

**TABLE 1
FORMER KRISTIN 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
CONTAMINANTS OF CONCERN**

Sample ID	Date Sampled	Depth	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	1, 2, 4-TMB (mg/kg)	1, 3, 5-TMB (mg/kg)	Naphthalene (mg/kg)	TPH ⁽⁴⁾ (mg/kg)	Anthracene (mg/kg)	Chrysene (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	Pyrene (mg/kg)
Residential SSL ^(1,2)			1.2	490	5.8	58	30	27	2	500	1,800	110	240	240	180
Protection of Groundwater SSL ^(1,2,3)			0.0026	0.69	0.78	9.9	0.0081	0.0087	0.0038	500	5.8	9	8.9	0.54	1.3
WH01 @ 3'	5/12/2021	3 ft. bgs	0.097	0.35	0.034	<0.010	0.049	0.032	<0.0038	7.0	0.216	0.00828	0.0139	0.113	0.0533
SS01 @ 2'	5/14/2021	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	NA	NA	NA	NA	NA
SS02 @ 4'	5/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS03 @ 2'	5/14/2021	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS04 @ 4'	5/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS05 @ 5'	5/14/2021	5 ft. bgs	<0.0020	0.0054	<0.0050	0.023	<0.0050	0.011	<0.0038	1.7	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS06 @ 2'	5/14/2021	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS07 @ 4'	5/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS08 @ 2'	5/14/2021	2 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS09 @ 4'	5/14/2021	4 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500
SS11 @ 5.5'	5/17/2021	5.5 ft. bgs	<0.0020	<0.0050	<0.0050	<0.010	<0.0050	<0.0050	<0.0038	<50	<0.00500	<0.00500	<0.00500	<0.00500	<0.00500

Notes:

- Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
 - Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
 - SSLs are applicable if a pathway for communication with groundwater is present.
 - Value calculated by adding TVPH-GRO, TEPH-DRO, and TEPH-ORO concentrations.
- COGCC = Colorado Oil and Gas Conservation Commission
 (<) = Analytical result is less than the indicated laboratory reporting limit.
 TVPH-GRO = Total volatile petroleum hydrocarbons - gasoline range organics
 TEPH-DRO = Total extractable petroleum hydrocarbons - diesel range organics
 TEPH-ORO = Total extractable petroleum hydrocarbons - oil range organics
 mg/kg = Milligrams per kilogram
 TMB = Trimethylbenzene
 Benzo(k) = Benzo(a)fluoranthene
 = Source material characterization sample
- ft. = Feet
 bgs = Below ground surface
BOLD = Analytical result is in exceedance of applicable standard.
 NA = Constituent not analyzed

TABLE 2
FORMER KRISTIN 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC COMPOUNDS

Sample ID	Date Sampled	Depth	pH (units)	EC (mmhos/cm)	SAR (units)	Boron (mg/L)
Soil Suitability for Reclamation Standard ⁽¹⁾			6-8.3	<4	<6	2
WH01 @ 3'	5/12/2021	3 ft. bgs	8.33	3.24	4.66	0.464

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.

COGCC = Colorado Oil and Gas Conservation Commission

EC = Electrical conductivity

SAR = Sodium adsorption ratio

mmhos/cm = millimhos per centimeter

mg/L = milligram per liter

 = Source material characterization sample

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 3
FORMER KRISTIN 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS - PAHs

Sample ID	Date Sampled	Depth	Acenaphthene (mg/kg)	Anthracene (mg/kg)	Benz(a) (mg/kg)	Benzo(a) (mg/kg)	Benzo(b) (mg/kg)	Benzo(k) (mg/kg)	Chrysene (mg/kg)	A,H (mg/kg)	Fluoranthene (mg/kg)	Fluorene (mg/kg)	1,2,3-CD (mg/kg)	Pyrene (mg/kg)	1-M (mg/kg)	2-M (mg/kg)
Residential SSL ^(1,2)			360	1,800	1.1	0.11	1.1	11	110	0.11	240	240	1.1	180	18	24
Protection of Groundwater SSL ^(1,2,3)			0.55	5.8	0.011	0.24	0.3	2.9	9	0.096	8.9	0.54	0.98	1.3	0.006	0.019
WH01 @ 3'	5/12/2021	3 ft. bgs	<0.00500	0.216	<0.00500	<0.00500	<0.00500	<0.00500	0.00828	<0.00500	0.0139	0.113	<0.00500	0.0533	<0.00500	<0.00500

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
3. SSLs are applicable if a pathway for communication with

COGCC = Colorado Oil and Gas Conservation Commission

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

PAHs = Polycyclic aromatic hydrocarbons

Benz(a) = Benzanthracene

Benzo(a) = Benzopyrene

Benzo(b) = Benzofluoranthene

Benzo(k) = Benzofluoranthene

A,H = Dibenzoanthracene

1,2,3-CD = Indenopyrene

M = Methylnaphthalene

mg/kg = Milligrams per kilogram

Source material characterization sample

ft. = Feet

bgs = Below ground surface

BOLD = Analytical result is in exceedance of applicable standard.

TABLE 4
FORMER KRISTIN 1 WELLHEAD
SOIL ANALYTICAL RESULTS SUMMARY TABLE
METALS

Sample ID	Date Sampled	Depth	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Chromium (VI) (mg/kg)	Copper (mg/kg)	Lead (mg/kg)	Nickel (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Zinc (mg/kg)
Residential SSL ^(1,2)			0.68	15,000	71	0.3	3,100	400	1,500	390	390	23,000
Protection of Groundwater SSL ^(1,2,3)			0.29	82	0.38	0.00067	46	14	26	0.26	0.8	370
WH01 @ 3'	5/12/2021	3 ft. bgs	1.56	71.9	0.246	<0.30 ⁽⁴⁾	14.4	13.8	4.69	0.584	0.130	47.9

Notes:

1. Compounds referenced from the COGCC 2 CCR 404-1, Table 915-1, effective January 15, 2021.
 2. Soil Screening Levels (SSL) referenced from EPA Regional Screening Levels (EPA RSLs) for Chemical Contaminants at Superfund Sites, effective November 2020.
 3. SSLs are applicable if a pathway for communication with groundwater is present.
 4. Compound falls within COGCC Table 915-1 Footnote 9.
- COGCC = Colorado Oil and Gas Conservation Commission
(<) = Analytical result is less than the indicated laboratory reporting limit.
mg/kg = Milligrams per kilogram
= Source material characterization sample
ft. = Feet
bgs = Below ground surface
BOLD = Analytical result is in exceedance of applicable standard.

**TABLE 5
FORMER KRISTIN 1 WELLHEAD
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
ORGANIC COMPOUNDS**

Sample ID	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Naphthalene (µg/L)	1,2,4-TMB (µg/L)	1,3,5-TMB (µg/L)	Depth to Water ⁽²⁾ (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (µg/L) ⁽¹⁾		5	560	700	1,400	140	67	67	-	-
GW01	5/12/2021	280	83	110	1,900	43	160	130	3.5	NA

Notes:

1. Groundwater standards referenced from 2 CCR 404-1, Table 915-1, January 15, 2021.
2. Depth to water measurements were measured from ground surface for excavation samples. Monitoring well measurements were collected from top of casing and adjusted using survey data to reflect depth of water from ground surface.

TMB = Trimethylbenzene

COGCC = Colorado Oil and Gas Conservation Commission

µg/L = Micrograms per liter

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

ft. = Feet

AMSL = Above Mean Sea Level

BOLD = Analytical result is in exceedance of applicable standard.

NA = Not applicable

**TABLE 6
FORMER KRISTIN 1 WELLHEAD
FIELD DATA SUMMARY TABLE**

Sample ID	Date Sampled	Depth	GPS Data ⁽¹⁾		PDOP Value	VOC Concentration ⁽²⁾ (ppm)
			Latitude	Longitude		
WH01 @ 2.5'	5/7/2021	2.5 ft. bgs	40.302600	-104.831489	1.1	0.0
FLR01 @ 3'	5/7/2021	3 ft. bgs	40.302596	-104.831507	1.1	0.5
WHS01-N @ 0-6"	5/7/2021	0-6 in. bgs	40.302627	-104.831519	1.1	0.1
WHS01-E @ 0-6"	5/7/2021	0-6 in. bgs	40.302618	-104.831464	1.1	0.2
WHS01-S @ 0-6"	5/7/2021	0-6 in. bgs	40.302585	-104.831476	1.1	0.1
WHS01-W @ 0-6"	5/7/2021	0-6 in. bgs	40.302584	-104.831532	1.2	0.2
BKG01 @ 2.5'	5/7/2021	2.5 ft. bgs	40.302735	-104.831581	1.1	0.1
FL01-01 @ 3'	5/7/2021	3 ft. bgs	40.302929	-104.830847	1.0	0.4
WH01 @ 3'	5/12/2021	3 ft. bgs	40.302610	-104.831517	1.3	247.9
SS01 @ 2'	5/14/2021	2 ft. bgs	40.302581	-104.831556	1.2	0.3
SS02 @ 4'	5/14/2021	4 ft. bgs	40.302581	-104.831556	1.2	0.6
SS03 @ 2'	5/14/2021	2 ft. bgs	40.302620	-104.831535	1.0	0.1
SS04 @ 4'	5/14/2021	4 ft. bgs	40.302620	-104.831535	1.0	0.2
SS05 @ 5'	5/14/2021	5 ft. bgs	NC	NC	NC	8.5
SS06 @ 2'	5/14/2021	2 ft. bgs	40.302581	-104.831503	1.3	0.5
SS07 @ 4'	5/14/2021	4 ft. bgs	40.302581	-104.831503	1.3	6.1
SS08 @ 2'	5/14/2021	2 ft. bgs	40.302619	-104.831496	1.3	0.3
SS09 @ 4'	5/14/2021	4 ft. bgs	40.302619	-104.831496	1.3	0.2
SS10 @ 2.5'	5/14/2021	2.5 ft. bgs	40.302581	-104.831503	1.3	0.3
SS11 @ 5.5'	5/17/2021	5.5 ft. bgs	NC	NC	NC	2.5

Notes:

1. Global Positioning System (GPS) data is provided in decimal degrees using World Geodetic System (WGS) 84 UTM Zone 13 North.

2. Volatile organic compound (VOC) concentrations are measured in the field using a photoionization detector (PID).

PDOP = Position Dilution of Precision

ppm = Parts per million

 = Source material characterization sample

ft. = Feet

in. = Inches

bgs = Below ground surface

NC = Data not collected

Attachment A

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 03, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Kristin 1 Wellhead

Work Order #2105149

Enclosed are the results of analyses for samples received by Summit Scientific on 05/12/21 18:50. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large, stylized 'M' and 'P'.

Muri Premer For Paul Shrewsbury
President



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WH01@3'	2105149-01	Soil	05/12/21 09:36	05/12/21 18:50
GW01	2105149-02	Water	05/12/21 10:21	05/12/21 18:50

Summit Scientific

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Sample Receipt Checklist

S2 Work Order 2105149

Client: PDC / Tasman Client Project ID: Kristin 1 Wellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	<u>6</u>
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Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			<i>On ice.</i>
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?	✓			<i>Same day.</i>
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.		✓		
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	✓			<i>HCl</i>
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

JB
Custodian Printed Name or Initials

John B...
Signature of Custodian

5/12/21
Date/Time



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

WH01@3'
2105149-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	0.097	0.0020	mg/kg	1	BEE0209	05/12/21	05/12/21	EPA 8260B	
Toluene	0.35	0.0050	"	"	"	"	"	"	
Ethylbenzene	0.034	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	0.049	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.032	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	7.0	0.50	"	"	"	"	"	"	

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		103 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		81.0 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		98.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0210	"	05/12/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		125 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

WH01@3'
2105149-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Acenaphthene	ND	0.00500	mg/kg	1	BEE0302	05/18/21	05/18/21	EPA 8270D SIM	
Anthracene	0.216	0.00500	"	"	"	"	"	"	
Benzo (a) anthracene	ND	0.00500	"	"	"	"	"	"	
Benzo (a) pyrene	ND	0.00500	"	"	"	"	"	"	
Benzo (b) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Chrysene	0.00828	0.00500	"	"	"	"	"	"	
Dibenz (a,h) anthracene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	0.0139	0.00500	"	"	"	"	"	"	
Fluorene	0.113	0.00500	"	"	"	"	"	"	
Indeno (1,2,3-cd) pyrene	ND	0.00500	"	"	"	"	"	"	
Pyrene	0.0533	0.00500	"	"	"	"	"	"	
1-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	
2-Methylnaphthalene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		91.9 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		78.4 %	40-150		"	"	"	"	

Total Metals by EPA 6020B Hot Water Soluble Extraction

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Boron	0.464	0.0100	mg/L	1	BEE0254	05/14/21	05/15/21	EPA 6020B	

Total Metals by EPA 6020B

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

WH01@3'
2105149-01 (Soil)

Summit Scientific

Total Metals by EPA 6020B

Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method
Arsenic	1.56	0.245	mg/kg dry	1	BEE0288	05/17/21	05/18/21	EPA 6020B
Barium	71.9	0.489	"	"	"	"	"	"
Cadmium	0.246	0.245	"	"	"	"	"	"
Copper	14.4	0.489	"	"	"	"	"	"
Lead	13.8	0.245	"	"	"	"	"	"
Nickel	4.69	0.489	"	"	"	"	"	"
Selenium	0.584	0.318	"	"	"	"	"	"
Silver	0.130	0.0245	"	"	"	"	"	"
Zinc	47.9	0.489	"	"	"	"	"	"

Hexavalent Chromium by EPA Method 7196

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chromium, Hexavalent	ND	0.30	mg/kg dry	1	BEE0261	05/14/21	05/17/21	EPA 7196A	

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Calcium	132	0.0611	mg/L dry	1	BEE0262	05/14/21	05/17/21	EPA 6020B	
Magnesium	65.1	0.0611	"	"	"	"	"	"	
Sodium	262	0.0611	"	"	"	"	"	"	

Calculated Analysis

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Sodium Adsorption Ratio	4.66	0.00100	units	1	BEE0312	05/18/21	05/18/21	Calculation	

Physical Parameters by APHA/ASTM/EPA Methods

Date Sampled: **05/12/21 09:36**

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

Project: Kristin 1 Wellhead
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

WH01@3'
2105149-01 (Soil)

Summit Scientific

Physical Parameters by APHA/ASTM/EPA Methods

% Solids	81.8	%	1	BEE0293	05/17/21	05/18/21	Calculation
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Specific Conductance by EPA Method 120.1, Saturated Paste Extraction

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Specific Conductance (EC)	3.24	0.0100	mmhos/cm	1	BEE0286	05/17/21	05/17/21	EPA 120.1	

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction

Date Sampled: **05/12/21 09:36**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
pH	8.33		pH Units	1	BEE0287	05/17/21	05/17/21	EPA 9045D	

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

GW01
2105149-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/12/21 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	280	100	ug/l	100	BEE0211	05/12/21	05/12/21	EPA 8260B	
Toluene	83	1.0	"	1	"	"	"	"	
Ethylbenzene	110	1.0	"	"	"	"	"	"	
Xylenes (total)	1900	200	"	100	"	"	"	"	
Naphthalene	43	1.0	"	1	"	"	"	"	
1,2,4-Trimethylbenzene	160	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	130	1.0	"	"	"	"	"	"	

Date Sampled: **05/12/21 10:21**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
<i>Surrogate: 1,2-Dichloroethane-d4</i>		95.5 %	23-173		"	"	"	"	
<i>Surrogate: Toluene-d8</i>		101 %	20-170		"	"	"	"	
<i>Surrogate: 4-Bromofluorobenzene</i>		91.6 %	21-167		"	"	"	"	

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

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 BEE0209 - EPA 5030 Soil MS

Blank (BEE0209-BLK1)

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
Surrogate: 1,2-Dichloroethane-d4	0.0443		"	0.0400		111	23-173			
Surrogate: Toluene-d8	0.0426		"	0.0400		106	20-170			
Surrogate: 4-Bromofluorobenzene	0.0397		"	0.0400		99.2	21-167			

LCS (BEE0209-BS1)

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0851	0.0020	mg/kg	0.100		85.1	70-130			
Toluene	0.0935	0.0050	"	0.100		93.5	70-130			
Ethylbenzene	0.0998	0.0050	"	0.100		99.8	70-130			
m,p-Xylene	0.196	0.010	"	0.200		98.1	70-130			
o-Xylene	0.0977	0.0050	"	0.100		97.7	70-130			
1,2,4-Trimethylbenzene	0.0932	0.0050	"	0.100		93.2	70-130			
1,3,5-Trimethylbenzene	0.0955	0.0050	"	0.100		95.5	70-130			
Naphthalene	0.0994	0.0038	"	0.100		99.4	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0348		"	0.0400		86.9	23-173			
Surrogate: Toluene-d8	0.0400		"	0.0400		100	20-170			
Surrogate: 4-Bromofluorobenzene	0.0378		"	0.0400		94.4	21-167			

Matrix Spike (BEE0209-MS1)

Source: 2105143-01

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	0.0896	0.0020	mg/kg	0.100	ND	89.6	70-130			
Toluene	0.101	0.0050	"	0.100	ND	101	70-130			
Ethylbenzene	0.103	0.0050	"	0.100	ND	103	70-130			
m,p-Xylene	0.202	0.010	"	0.200	ND	101	70-130			
o-Xylene	0.101	0.0050	"	0.100	ND	101	70-130			
1,2,4-Trimethylbenzene	0.0915	0.0050	"	0.100	ND	91.5	70-130			
1,3,5-Trimethylbenzene	0.0921	0.0050	"	0.100	ND	92.1	70-130			
Naphthalene	0.0737	0.0038	"	0.100	ND	73.7	70-130			
Surrogate: 1,2-Dichloroethane-d4	0.0404		"	0.0400		101	23-173			
Surrogate: Toluene-d8	0.0406		"	0.0400		101	20-170			
Surrogate: 4-Bromofluorobenzene	0.0382		"	0.0400		95.6	21-167			

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

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		

Batch BEE0209 - EPA 5030 Soil MS

Matrix Spike Dup (BEE0209-MSD1)	Source: 2105143-01			Prepared: 05/12/21 Analyzed: 05/13/21					
Benzene	0.0800	0.0020	mg/kg	0.100	ND	80.0	70-130	11.4	30
Toluene	0.0832	0.0050	"	0.100	ND	83.2	70-130	19.4	30
Ethylbenzene	0.0941	0.0050	"	0.100	ND	94.1	70-130	8.58	30
m,p-Xylene	0.182	0.010	"	0.200	ND	91.2	70-130	10.2	30
o-Xylene	0.0915	0.0050	"	0.100	ND	91.5	70-130	9.73	30
1,2,4-Trimethylbenzene	0.0848	0.0050	"	0.100	ND	84.8	70-130	7.59	30
1,3,5-Trimethylbenzene	0.0850	0.0050	"	0.100	ND	85.0	70-130	7.96	30
Naphthalene	0.0734	0.0038	"	0.100	ND	73.4	70-130	0.530	30
Surrogate: 1,2-Dichloroethane-d4	0.0393		"	0.0400		98.2	23-173		
Surrogate: Toluene-d8	0.0396		"	0.0400		99.1	20-170		
Surrogate: 4-Bromofluorobenzene	0.0370		"	0.0400		92.6	21-167		

Batch BEE0211 - EPA 5030 Water MS

Blank (BEE0211-BLK1)	Prepared: 05/12/21 Analyzed: 05/13/21				
Benzene	ND	1.0	ug/l		
Toluene	ND	1.0	"		
Ethylbenzene	ND	1.0	"		
Xylenes (total)	ND	2.0	"		
Naphthalene	ND	1.0	"		
1,2,4-Trimethylbenzene	ND	1.0	"		
1,3,5-Trimethylbenzene	ND	1.0	"		
Surrogate: 1,2-Dichloroethane-d4	14.8		"	13.3	111 23-173
Surrogate: Toluene-d8	12.0		"	13.3	89.8 20-170
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3	86.6 21-167

LCS (BEE0211-BS1)	Prepared: 05/12/21 Analyzed: 05/13/21				
Benzene	28.2	1.0	ug/l	33.3	84.6 51-132
Toluene	37.3	1.0	"	33.3	112 51-138
Ethylbenzene	41.1	1.0	"	33.3	123 58-146
m,p-Xylene	77.4	2.0	"	66.7	116 57-144
o-Xylene	40.0	1.0	"	33.3	120 53-146
Naphthalene	32.7	1.0	"	33.3	98.1 70-130
1,2,4-Trimethylbenzene	31.5	1.0	"	33.3	94.4 70-130
1,3,5-Trimethylbenzene	43.1	1.0	"	33.3	129 70-130
Surrogate: 1,2-Dichloroethane-d4	12.8		"	13.3	95.9 23-173
Surrogate: Toluene-d8	13.0		"	13.3	97.8 20-170
Surrogate: 4-Bromofluorobenzene	11.4		"	13.3	85.1 21-167

Summit Scientific

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

Project: Kristin 1 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

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 BEE0211 - EPA 5030 Water MS

Matrix Spike (BEE0211-MS1)

Source: 2105155-01

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	27.6	1.0	ug/l	33.3	ND	82.7	34-141			
Toluene	34.4	1.0	"	33.3	ND	103	27-151			
Ethylbenzene	41.7	1.0	"	33.3	ND	125	29-160			
m,p-Xylene	81.0	2.0	"	66.7	ND	122	20-166			
o-Xylene	40.3	1.0	"	33.3	ND	121	33-159			
Naphthalene	37.9	1.0	"	33.3	ND	114	70-130			
1,2,4-Trimethylbenzene	30.0	1.0	"	33.3	ND	90.0	70-130			
1,3,5-Trimethylbenzene	41.9	1.0	"	33.3	ND	126	70-130			
Surrogate: 1,2-Dichloroethane-d4	12.6		"	13.3		94.2	23-173			
Surrogate: Toluene-d8	11.9		"	13.3		89.6	20-170			
Surrogate: 4-Bromofluorobenzene	11.6		"	13.3		87.2	21-167			

Matrix Spike Dup (BEE0211-MSD1)

Source: 2105155-01

Prepared: 05/12/21 Analyzed: 05/13/21

Benzene	25.9	1.0	ug/l	33.3	ND	77.6	34-141	6.36	30	
Toluene	33.8	1.0	"	33.3	ND	102	27-151	1.52	30	
Ethylbenzene	41.1	1.0	"	33.3	ND	123	29-160	1.40	30	
m,p-Xylene	77.1	2.0	"	66.7	ND	116	20-166	5.00	30	
o-Xylene	40.4	1.0	"	33.3	ND	121	33-159	0.248	30	
Naphthalene	40.0	1.0	"	33.3	ND	120	70-130	5.16	30	
1,2,4-Trimethylbenzene	31.7	1.0	"	33.3	ND	95.0	70-130	5.41	30	
1,3,5-Trimethylbenzene	43.3	1.0	"	33.3	ND	130	70-130	3.15	30	
Surrogate: 1,2-Dichloroethane-d4	11.9		"	13.3		89.6	23-173			
Surrogate: Toluene-d8	12.1		"	13.3		90.5	20-170			
Surrogate: 4-Bromofluorobenzene	11.8		"	13.3		88.4	21-167			

Summit Scientific

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

Project: Kristin 1 Wellhead
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEE0210 - EPA 3550A

Blank (BEE0210-BLK1)

Prepared: 05/12/21 Analyzed: 05/13/21

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

LCS (BEE0210-BS1)

Prepared: 05/12/21 Analyzed: 05/13/21

C10-C28 (DRO)	392	50	mg/kg	500	78.3	70-130				
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Matrix Spike (BEE0210-MS1)

Source: 2105143-01

Prepared: 05/12/21 Analyzed: 05/13/21

C10-C28 (DRO)	450	50	mg/kg	500	21.4	85.8	70-130			
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Matrix Spike Dup (BEE0210-MSD1)

Source: 2105143-01

Prepared: 05/12/21 Analyzed: 05/13/21

C10-C28 (DRO)	431	50	mg/kg	500	21.4	82.0	70-130	4.29	20	
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEE0302 - EPA 5030 Soil MS

Blank (BEE0302-BLK1)

Prepared & Analyzed: 05/18/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
Surrogate: 2-Methylnaphthalene-d10	0.0283		"	0.0333		84.8	40-150			
Surrogate: Fluoranthene-d10	0.0267		"	0.0333		80.0	40-150			

LCS (BEE0302-BS1)

Prepared & Analyzed: 05/18/21

Acenaphthene	0.0299	0.00500	mg/kg	0.0333		89.7	31-137			
Anthracene	0.0288	0.00500	"	0.0333		86.5	30-120			
Benzo (a) anthracene	0.0293	0.00500	"	0.0333		87.8	30-120			
Benzo (a) pyrene	0.0334	0.00500	"	0.0333		100	30-120			
Benzo (b) fluoranthene	0.0351	0.00500	"	0.0333		105	30-120			
Benzo (k) fluoranthene	0.0326	0.00500	"	0.0333		97.8	30-120			
Chrysene	0.0285	0.00500	"	0.0333		85.6	30-120			
Dibenz (a,h) anthracene	0.0381	0.00500	"	0.0333		114	30-120			
Fluoranthene	0.0262	0.00500	"	0.0333		78.5	30-120			
Fluorene	0.0329	0.00500	"	0.0333		98.6	30-120			
Indeno (1,2,3-cd) pyrene	0.0359	0.00500	"	0.0333		108	30-120			
Pyrene	0.0255	0.00500	"	0.0333		76.5	35-142			
1-Methylnaphthalene	0.0264	0.00500	"	0.0333		79.2	35-142			
2-Methylnaphthalene	0.0299	0.00500	"	0.0333		89.7	35-142			
Surrogate: 2-Methylnaphthalene-d10	0.0279		"	0.0333		83.6	40-150			
Surrogate: Fluoranthene-d10	0.0286		"	0.0333		85.7	40-150			

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEE0302 - EPA 5030 Soil MS

Matrix Spike (BEE0302-MS1)	Source: 2105200-01			Prepared & Analyzed: 05/18/21						
Acenaphthene	0.0309	0.00500	mg/kg	0.0333	ND	92.8	31-137			
Anthracene	0.0286	0.00500	"	0.0333	ND	85.7	30-120			
Benzo (a) anthracene	0.0291	0.00500	"	0.0333	ND	87.4	30-120			
Benzo (a) pyrene	0.0324	0.00500	"	0.0333	ND	97.2	30-120			
Benzo (b) fluoranthene	0.0349	0.00500	"	0.0333	ND	105	30-120			
Benzo (k) fluoranthene	0.0326	0.00500	"	0.0333	ND	97.8	30-120			
Chrysene	0.0285	0.00500	"	0.0333	ND	85.5	30-120			
Dibenz (a,h) anthracene	0.0382	0.00500	"	0.0333	ND	115	30-120			
Fluoranthene	0.0271	0.00500	"	0.0333	ND	81.3	30-120			
Fluorene	0.0343	0.00500	"	0.0333	ND	103	30-120			
Indeno (1,2,3-cd) pyrene	0.0359	0.00500	"	0.0333	ND	108	30-120			
Pyrene	0.0245	0.00500	"	0.0333	ND	73.6	35-142			
1-Methylnaphthalene	0.0257	0.00500	"	0.0333	ND	77.2	15-130			
2-Methylnaphthalene	0.0321	0.00500	"	0.0333	ND	96.3	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0258</i>		<i>"</i>	<i>0.0333</i>		<i>77.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0269</i>		<i>"</i>	<i>0.0333</i>		<i>80.6</i>	<i>40-150</i>			

Matrix Spike Dup (BEE0302-MSD1)	Source: 2105200-01			Prepared & Analyzed: 05/18/21						
Acenaphthene	0.0314	0.00500	mg/kg	0.0333	ND	94.3	31-137	1.62	30	
Anthracene	0.0290	0.00500	"	0.0333	ND	87.1	30-120	1.56	30	
Benzo (a) anthracene	0.0295	0.00500	"	0.0333	ND	88.6	30-120	1.42	30	
Benzo (a) pyrene	0.0333	0.00500	"	0.0333	ND	99.9	30-120	2.76	30	
Benzo (b) fluoranthene	0.0358	0.00500	"	0.0333	ND	107	30-120	2.47	30	
Benzo (k) fluoranthene	0.0335	0.00500	"	0.0333	ND	100	30-120	2.68	30	
Chrysene	0.0295	0.00500	"	0.0333	ND	88.4	30-120	3.29	30	
Dibenz (a,h) anthracene	0.0384	0.00500	"	0.0333	ND	115	30-120	0.533	30	
Fluoranthene	0.0271	0.00500	"	0.0333	ND	81.4	30-120	0.0762	30	
Fluorene	0.0348	0.00500	"	0.0333	ND	104	30-120	1.29	30	
Indeno (1,2,3-cd) pyrene	0.0362	0.00500	"	0.0333	ND	109	30-120	0.780	30	
Pyrene	0.0265	0.00500	"	0.0333	ND	79.4	35-142	7.56	30	
1-Methylnaphthalene	0.0277	0.00500	"	0.0333	ND	83.1	15-130	7.29	50	
2-Methylnaphthalene	0.0313	0.00500	"	0.0333	ND	93.9	15-130	2.45	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0276</i>		<i>"</i>	<i>0.0333</i>		<i>82.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0286</i>		<i>"</i>	<i>0.0333</i>		<i>85.7</i>	<i>40-150</i>			

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Total Metals by EPA 6020B Hot Water Soluble Extraction - Quality Control

Summit Scientific

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

Batch BEE0254 - EPA 3050B

Blank (BEE0254-BLK1)

Prepared: 05/14/21 Analyzed: 05/15/21

Boron ND 0.0100 mg/L

LCS (BEE0254-BS1)

Prepared: 05/14/21 Analyzed: 05/15/21

Boron 5.21 0.0100 mg/L 5.00 104 80-120

Duplicate (BEE0254-DUP1)

Source: 2105149-01

Prepared: 05/14/21 Analyzed: 05/15/21

Boron 0.492 0.0100 mg/L 0.464 5.81 20

Matrix Spike (BEE0254-MS1)

Source: 2105149-01

Prepared: 05/14/21 Analyzed: 05/15/21

Boron 6.42 0.0100 mg/L 5.00 0.464 119 75-125

Matrix Spike Dup (BEE0254-MSD1)

Source: 2105149-01

Prepared: 05/14/21 Analyzed: 05/15/21

Boron 6.74 0.0100 mg/L 5.00 0.464 125 75-125 4.77 25

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEE0288 - EPA 3050B

Blank (BEE0288-BLK1)

Prepared: 05/17/21 Analyzed: 05/18/21

Arsenic	ND	0.200	mg/kg wet							
Barium	ND	0.400	"							
Cadmium	ND	0.200	"							
Copper	ND	0.400	"							
Lead	ND	0.200	"							
Nickel	ND	0.400	"							
Selenium	ND	0.260	"							
Silver	ND	0.0200	"							
Zinc	ND	0.400	"							

LCS (BEE0288-BS1)

Prepared: 05/17/21 Analyzed: 05/18/21

Arsenic	34.7	0.200	mg/kg wet	40.0	86.8	80-120
Barium	33.1	0.400	"	40.0	82.6	80-120
Cadmium	1.65	0.200	"	2.00	82.7	80-120
Copper	32.9	0.400	"	40.0	82.2	80-120
Lead	16.6	0.200	"	20.0	83.1	80-120
Nickel	35.8	0.400	"	40.0	89.5	80-120
Selenium	3.27	0.260	"	4.00	81.8	80-120
Silver	1.63	0.0200	"	2.00	81.3	80-120
Zinc	34.7	0.400	"	40.0	86.8	80-120

Duplicate (BEE0288-DUP1)

Source: 2105149-01

Prepared: 05/17/21 Analyzed: 05/18/21

Arsenic	1.52	0.245	mg/kg dry	1.56	2.73	20
Barium	70.6	0.489	"	71.9	1.79	20
Cadmium	0.261	0.245	"	0.246	5.98	20
Copper	13.4	0.489	"	14.4	7.80	20
Lead	16.7	0.245	"	13.8	19.4	20
Nickel	5.23	0.489	"	4.69	10.9	20
Selenium	0.576	0.318	"	0.584	1.48	20
Silver	0.152	0.0245	"	0.130	15.3	20
Zinc	49.7	0.489	"	47.9	3.62	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: Kristin 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Total Metals by EPA 6020B - Quality Control
Summit Scientific

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

Batch BEE0288 - EPA 3050B

Matrix Spike (BEE0288-MS1)

Source: 2105149-01

Prepared: 05/17/21 Analyzed: 05/18/21

Arsenic	46.9	0.245	mg/kg dry	48.9	1.56	92.8	75-125			
Barium	127	0.489	"	48.9	71.9	112	75-125			
Cadmium	2.56	0.245	"	2.45	0.246	94.5	75-125			
Copper	60.1	0.489	"	48.9	14.4	93.4	75-125			
Lead	37.2	0.245	"	24.5	13.8	95.9	75-125			
Nickel	48.5	0.489	"	48.9	4.69	89.5	75-125			
Selenium	5.00	0.318	"	4.89	0.584	90.2	75-125			
Silver	2.39	0.0245	"	2.45	0.130	92.5	75-125			
Zinc	96.5	0.489	"	48.9	47.9	99.5	75-125			

Matrix Spike Dup (BEE0288-MSD1)

Source: 2105149-01

Prepared: 05/17/21 Analyzed: 05/18/21

Arsenic	48.7	0.245	mg/kg dry	48.9	1.56	96.4	75-125	3.69	25
Barium	129	0.489	"	48.9	71.9	117	75-125	2.06	25
Cadmium	2.67	0.245	"	2.45	0.246	99.3	75-125	4.50	25
Copper	63.5	0.489	"	48.9	14.4	100	75-125	5.50	25
Lead	38.5	0.245	"	24.5	13.8	101	75-125	3.29	25
Nickel	51.0	0.489	"	48.9	4.69	94.6	75-125	5.00	25
Selenium	5.30	0.318	"	4.89	0.584	96.3	75-125	5.78	25
Silver	2.49	0.0245	"	2.45	0.130	96.5	75-125	3.96	25
Zinc	106	0.489	"	48.9	47.9	119	75-125	9.32	25

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: Kristin 1 Wellhead

Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Hexavalent Chromium by EPA Method 7196 - Quality Control
Summit Scientific

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

Batch BEE0261 - 3060A Mod

Blank (BEE0261-BLK1)

Prepared: 05/14/21 Analyzed: 05/17/21

Chromium, Hexavalent ND 0.30 mg/kg wet

LCS (BEE0261-BS1)

Prepared: 05/14/21 Analyzed: 05/17/21

Chromium, Hexavalent 23.6 0.30 mg/kg wet 25.0 94.6 80-120

Duplicate (BEE0261-DUP1)

Source: 2105143-02

Prepared: 05/14/21 Analyzed: 05/17/21

Chromium, Hexavalent ND 0.30 mg/kg dry ND 20

Matrix Spike (BEE0261-MS1)

Source: 2105143-02

Prepared: 05/14/21 Analyzed: 05/17/21

Chromium, Hexavalent 25.8 0.30 mg/kg dry 27.4 ND 94.0 75-125

Matrix Spike Dup (BEE0261-MSD1)

Source: 2105143-02

Prepared: 05/14/21 Analyzed: 05/17/21

Chromium, Hexavalent 25.7 0.30 mg/kg dry 27.4 ND 93.8 75-125 0.213 20

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Soluble Nutrients by EPA 6020/USDA60 6(2) - Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEE0262 - General Preparation

Blank (BEE0262-BLK1)

Prepared: 05/14/21 Analyzed: 05/17/21

Calcium	ND	0.0500	mg/L wet							
Magnesium	ND	0.0500	"							
Sodium	ND	0.0500	"							

LCS (BEE0262-BS1)

Prepared: 05/14/21 Analyzed: 05/17/21

Calcium	4.89	0.0500	mg/L wet	5.00	97.7	70-130				
Magnesium	6.40	0.0500	"	5.00	128	70-130				
Sodium	5.61	0.0500	"	5.00	112	70-130				

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Physical Parameters by APHA/ASTM/EPA Methods - Quality Control

Summit Scientific

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

Batch BEE0293 - General Preparation

Duplicate (BEE0293-DUP1)

Source: 2105149-01

Prepared: 05/17/21 Analyzed: 05/18/21

% Solids	87.5		%		81.8			6.78		20	
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Summit Scientific

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



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Specific Conductance by EPA Method 120.1, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEE0286 - General Preparation

Blank (BEE0286-BLK1)

Prepared & Analyzed: 05/17/21

Specific Conductance (EC) ND 0.0100 mmhos/cm

LCS (BEE0286-BS1)

Prepared & Analyzed: 05/17/21

Specific Conductance (EC) 0.163 0.0100 mmhos/cm 0.150 109 90-110

Duplicate (BEE0286-DUP1)

Source: 2105149-01

Prepared & Analyzed: 05/17/21

Specific Conductance (EC) 3.22 0.0100 mmhos/cm 3.24 0.775 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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/03/21 11:57

Physical Parameters by APHA/ASTM/EPA Methods, Saturated Paste Extraction - Quality Control

Summit Scientific

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

Batch BEE0287 - General Preparation

LCS (BEE0287-BS1)

Prepared & Analyzed: 05/17/21

pH	9.33	pH Units	9.21	101	95-105
----	------	----------	------	-----	--------

Duplicate (BEE0287-DUP1)

Source: 2105149-01

Prepared & Analyzed: 05/17/21

pH	8.34	pH Units	8.33	0.120	20
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Summit Scientific

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



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

Project: Kristin 1 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/03/21 11:57

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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 08, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

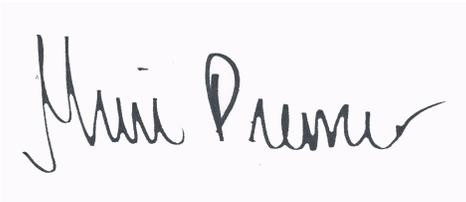
Denver, CO 80203

RE: Kristin 1 Wellhead

Work Order #2105211

Enclosed are the results of analyses for samples received by Summit Scientific on 05/14/21 18:18. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS01@2'	2105211-01	Soil	05/14/21 10:17	05/14/21 18:18
SS02@4'	2105211-02	Soil	05/14/21 10:18	05/14/21 18:18
SS03@2'	2105211-03	Soil	05/14/21 10:42	05/14/21 18:18
SS04@4'	2105211-04	Soil	05/14/21 10:43	05/14/21 18:18
SS05@5'	2105211-05	Soil	05/14/21 13:24	05/14/21 18:18
SS06@2'	2105211-06	Soil	05/14/21 13:40	05/14/21 18:18
SS07@4'	2105211-07	Soil	05/14/21 13:41	05/14/21 18:18
SS08@2'	2105211-08	Soil	05/14/21 13:43	05/14/21 18:18
SS09@4'	2105211-09	Soil	05/14/21 13:44	05/14/21 18:18

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

S₂

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Client: PDC / Tasman	Project Manager: Mark Longhurst
Address: 6855 W 119th Ave	E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020	
Phone: 303-487-1228	Project Name: <u>Kestin 1 Wellhead</u>
Sampler Name: Kevin Fletcher	Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested							Special Instructions		
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GETEXN - 8260B - 915	TPH - (C6 - C36) - 915	TMB's (1,2,4 & 1,3,5) - 915	pH, EC, SAR - 915	Boron - HWS - 915	VOC - 915		PAH - 915	Metals - 915
1	SS01@2'	5/14/21	1017	3			X			X			X	X	X						Hold
2	SS02@4'		1018	3								X	X	X							
3	SS03@2'		1042	3								X	X	X							
4	SS04@4'		1043	3								X	X	X							
5	SS05@5'		1324	3								X	X	X							
6	SS06@2'		1340	3								X	X	X							
7	SS07@4'		1341	3								X	X	X							
8	SS08@2'		1343	3								X	X	X							
9	SS09@4'		1344	3								X	X	X							
10	SS10@2.5'		1349	1																X	

Relinquished by: <u>Kevin Fletcher</u> Date/Time: <u>5/14/21 1530</u>	Received by: <u>Tasman's Lock Box</u> Date/Time: <u>5/14/21 1530</u>	Turn Around Time (Check) Same Day <u>X</u> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___	Notes:
Relinquished by: <u>Tasman's Lock Box</u> Date/Time: <u>5/14/21 1745</u>	Received by: <u>[Signature]</u> Date/Time: <u>5/14/21 1745</u>	Sample Integrity: Temperature Upon Receipt: <u>7</u>	
Relinquished by: _____ Date/Time: _____	Received by: _____ Date/Time: _____	Samples Intact: <u>Yes</u> No	

Sample Receipt Checklist

S2 Work Order 2105211

Client: PDC / Tasman Client Project ID: Kristin / wellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	<u>7</u>
-----------	----------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	✓			<u>On ice.</u>
Were all samples received intact ⁽¹⁾ ?	✓			
Was adequate sample volume provided ⁽¹⁾ ?	✓			
If custody seals are present, are they intact ⁽¹⁾ ?			✓	
Are samples with holding times due within 48 hours sample due within 48 hours present?	✓			<u>Same day.</u>
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	✓			
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	✓			
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	✓			
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	✓			
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.			✓	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect			✓	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.			✓	
If dissolved metals are requested, were samples field filtered?			✓	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

JB
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

5/14/21
Date/Time



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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS01@2'
2105211-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 10:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		89.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		82.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 10:17**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:17**

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

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS02@4'
2105211-02 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 10:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/14/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		80.1 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 10:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:18**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS02@4'
2105211-02 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 10:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:18**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		47.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		54.0 %	40-150		"	"	"	"	

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS03@2'
2105211-03 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		82.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		83.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:42**

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

PAH by EPA Method 8270D SIM

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS03@2'
2105211-03 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:42**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		48.7 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		45.0 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS04@4'
2105211-04 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		88.2 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		103 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		87.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:43**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS04@4'
2105211-04 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 10:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		44.6 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.0 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS05@5'
2105211-05 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 13:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Benzene	ND	0.0020		mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	0.0054	0.0050		"	"	"	"	"	"	
Ethylbenzene	ND	0.0050		"	"	"	"	"	"	
Xylenes (total)	0.023	0.010		"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050		"	"	"	"	"	"	
1,3,5-Trimethylbenzene	0.011	0.0050		"	"	"	"	"	"	
Naphthalene	ND	0.0038		"	"	"	"	"	"	
Gasoline Range Hydrocarbons	1.7	0.50		"	"	"	"	"	"	

Date Sampled: **05/14/21 13:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: 1,2-Dichloroethane-d4		80.1 %		23-173		"	"	"	"	
Surrogate: Toluene-d8		91.4 %		20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		89.5 %		21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 13:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
C10-C28 (DRO)	ND	50		mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50		"	"	"	"	"	"	

Date Sampled: **05/14/21 13:24**

Analyte	Result	Reporting		Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit								
Surrogate: o-Terphenyl		112 %		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: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS06@2'
2105211-06 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		86.8 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		105 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		85.4 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		86.2 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS06@2'
2105211-06 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Benzo (k) fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:40**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		48.1 %	40-150		"	"	"	"	

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS07@4'
2105211-07 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		79.6 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		90.4 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		80.2 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: o-Terphenyl		136 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS07@4'
2105211-07 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		40.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		42.0 %	40-150		"	"	"	"	

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS08@2'
2105211-08 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 13:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		86.0 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		99.5 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		84.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 13:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:43**

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

PAH by EPA Method 8270D SIM

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS08@2'
2105211-08 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 13:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:43**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		42.3 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		40.4 %	40-150		"	"	"	"	

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: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

SS09@4'
2105211-09 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/14/21 13:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	0.0020	mg/kg	1	BEE0265	05/14/21	05/15/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4		83.4 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		102 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		80.0 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/14/21 13:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0266	05/14/21	05/15/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:44**

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

PAH by EPA Method 8270D SIM

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

SS09@4'
2105211-09 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/14/21 13:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/14/21 13:44**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		49.2 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		48.4 %	40-150		"	"	"	"	

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: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

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 BEE0265 - EPA 5030 Soil MS

Blank (BEE0265-BLK1)

Prepared & Analyzed: 05/14/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0324</i>		<i>"</i>	<i>0.0400</i>		<i>81.0</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0388</i>		<i>"</i>	<i>0.0400</i>		<i>97.1</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0330</i>		<i>"</i>	<i>0.0400</i>		<i>82.6</i>		<i>21-167</i>		

LCS (BEE0265-BS1)

Prepared & Analyzed: 05/14/21

Benzene	0.0873	0.0020	mg/kg	0.100		87.3		70-130		
Toluene	0.0895	0.0050	"	0.100		89.5		70-130		
Ethylbenzene	0.113	0.0050	"	0.100		113		70-130		
m,p-Xylene	0.237	0.010	"	0.200		118		70-130		
o-Xylene	0.112	0.0050	"	0.100		112		70-130		
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100		110		70-130		
1,3,5-Trimethylbenzene	0.111	0.0050	"	0.100		111		70-130		
Naphthalene	0.108	0.0038	"	0.100		108		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0328</i>		<i>"</i>	<i>0.0400</i>		<i>82.0</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0389</i>		<i>"</i>	<i>0.0400</i>		<i>97.3</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0324</i>		<i>"</i>	<i>0.0400</i>		<i>80.9</i>		<i>21-167</i>		

Matrix Spike (BEE0265-MS1)

Source: 2105210-07

Prepared & Analyzed: 05/14/21

Benzene	0.0927	0.0020	mg/kg	0.100	ND	92.7		70-130		
Toluene	0.0981	0.0050	"	0.100	ND	98.1		70-130		
Ethylbenzene	0.113	0.0050	"	0.100	ND	113		70-130		
m,p-Xylene	0.245	0.010	"	0.200	0.00429	120		70-130		
o-Xylene	0.110	0.0050	"	0.100	ND	110		70-130		
1,2,4-Trimethylbenzene	0.112	0.0050	"	0.100	ND	112		70-130		
1,3,5-Trimethylbenzene	0.113	0.0050	"	0.100	ND	113		70-130		
Naphthalene	0.122	0.0038	"	0.100	ND	122		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0357</i>		<i>"</i>	<i>0.0400</i>		<i>89.2</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0393</i>		<i>"</i>	<i>0.0400</i>		<i>98.2</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0337</i>		<i>"</i>	<i>0.0400</i>		<i>84.2</i>		<i>21-167</i>		

Summit Scientific

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



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEE0265 - EPA 5030 Soil MS

Matrix Spike Dup (BEE0265-MSD1)	Source: 2105210-07			Prepared & Analyzed: 05/14/21						
Benzene	0.0895	0.0020	mg/kg	0.100	ND	89.5	70-130	3.46	30	
Toluene	0.0969	0.0050	"	0.100	ND	96.9	70-130	1.26	30	
Ethylbenzene	0.104	0.0050	"	0.100	ND	104	70-130	8.73	30	
m,p-Xylene	0.225	0.010	"	0.200	0.00429	111	70-130	8.15	30	
o-Xylene	0.111	0.0050	"	0.100	ND	111	70-130	0.597	30	
1,2,4-Trimethylbenzene	0.110	0.0050	"	0.100	ND	110	70-130	1.78	30	
1,3,5-Trimethylbenzene	0.109	0.0050	"	0.100	ND	109	70-130	4.19	30	
Naphthalene	0.125	0.0038	"	0.100	ND	125	70-130	2.72	30	
Surrogate: 1,2-Dichloroethane-d4	0.0353		"	0.0400		88.4	23-173			
Surrogate: Toluene-d8	0.0374		"	0.0400		93.4	20-170			
Surrogate: 4-Bromofluorobenzene	0.0336		"	0.0400		84.1	21-167			

Summit Scientific

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



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

Project: Kristin 1 Wellhead
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/08/21 15:15

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEE0266 - EPA 3550A

Blank (BEE0266-BLK1)

Prepared: 05/14/21 Analyzed: 05/15/21

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

LCS (BEE0266-BS1)

Prepared: 05/14/21 Analyzed: 05/15/21

C10-C28 (DRO)	442	50	mg/kg	500	88.4	70-130				
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Matrix Spike (BEE0266-MS1)

Source: 2105210-07

Prepared: 05/14/21 Analyzed: 05/15/21

C10-C28 (DRO)	492	50	mg/kg	500	13.3	95.7	70-130			
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Matrix Spike Dup (BEE0266-MSD1)

Source: 2105210-07

Prepared: 05/14/21 Analyzed: 05/15/21

C10-C28 (DRO)	417	50	mg/kg	500	13.3	80.8	70-130	16.4	20	
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Summit Scientific

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



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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0118 - EPA 5030 Soil MS

Blank (BEF0118-BLK1)

Prepared: 06/04/21 Analyzed: 06/06/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0188</i>		"	<i>0.0333</i>		<i>56.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0196</i>		"	<i>0.0333</i>		<i>58.9</i>	<i>40-150</i>			

LCS (BEF0118-BS1)

Prepared: 06/04/21 Analyzed: 06/06/21

Acenaphthene	0.0304	0.00500	mg/kg	0.0333		91.1	31-137			
Anthracene	0.0304	0.00500	"	0.0333		91.3	30-120			
Benzo (a) anthracene	0.0302	0.00500	"	0.0333		90.6	30-120			
Benzo (a) pyrene	0.0297	0.00500	"	0.0333		89.0	30-120			
Benzo (b) fluoranthene	0.0307	0.00500	"	0.0333		92.0	30-120			
Benzo (k) fluoranthene	0.0307	0.00500	"	0.0333		92.0	30-120			
Chrysene	0.0304	0.00500	"	0.0333		91.2	30-120			
Dibenz (a,h) anthracene	0.0288	0.00500	"	0.0333		86.4	30-120			
Fluoranthene	0.0376	0.00500	"	0.0333		113	30-120			
Fluorene	0.0296	0.00500	"	0.0333		88.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0285	0.00500	"	0.0333		85.4	30-120			
Pyrene	0.0323	0.00500	"	0.0333		97.0	35-142			
1-Methylnaphthalene	0.0283	0.00500	"	0.0333		84.8	35-142			
2-Methylnaphthalene	0.0316	0.00500	"	0.0333		94.7	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0166</i>		"	<i>0.0333</i>		<i>49.7</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0174</i>		"	<i>0.0333</i>		<i>52.2</i>	<i>40-150</i>			

Summit Scientific

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0118 - EPA 5030 Soil MS

Matrix Spike (BEF0118-MS1)		Source: 2105160-01			Prepared: 06/04/21		Analyzed: 06/06/21	
Acenaphthene	0.0319	0.00500	mg/kg	0.0333	ND	95.7	31-137	
Anthracene	0.0318	0.00500	"	0.0333	ND	95.3	30-120	
Benzo (a) anthracene	0.0324	0.00500	"	0.0333	ND	97.1	30-120	
Benzo (a) pyrene	0.0317	0.00500	"	0.0333	ND	95.1	30-120	
Benzo (b) fluoranthene	0.0313	0.00500	"	0.0333	ND	93.9	30-120	
Benzo (k) fluoranthene	0.0311	0.00500	"	0.0333	ND	93.3	30-120	
Chrysene	0.0320	0.00500	"	0.0333	ND	95.9	30-120	
Dibenz (a,h) anthracene	0.0305	0.00500	"	0.0333	ND	91.6	30-120	
Fluoranthene	0.0203	0.00500	"	0.0333	ND	61.0	30-120	
Fluorene	0.0317	0.00500	"	0.0333	ND	95.2	30-120	
Indeno (1,2,3-cd) pyrene	0.0306	0.00500	"	0.0333	ND	91.8	30-120	
Pyrene	0.0333	0.00500	"	0.0333	ND	100	35-142	
1-Methylnaphthalene	0.0306	0.00500	"	0.0333	ND	91.8	15-130	
2-Methylnaphthalene	0.0338	0.00500	"	0.0333	ND	102	15-130	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0198</i>		"	<i>0.0333</i>		<i>59.3</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0152</i>		"	<i>0.0333</i>		<i>45.5</i>	<i>40-150</i>	

Matrix Spike Dup (BEF0118-MSD1)		Source: 2105160-01			Prepared: 06/04/21		Analyzed: 06/06/21	
Acenaphthene	0.0316	0.00500	mg/kg	0.0333	ND	94.7	31-137	0.981 30
Anthracene	0.0320	0.00500	"	0.0333	ND	96.0	30-120	0.799 30
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	ND	98.6	30-120	1.56 30
Benzo (a) pyrene	0.0316	0.00500	"	0.0333	ND	94.7	30-120	0.336 30
Benzo (b) fluoranthene	0.0318	0.00500	"	0.0333	ND	95.3	30-120	1.41 30
Benzo (k) fluoranthene	0.0316	0.00500	"	0.0333	ND	94.8	30-120	1.62 30
Chrysene	0.0326	0.00500	"	0.0333	ND	97.7	30-120	1.85 30
Dibenz (a,h) anthracene	0.0300	0.00500	"	0.0333	ND	89.9	30-120	1.93 30
Fluoranthene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	16.9 30
Fluorene	0.0318	0.00500	"	0.0333	ND	95.4	30-120	0.213 30
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333	ND	90.4	30-120	1.61 30
Pyrene	0.0348	0.00500	"	0.0333	ND	104	35-142	4.36 30
1-Methylnaphthalene	0.0325	0.00500	"	0.0333	ND	97.4	15-130	5.89 50
2-Methylnaphthalene	0.0322	0.00500	"	0.0333	ND	96.6	15-130	4.95 50
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0163</i>		"	<i>0.0333</i>		<i>48.8</i>	<i>40-150</i>	
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0163</i>		"	<i>0.0333</i>		<i>48.8</i>	<i>40-150</i>	

Summit Scientific

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

Project: Kristin 1 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:15

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

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

June 08, 2021

Mark Longhurst

PDC Energy

1775 Sherman St. STE. 3000

Denver, CO 80203

RE: Kristin 1 Wellhead

Work Order #2105245

Enclosed are the results of analyses for samples received by Summit Scientific on 05/17/21 17:44. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Muri Premer". The signature is written in a cursive style with a large initial "M" and a long, sweeping underline.

Muri Premer For Paul Shrewsbury
President



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

Project: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SS11@5.5'	2105245-01	Soil	05/17/21 10:53	05/17/21 17:44

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

S₂

2105245

4653 Table Mountain Drive ♦ Golden, Colorado 80403
303-277-9310

Page 1 of 1

Client: PDC / Tasman Project Manager: Mark Longhurst
Address: 6855 W 119th Ave E-Mail: mark.longhurst@PDCE.com
City/State/Zip: Broomfield/ CO/ 80020
Phone: 303-487-1228 Project Name: Keith / Wellhead
Sampler Name: Kevin Fletcher Project Number:

ID	Sample Description	Date Sampled	Time Sampled	# of containers	Preservative				Matrix			Analysis Requested						Special Instructions			
					HCl	HNO3	None	Other	Water	Soil	Air-Canister #	Other	GBTEXN - 8260B - 915	TPH - (C6 - C36) - 915	TMB's (1,2,4 & 1,3,5) - 915	pH, EC, SAR - 915	Boron - HWS - 915		VOC - 915	PAH - 915	Metals - 915
1	SS11@55'	5/17/21	1053	3			X			X			X	X	X						pH, EC, SAR by saturated paste
2																					
3																					
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Relinquished by: <u>Kevin Fletcher</u>	Date/Time: <u>5/17/21 1700</u>	Received by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/17/21 1700</u>	Turn Around Time (Check) Same Day <input checked="" type="checkbox"/> 72 hours ___ 24 hours ___ Standard ___ 48 hours ___ Sample Integrity: Temperature Upon Receipt: <u>6</u> Samples Intact: Yes No	Notes:
Relinquished by: <u>Tasman's Lock Box</u>	Date/Time: <u>5/17/21 1745</u>	Received by: <u>Jim Bu</u>	Date/Time: <u>5/17/21 1745</u>		
Relinquished by:	Date/Time:	Received by:	Date/Time:		

Sample Receipt Checklist

S2 Work Order 2105245

Client: PDC / Tasman Client Project ID: Kristin / Wellhead

Shipped Via: H.D./P.U./FedEx/UPS/USPS/Other _____ Airbill #: _____

Matrix (check all that apply): Air Soil/Solid Water Other: _____
(Describe)

Temp (°C)	<u>6</u>
-----------	----------

Thermometer ID: 61857155-K

	Yes	No	N/A	Comments (if any)
If samples require cooling, was the temperature at 4°C +/- 2°C ⁽¹⁾ ? NOTE: If samples are delivered the same day of sampling, this requirement is met provided that there is evidence that cooling has begun.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>On ice.</u>
Were all samples received intact ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Was adequate sample volume provided ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
If custody seals are present, are they intact ⁽¹⁾ ?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples with holding times due within 48 hours sample due within 48 hours present?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<u>Same day</u>
Is a chain-of-custody (COC) form present and filled out completely ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Does the COC agree with the number and type of sample bottles received ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Do the sample IDs on the bottle labels match the COC ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Is the COC properly relinquished by the client w/ date and time recorded ⁽¹⁾ ?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
For volatiles in water – is there headspace present? If yes, contact client and note in narrative.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
Are samples preserved that require preservation (excluding cooling) ⁽¹⁾ ? Note the type of preservative in the Comments column – HCl, H2SO4, NaOH, HNO3, ect	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If samples are acid preserved for metals, is the pH ≤ 2 ⁽¹⁾ ? Record the pH in Comments.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
If dissolved metals are requested, were samples field filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Additional Comments (if any):

⁽¹⁾ If NO, then contact the client before proceeding with analysis and note in case narrative.

JB
Custodian Printed Name or Initials

[Signature]
Signature of Custodian

5/17/21
Date/Time



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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

SS11@5.5'
2105245-01 (Soil)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Benzene	ND	0.0020	mg/kg	1	BEE0297	05/17/21	05/17/21	EPA 8260B	
Toluene	ND	0.0050	"	"	"	"	"	"	
Ethylbenzene	ND	0.0050	"	"	"	"	"	"	
Xylenes (total)	ND	0.010	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	0.0050	"	"	"	"	"	"	
Naphthalene	ND	0.0038	"	"	"	"	"	"	
Gasoline Range Hydrocarbons	ND	0.50	"	"	"	"	"	"	

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: 1,2-Dichloroethane-d4		127 %	23-173		"	"	"	"	
Surrogate: Toluene-d8		107 %	20-170		"	"	"	"	
Surrogate: 4-Bromofluorobenzene		97.6 %	21-167		"	"	"	"	

Extractable Petroleum Hydrocarbons by 8015

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
C10-C28 (DRO)	ND	50	mg/kg	1	BEE0298	"	05/17/21	EPA 8015M	
C28-C36 (ORO)	ND	50	"	"	"	"	"	"	

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting		Dilution	Batch	Prepared	Analyzed	Method	Notes
		Limit	Units						
Surrogate: o-Terphenyl		87.5 %	30-150		"	"	"	"	

PAH by EPA Method 8270D SIM

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: Kristin 1 Wellhead

Project Number: [none]

Project Manager: Mark Longhurst

Reported:
 06/08/21 15:20

SS11@5.5'
2105245-01 (Soil)

Summit Scientific

PAH by EPA Method 8270D SIM

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Anthracene	ND	0.00500	mg/kg	1	BEF0118	06/04/21	06/06/21	EPA 8270D SIM	
Chrysene	ND	0.00500	"	"	"	"	"	"	
Fluoranthene	ND	0.00500	"	"	"	"	"	"	
Fluorene	ND	0.00500	"	"	"	"	"	"	
Pyrene	ND	0.00500	"	"	"	"	"	"	

Date Sampled: **05/17/21 10:53**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 2-Methylnaphthalene-d10		40.4 %	40-150		"	"	"	"	
Surrogate: Fluoranthene-d10		46.6 %	40-150		"	"	"	"	

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: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

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

Batch BEE0297 - EPA 5030 Soil MS

Blank (BEE0297-BLK1)

Prepared & Analyzed: 05/17/21

Benzene	ND	0.0020	mg/kg							
Toluene	ND	0.0050	"							
Ethylbenzene	ND	0.0050	"							
Xylenes (total)	ND	0.010	"							
1,2,4-Trimethylbenzene	ND	0.0050	"							
1,3,5-Trimethylbenzene	ND	0.0050	"							
Naphthalene	ND	0.0038	"							
Gasoline Range Hydrocarbons	ND	0.50	"							
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0358</i>		<i>"</i>	<i>0.0400</i>		<i>89.6</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0413</i>		<i>"</i>	<i>0.0400</i>		<i>103</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0320</i>		<i>"</i>	<i>0.0400</i>		<i>80.1</i>		<i>21-167</i>		

LCS (BEE0297-BS1)

Prepared & Analyzed: 05/17/21

Benzene	0.0869	0.0020	mg/kg	0.100		86.9		70-130		
Toluene	0.104	0.0050	"	0.100		104		70-130		
Ethylbenzene	0.115	0.0050	"	0.100		115		70-130		
m,p-Xylene	0.248	0.010	"	0.200		124		70-130		
o-Xylene	0.123	0.0050	"	0.100		123		70-130		
1,2,4-Trimethylbenzene	0.127	0.0050	"	0.100		127		70-130		
1,3,5-Trimethylbenzene	0.125	0.0050	"	0.100		125		70-130		
Naphthalene	0.118	0.0038	"	0.100		118		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0351</i>		<i>"</i>	<i>0.0400</i>		<i>87.8</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0398</i>		<i>"</i>	<i>0.0400</i>		<i>99.4</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0323</i>		<i>"</i>	<i>0.0400</i>		<i>80.7</i>		<i>21-167</i>		

Matrix Spike (BEE0297-MS1)

Source: 2105243-01

Prepared & Analyzed: 05/17/21

Benzene	0.0814	0.0020	mg/kg	0.100	ND	81.4		70-130		
Toluene	0.0956	0.0050	"	0.100	ND	95.6		70-130		
Ethylbenzene	0.116	0.0050	"	0.100	ND	116		70-130		
m,p-Xylene	0.246	0.010	"	0.200	ND	123		70-130		
o-Xylene	0.121	0.0050	"	0.100	ND	121		70-130		
1,2,4-Trimethylbenzene	0.122	0.0050	"	0.100	ND	122		70-130		
1,3,5-Trimethylbenzene	0.120	0.0050	"	0.100	ND	120		70-130		
Naphthalene	0.130	0.0038	"	0.100	ND	130		70-130		
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0355</i>		<i>"</i>	<i>0.0400</i>		<i>88.8</i>		<i>23-173</i>		
<i>Surrogate: Toluene-d8</i>	<i>0.0407</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>		<i>20-170</i>		
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0321</i>		<i>"</i>	<i>0.0400</i>		<i>80.3</i>		<i>21-167</i>		

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

Project: Kristin 1 Wellhead
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/08/21 15:20

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 BEE0297 - EPA 5030 Soil MS

Matrix Spike Dup (BEE0297-MSD1)	Source: 2105243-01			Prepared & Analyzed: 05/17/21						
Benzene	0.0794	0.0020	mg/kg	0.100	ND	79.4	70-130	2.46	30	
Toluene	0.0980	0.0050	"	0.100	ND	98.0	70-130	2.48	30	
Ethylbenzene	0.115	0.0050	"	0.100	ND	115	70-130	0.547	30	
m,p-Xylene	0.260	0.010	"	0.200	ND	130	70-130	5.58	30	
o-Xylene	0.120	0.0050	"	0.100	ND	120	70-130	0.622	30	
1,2,4-Trimethylbenzene	0.125	0.0050	"	0.100	ND	125	70-130	1.99	30	
1,3,5-Trimethylbenzene	0.123	0.0050	"	0.100	ND	123	70-130	2.02	30	
Naphthalene	0.120	0.0038	"	0.100	ND	120	70-130	8.50	30	
<i>Surrogate: 1,2-Dichloroethane-d4</i>	<i>0.0348</i>		<i>"</i>	<i>0.0400</i>		<i>87.0</i>	<i>23-173</i>			
<i>Surrogate: Toluene-d8</i>	<i>0.0408</i>		<i>"</i>	<i>0.0400</i>		<i>102</i>	<i>20-170</i>			
<i>Surrogate: 4-Bromofluorobenzene</i>	<i>0.0348</i>		<i>"</i>	<i>0.0400</i>		<i>87.0</i>	<i>21-167</i>			

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

Project: Kristin 1 Wellhead
 Project Number: [none]
 Project Manager: Mark Longhurst

Reported:
 06/08/21 15:20

Extractable Petroleum Hydrocarbons by 8015 - Quality Control
Summit Scientific

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

Batch BEE0298 - EPA 3550A

Blank (BEE0298-BLK1)

Prepared & Analyzed: 05/17/21

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

LCS (BEE0298-BS1)

Prepared & Analyzed: 05/17/21

C10-C28 (DRO)	599	50	mg/kg	500	120	70-130				
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Matrix Spike (BEE0298-MS1)

Source: 2105243-01

Prepared & Analyzed: 05/17/21

C10-C28 (DRO)	537	50	mg/kg	500	17.7	104	70-130			
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Matrix Spike Dup (BEE0298-MSD1)

Source: 2105243-01

Prepared & Analyzed: 05/17/21

C10-C28 (DRO)	559	50	mg/kg	500	17.7	108	70-130	3.93	20	
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PDC Energy
1775 Sherman St. STE. 3000
Denver CO, 80203

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0118 - EPA 5030 Soil MS

Blank (BEF0118-BLK1)

Prepared: 06/04/21 Analyzed: 06/06/21

Acenaphthene	ND	0.00500	mg/kg							
Anthracene	ND	0.00500	"							
Benzo (a) anthracene	ND	0.00500	"							
Benzo (a) pyrene	ND	0.00500	"							
Benzo (b) fluoranthene	ND	0.00500	"							
Benzo (k) fluoranthene	ND	0.00500	"							
Chrysene	ND	0.00500	"							
Dibenz (a,h) anthracene	ND	0.00500	"							
Fluoranthene	ND	0.00500	"							
Fluorene	ND	0.00500	"							
Indeno (1,2,3-cd) pyrene	ND	0.00500	"							
Pyrene	ND	0.00500	"							
1-Methylnaphthalene	ND	0.00500	"							
2-Methylnaphthalene	ND	0.00500	"							
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0188</i>		"	<i>0.0333</i>		<i>56.4</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0196</i>		"	<i>0.0333</i>		<i>58.9</i>	<i>40-150</i>			

LCS (BEF0118-BS1)

Prepared: 06/04/21 Analyzed: 06/06/21

Acenaphthene	0.0304	0.00500	mg/kg	0.0333		91.1	31-137			
Anthracene	0.0304	0.00500	"	0.0333		91.3	30-120			
Benzo (a) anthracene	0.0302	0.00500	"	0.0333		90.6	30-120			
Benzo (a) pyrene	0.0297	0.00500	"	0.0333		89.0	30-120			
Benzo (b) fluoranthene	0.0307	0.00500	"	0.0333		92.0	30-120			
Benzo (k) fluoranthene	0.0307	0.00500	"	0.0333		92.0	30-120			
Chrysene	0.0304	0.00500	"	0.0333		91.2	30-120			
Dibenz (a,h) anthracene	0.0288	0.00500	"	0.0333		86.4	30-120			
Fluoranthene	0.0376	0.00500	"	0.0333		113	30-120			
Fluorene	0.0296	0.00500	"	0.0333		88.9	30-120			
Indeno (1,2,3-cd) pyrene	0.0285	0.00500	"	0.0333		85.4	30-120			
Pyrene	0.0323	0.00500	"	0.0333		97.0	35-142			
1-Methylnaphthalene	0.0283	0.00500	"	0.0333		84.8	35-142			
2-Methylnaphthalene	0.0316	0.00500	"	0.0333		94.7	35-142			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0166</i>		"	<i>0.0333</i>		<i>49.7</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0174</i>		"	<i>0.0333</i>		<i>52.2</i>	<i>40-150</i>			

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

Project: Kristin 1 Wellhead

Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

PAH by EPA Method 8270D SIM - Quality Control

Summit Scientific

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

Batch BEF0118 - EPA 5030 Soil MS

Matrix Spike (BEF0118-MS1)	Source: 2105160-01			Prepared: 06/04/21		Analyzed: 06/06/21				
Acenaphthene	0.0319	0.00500	mg/kg	0.0333	ND	95.7	31-137			
Anthracene	0.0318	0.00500	"	0.0333	ND	95.3	30-120			
Benzo (a) anthracene	0.0324	0.00500	"	0.0333	ND	97.1	30-120			
Benzo (a) pyrene	0.0317	0.00500	"	0.0333	ND	95.1	30-120			
Benzo (b) fluoranthene	0.0313	0.00500	"	0.0333	ND	93.9	30-120			
Benzo (k) fluoranthene	0.0311	0.00500	"	0.0333	ND	93.3	30-120			
Chrysene	0.0320	0.00500	"	0.0333	ND	95.9	30-120			
Dibenz (a,h) anthracene	0.0305	0.00500	"	0.0333	ND	91.6	30-120			
Fluoranthene	0.0203	0.00500	"	0.0333	ND	61.0	30-120			
Fluorene	0.0317	0.00500	"	0.0333	ND	95.2	30-120			
Indeno (1,2,3-cd) pyrene	0.0306	0.00500	"	0.0333	ND	91.8	30-120			
Pyrene	0.0333	0.00500	"	0.0333	ND	100	35-142			
1-Methylnaphthalene	0.0306	0.00500	"	0.0333	ND	91.8	15-130			
2-Methylnaphthalene	0.0338	0.00500	"	0.0333	ND	102	15-130			
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0198</i>		<i>"</i>	<i>0.0333</i>		<i>59.3</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0152</i>		<i>"</i>	<i>0.0333</i>		<i>45.5</i>	<i>40-150</i>			

Matrix Spike Dup (BEF0118-MSD1)	Source: 2105160-01			Prepared: 06/04/21		Analyzed: 06/06/21				
Acenaphthene	0.0316	0.00500	mg/kg	0.0333	ND	94.7	31-137	0.981	30	
Anthracene	0.0320	0.00500	"	0.0333	ND	96.0	30-120	0.799	30	
Benzo (a) anthracene	0.0329	0.00500	"	0.0333	ND	98.6	30-120	1.56	30	
Benzo (a) pyrene	0.0316	0.00500	"	0.0333	ND	94.7	30-120	0.336	30	
Benzo (b) fluoranthene	0.0318	0.00500	"	0.0333	ND	95.3	30-120	1.41	30	
Benzo (k) fluoranthene	0.0316	0.00500	"	0.0333	ND	94.8	30-120	1.62	30	
Chrysene	0.0326	0.00500	"	0.0333	ND	97.7	30-120	1.85	30	
Dibenz (a,h) anthracene	0.0300	0.00500	"	0.0333	ND	89.9	30-120	1.93	30	
Fluoranthene	0.0241	0.00500	"	0.0333	ND	72.3	30-120	16.9	30	
Fluorene	0.0318	0.00500	"	0.0333	ND	95.4	30-120	0.213	30	
Indeno (1,2,3-cd) pyrene	0.0301	0.00500	"	0.0333	ND	90.4	30-120	1.61	30	
Pyrene	0.0348	0.00500	"	0.0333	ND	104	35-142	4.36	30	
1-Methylnaphthalene	0.0325	0.00500	"	0.0333	ND	97.4	15-130	5.89	50	
2-Methylnaphthalene	0.0322	0.00500	"	0.0333	ND	96.6	15-130	4.95	50	
<i>Surrogate: 2-Methylnaphthalene-d10</i>	<i>0.0163</i>		<i>"</i>	<i>0.0333</i>		<i>48.8</i>	<i>40-150</i>			
<i>Surrogate: Fluoranthene-d10</i>	<i>0.0163</i>		<i>"</i>	<i>0.0333</i>		<i>48.8</i>	<i>40-150</i>			

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

Project: Kristin 1 Wellhead
Project Number: [none]
Project Manager: Mark Longhurst

Reported:
06/08/21 15:20

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