xylene	55.0	2.0	"	66.7	82.5	66.8-127	4.84	20
o-Xylene	28.6	1.0	"	33.3	85.8	61.2-120	5.42	20
Naphthalene	ND	1.0	"			85-126		20
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>15.9</i>		<i>"</i>	<i>13.2</i>	<i>120</i>	<i>57.9-139</i>		
<i>Surrogate: Toluene-d8</i>	<i>14.6</i>		<i>"</i>	<i>13.3</i>	<i>109</i>	<i>83.1-115</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.4</i>		<i>"</i>	<i>13.3</i>	<i>108</i>	<i>80.8-120</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.



Tasman Geosciences
5690 Webster Street
Arvada CO, 80002

Project: PDC - Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brian Humphrey

Reported:
03/14/12 07:29

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.

Summit Scientific

741 Corporate Circle – Suite I ♦ Golden, Colorado 80401

303.277.9310 - laboratory ♦ 303.277.9531 - fax

March 17, 2012

Brandon Bruns
PDC Energy
1775 Sherman St. STE. 3000
Denver, CO 80203
RE: Cape Hart 1,31,42-29

Enclosed are the results of analyses for samples received by Summit Scientific on 03/16/12 15:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Paul Shrewsbury For Ben Shrewsbury
President / Laboratory Director



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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/17/12 23:12

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS08	R203121-01	Soil	03/16/12 09:30	03/16/12 15:00
SW01	R203121-02	Water	03/16/12 09:45	03/16/12 15:00

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: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/17/12 23:12

SS08
R203121-01 (Soil)

Summit Scientific

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **03/16/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	2031609	03/16/12	03/17/12	8015 Full Carbon Chain	

Date Sampled: **03/16/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: <i>o</i> -Terphenyl		98.8 %	80-124		"	"	"	"	

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/16/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Naphthalene	ND	0.0050	mg/kg	1	2031608	03/16/12	03/17/12	EPA 8260B	
Benzene	ND	0.0050	"	"	"	"	"	"	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
m,p-Xylene	ND	0.010	"	"	"	"	"	"	
<i>o</i> -Xylene	ND	0.0050	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **03/16/12 09:30**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		124 %	67.4-143		"	"	"	"	
Surrogate: Toluene-d8		80.4 %	77.3-114		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		107 %	78.4-125		"	"	"	"	

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/17/12 23:12

SW01
R203121-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/16/12 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	2031606	03/16/12	03/17/12	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
m,p-Xylene	ND	2.0	"	"	"	"	"	"	
o-Xylene	ND	1.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/16/12 09:45**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		137 %	57.9-139		"	"	"	"	
Surrogate: Toluene-d8		105 %	83.1-115		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		101 %	80.8-120		"	"	"	"	

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: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/17/12 23:12

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 2031609 - EPA 3550A

Blank (2031609-BLK1)				Prepared & Analyzed: 03/16/12							
C10-C28 (DRO)	ND	50	mg/kg								
<i>Surrogate: o-Terphenyl</i>	12.2		"	12.5		97.3	80-124				
LCS (2031609-BS1)				Prepared & Analyzed: 03/16/12							
C10-C28 (DRO)	520	50	mg/kg	501		104	81.4-129			9.26	
LCS Dup (2031609-BSD1)				Prepared: 03/16/12 Analyzed: 03/17/12							
C10-C28 (DRO)	513	50	mg/kg	501		102	81.4-129	1.47		9.26	
Matrix Spike (2031609-MS1)				Source: R203126-01 Prepared: 03/16/12 Analyzed: 03/17/12							
C10-C28 (DRO)	552	50	mg/kg	501	17.6	107	77.8-133			8.48	
Matrix Spike Dup (2031609-MSD1)				Source: R203126-01 Prepared: 03/16/12 Analyzed: 03/17/12							
C10-C28 (DRO)	523	50	mg/kg	501	17.6	101	77.8-133	5.33		8.48	

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/17/12 23:12

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 2031606 - EPA 5030 Water MS

Blank (2031606-BLK1)

Prepared & Analyzed: 03/16/12

Benzene	ND	1.0	ug/l							
Toluene	ND	1.0	"							
Ethylbenzene	ND	1.0	"							
m,p-Xylene	ND	2.0	"							
o-Xylene	ND	1.0	"							
Naphthalene	ND	1.0	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>18.3</i>		<i>"</i>	<i>13.2</i>		<i>138</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>106</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>11.5</i>		<i>"</i>	<i>13.3</i>		<i>86.3</i>	<i>80.8-120</i>			

LCS (2031606-BS1)

Prepared & Analyzed: 03/16/12

Benzene	27.2	1.0	ug/l	33.3		81.7	60.1-131	3.96	10.9	
Toluene	28.6	1.0	"	33.3		85.8	65.9-127	3.74	11.3	
Ethylbenzene	24.3	1.0	"	33.3		72.9	65.1-129	8.81	20	
m,p-Xylene	50.4	2.0	"	66.7		75.6	66.8-127	8.31	20	
o-Xylene	26.6	1.0	"	33.3		80.0	61.2-120	7.82	20	
Naphthalene	ND	1.0	"				85-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>17.4</i>		<i>"</i>	<i>13.2</i>		<i>132</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>14.3</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>14.2</i>		<i>"</i>	<i>13.3</i>		<i>107</i>	<i>80.8-120</i>			

LCS Dup (2031606-BSD1)

Prepared & Analyzed: 03/16/12

Benzene	28.3	1.0	ug/l	33.3		85.0	60.1-131	3.96	10.9	
Toluene	29.7	1.0	"	33.3		89.1	65.9-127	3.74	11.3	
Ethylbenzene	26.6	1.0	"	33.3		79.7	65.1-129	8.81	20	
m,p-Xylene	54.8	2.0	"	66.7		82.2	66.8-127	8.31	20	
o-Xylene	28.8	1.0	"	33.3		86.5	61.2-120	7.82	20	
Naphthalene	ND	1.0	"				85-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>18.2</i>		<i>"</i>	<i>13.2</i>		<i>138</i>	<i>57.9-139</i>			
<i>Surrogate: Toluene-d8</i>	<i>15.4</i>		<i>"</i>	<i>13.3</i>		<i>115</i>	<i>83.1-115</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>15.3</i>		<i>"</i>	<i>13.3</i>		<i>115</i>	<i>80.8-120</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/17/12 23:12

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 2031606 - EPA 5030 Water MS

Matrix Spike (2031606-MS1)

Source: R203072-01 Prepared & Analyzed: 03/16/12

Benzene	27.1	1.0	ug/l	33.3	ND	81.4	52.7-130		19.3	
Toluene	28.9	1.0	"	33.3	ND	86.8	57-127		18.7	
Ethylbenzene	25.1	1.0	"	33.3	ND	75.4	59.2-127		20	
m,p-Xylene	51.6	2.0	"	66.7	ND	77.4	53.2-132		20	
o-Xylene	27.2	1.0	"	33.3	ND	81.6	56.3-117		20	
Naphthalene	ND	1.0	"		ND		73.9-135		20	
Surrogate: 1,2-Dichloroethane-d4	17.0		"	13.2		129	57.9-139			
Surrogate: Toluene-d8	14.2		"	13.3		106	83.1-115			
Surrogate: 4-Bromofluorobenzene	14.5		"	13.3		109	80.8-120			

Matrix Spike Dup (2031606-MSD1)

Source: R203072-01 Prepared: 03/16/12 Analyzed: 03/17/12

Benzene	29.7	1.0	ug/l	33.3	ND	89.1	52.7-130	9.04	19.3	
Toluene	31.3	1.0	"	33.3	ND	93.9	57-127	7.90	18.7	
Ethylbenzene	28.8	1.0	"	33.3	ND	86.4	59.2-127	13.5	20	
m,p-Xylene	59.8	2.0	"	66.7	ND	89.7	53.2-132	14.7	20	
o-Xylene	31.3	1.0	"	33.3	ND	94.0	56.3-117	14.1	20	
Naphthalene	ND	1.0	"		ND		73.9-135		20	
Surrogate: 1,2-Dichloroethane-d4	17.2		"	13.2		130	57.9-139			
Surrogate: Toluene-d8	14.4		"	13.3		108	83.1-115			
Surrogate: 4-Bromofluorobenzene	15.0		"	13.3		113	80.8-120			

Batch 2031608 - EPA 5030 Soil MS

Blank (2031608-BLK1)

Prepared & Analyzed: 03/16/12

Naphthalene	ND	0.0050	mg/kg							
Benzene	ND	0.0050	"							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
m,p-Xylene	ND	0.010	"							
o-Xylene	ND	0.0050	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0482		"	0.0397		121	67.4-143			
Surrogate: Toluene-d8	0.0407		"	0.0400		102	77.3-114			
Surrogate: 4-Bromofluorobenzene	0.0436		"	0.0400		109	78.4-125			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Brunns

Reported:
03/17/12 23:12

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 2031608 - EPA 5030 Soil MS

LCS (2031608-BS1)

Prepared & Analyzed: 03/16/12

Naphthalene	ND	0.0050	mg/kg				67.8-151		20	
Benzene	0.102	0.0050	"	0.100		102	61-139		11.1	
Toluene	0.0941	0.0050	"	0.100		94.1	64-132		10.9	
Ethylbenzene	0.106	0.0050	"	0.100		106	68.7-135		20	
m,p-Xylene	0.202	0.010	"	0.200		101	70.4-129		20	
o-Xylene	0.0970	0.0050	"	0.100		97.0	66.9-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0507</i>		<i>"</i>	<i>0.0397</i>		<i>128</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0411</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0466</i>		<i>"</i>	<i>0.0400</i>		<i>116</i>	<i>78.4-125</i>			

LCS Dup (2031608-BSD1)

Prepared & Analyzed: 03/16/12

Naphthalene	ND	0.0050	mg/kg				67.8-151		20	
Benzene	0.102	0.0050	"	0.100		102	61-139	0.00	11.1	
Toluene	0.0935	0.0050	"	0.100		93.5	64-132	0.608	10.9	
Ethylbenzene	0.107	0.0050	"	0.100		107	68.7-135	1.07	20	
m,p-Xylene	0.204	0.010	"	0.200		102	70.4-129	1.36	20	
o-Xylene	0.0975	0.0050	"	0.100		97.5	66.9-126	0.463	20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0505</i>		<i>"</i>	<i>0.0397</i>		<i>127</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0403</i>		<i>"</i>	<i>0.0400</i>		<i>101</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0458</i>		<i>"</i>	<i>0.0400</i>		<i>115</i>	<i>78.4-125</i>			

Matrix Spike (2031608-MS1)

Source: R203126-01

Prepared & Analyzed: 03/16/12

Naphthalene	ND	0.0050	mg/kg		0.00		26.4-144		20	
Benzene	0.105	0.0050	"	0.100	0.00	105	42.9-137		17.9	
Toluene	0.0951	0.0050	"	0.100	0.00	95.1	42.6-130		11.9	
Ethylbenzene	0.106	0.0050	"	0.100	0.00	106	39-133		20	
m,p-Xylene	0.201	0.010	"	0.200	0.00	100	34.7-134		20	
o-Xylene	0.0976	0.0050	"	0.100	0.00	97.6	41.3-126		20	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0550</i>		<i>"</i>	<i>0.0397</i>		<i>139</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0471</i>		<i>"</i>	<i>0.0400</i>		<i>118</i>	<i>78.4-125</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
 Project Manager: Brandon Brunns

Reported:
 03/17/12 23:12

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 2031608 - EPA 5030 Soil MS

Matrix Spike Dup (2031608-MSD1)	Source: R203126-01			Prepared & Analyzed: 03/16/12						
Naphthalene	ND	0.0050	mg/kg	0.00	0.00	103	26.4-144		2.31	20
Benzene	0.103	0.0050	"	0.100	0.00	92.3	42.9-137		3.04	17.9
Toluene	0.0923	0.0050	"	0.100	0.00	106	42.6-130		0.0568	11.9
Ethylbenzene	0.106	0.0050	"	0.100	0.00	100	39-133		0.179	20
m,p-Xylene	0.201	0.010	"	0.200	0.00	96.5	34.7-134		1.05	20
o-Xylene	0.0965	0.0050	"	0.100	0.00	137	41.3-126			20
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0545</i>		<i>"</i>	<i>0.0397</i>		<i>101</i>	<i>67.4-143</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0405</i>		<i>"</i>	<i>0.0400</i>		<i>117</i>	<i>77.3-114</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0467</i>		<i>"</i>	<i>0.0400</i>			<i>78.4-125</i>			

Summit Scientific

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

Project: Cape Hart 1,31,42-29

Project Number: [none]
Project Manager: Brandon Bruns

Reported:
03/17/12 23:12

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