TABLE 1
FORMER WILLMAN 42-16 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**	**-**	**-**
BH01	6/10/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.50	4752.62
BH01	9/22/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.35	4755.77
BH01	12/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.50	4751.62
BH01	3/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.49	4750.63
BH02	6/10/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.56	4752.45
BH02	9/22/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.38	4755.63
BH02	12/2/2022	<1.0	<1.0	1.0	<2.0	<1.0	<1.0	<1.0	4.78	4751.23
BH02	3/15/2023	<1.0	<1.0	1.0	<2.0	<1.0	<1.0	<1.0	5.93	4750.08
BH03	6/10/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.61	4753.04
BH03	9/22/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.25	4756.40
BH03	12/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.69	4751.96
BH03	3/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.88	4750.77
BH04	6/10/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.59	4752.90
BH04	9/22/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.42	4756.07
BH04	12/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.73	4751.76
BH04	3/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.81	4750.68
BH05	6/10/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	3.64	4752.26
BH05	9/22/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	0.35	4755.55
BH05	12/2/2022	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	4.83	4751.07
BH05	3/15/2023	<1.0	<1.0	<1.0	<2.0	<1.0	<1.0	<1.0	5.93	4749.97

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

TABLE 2
FORMER WILLMAN 42-16 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water [2] (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (mg/L) [1]		**<1.25 x BCKG**	**250 or <1.25 x BCKG**	**250 or <1.25 x BCKG**	-	-
BH01	6/10/2022	1,900	**311**	**631**	3.50	4752.62
BH01	9/22/2022	1,560	234	**441**	0.35	4755.77
BH01	12/2/2022	1,270	**270**	**296**	4.50	4751.62
BH01	3/15/2023	1,720	229	**419**	5.49	4750.63
BH02	6/10/2022	2,010	417	422	3.56	4752.45
BH02	9/22/2022	2,010	359	603	0.38	4755.63
BH02	12/2/2022	1,580	333	502	4.78	4751.23
BH02	3/15/2023	1,500	313	482	5.93	4750.08
BH03	6/10/2022	1,630	324	309	3.61	4753.04
BH03	9/22/2022	1,580	296	398	0.25	4756.40
BH03	12/2/2022	1,560	398	472	4.69	4751.96
BH03	3/15/2023	1,160	172	242	5.88	4750.77
BH04	6/10/2022	1,530	**325**	**321**	3.59	4752.90
BH04	9/22/2022	1,250	231	**291**	0.42	4756.07
BH04	12/2/2022	1,320	**319**	**349**	4.73	4751.76
BH04	3/15/2023	918	136	188	5.81	4750.68
BH05	6/10/2022	1,440	**279**	**252**	3.64	4752.26
BH05	9/22/2022	1,830	**340**	**476**	0.35	4755.55
BH05	12/2/2022	1,230	**303**	**375**	4.83	4751.07
BH05	3/15/2023	**2,120**	209	**288**	5.93	4749.97

TABLE 2
FORMER WILLMAN 42-16 TANK BATTERY
GROUNDWATER ANALYTICAL RESULTS SUMMARY TABLE
INORGANIC PARAMETERS

Sample ID	Date Sampled	TDS (unit)	Chloride Ion (mg/L)	Sulfate Ion (mg/L)	Depth to Water [2] (ft.)	Groundwater Elevation (ft. AMSL)
COGCC Table 915-1 Groundwater Standard (mg/L) [1]		**<1.25 x BCKG**	**250 or <1.25 x BCKG**	**250 or <1.25 x BCKG**	**-**	**-**

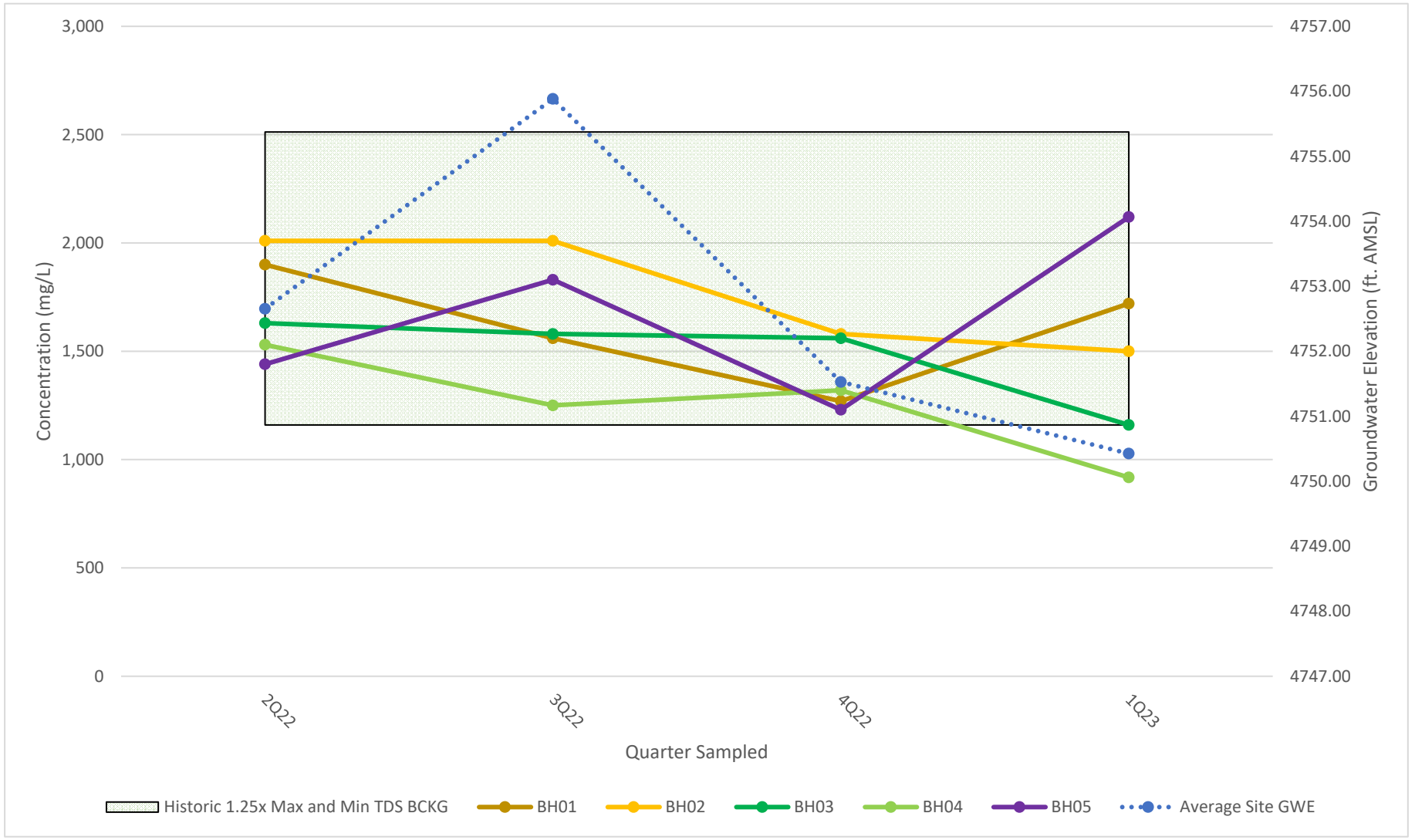
Notes:

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.

TDS = Total dissolved solids
COGCC = Colorado Oil and Gas Conservation Commission
BCKG = Background
mg/L = Milligrams per liter
(<) = Analytical result is less than the indicated laboratory reporting limit.
ft. = Feet
AMSL = Above Mean Sea Level
= Up- / cross-gradient well locations used for background concentration.
= Historic up- / cross-gradient well locations used for background concentration.
BOLD = Analytical result is in exceedance of applicable standard and above 1.25x the background concentration.
BOLD = Analytical result is in exceedance of applicable standard but within 1.25x the background concentration.

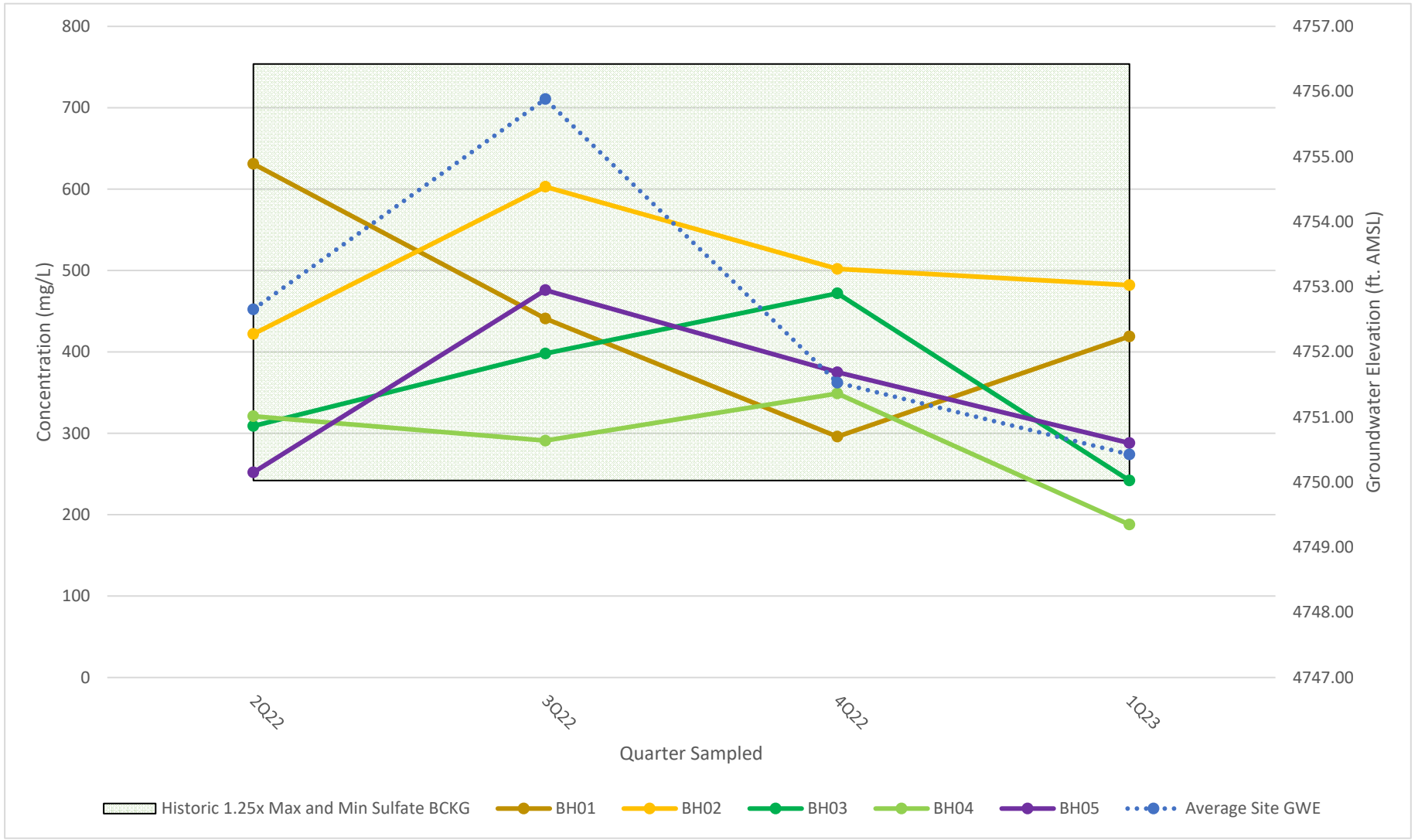
Attachment A

Former Willman 42-16 Wellhead
TDS Concentration vs Historic Background vs Groundwater Elevation



NOTES:
BCKG = background
ft. AMSL = feet above mean sea level
GWE = groundwater elevation
mg/L = milligrams per liter
TDS = total dissolved solids

Former Willman 42-16 Wellhead
Sulfate Concentration vs Historic Background vs Groundwater Elevation



NOTES:
BCKG = background
ft. AMSL = feet above mean sea level
GWE = groundwater elevation
mg/L = milligrams per liter

Attachment B

Summit Scientific

4653 Table Mountain Drive, Golden, Colorado 80403

303.277.9310

March 30, 2023

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

RE: Willman 42-16 Wellhead
Work Order #2303423

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

Sincerely,

Scott Sheely For Paul Shrewsbury
President

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
BH01	2303423-01	Water	03/15/23 14:16	03/15/23 18:18
BH02	2303423-02	Water	03/15/23 12:15	03/15/23 18:18
BH03	2303423-03	Water	03/15/23 13:15	03/15/23 18:18
BH04	2303423-04	Water	03/15/23 11:32	03/15/23 18:18
BH05	2303423-05	Water	03/15/23 13:41	03/15/23 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

4653 Table Mountain Drive
Golden, CO 80403
303-277-9310

Lab ID	Page 1 of 1
2303423	

Send Data To:		Send Invoice To:	
Client:	PDC / Tasman	Project Manager:	Mark Longhurst
Address:	6855 W 119th Ave	E-Mail:	mark.longhurst@PDCE.com
City/State/Zip:	Broomfield / CO / 80220		
Phone:	303-487-1228	Project Name:	Willman 42-16 Wellhead
Sampler Name:	G. Semenza	Project Number:	

Company: PDC Energy
Project Name/Location:
AFE#:
PO/Billing Codes:
Contact: Mark Longhurst

					Preservative				Matrix				Analysis Requested								Special Instructions
ID	Sample Description	Date Sampled	Time Sampled	# of containers	HCl	HNO3	None	Other ___	Water	Soil	Air-Canister #	Other ___	BTEXN, TMB's	Cl, SO4, TDS							
1	BH01	3/15/23	1416	2	1		1		X				X	X							
2	BH02	↓	1215	4	3		1		↓				↓	↓							
3	BH03		1315	4	3		1														
4	BH04		1132	4	3		1														
5	BH05	↓	1341	4	3		1		↓				↓	↓							
6																					
7																					
8																					
9																					
10																					
11																					
12																					
13																					
14																					
15																					

Relinquished by:	Date/Time:	Received by:	Date/Time:
J. Semenza	3/15/23 1602	Tasman Lockbox	3/15/23 1602
Tasman Lockbox	31523 1818		31523 1818
Relinquished by:	Date/Time:	Received by:	Date/Time:

TAT Business Days		Field DO	
Same Day		Field EC	
1 Day		Field ORP	
2 Days		Field pH	
3 Days		Field Temp.	
Standard	X	Field Turb.	

Notes:

Temperature Upon Receipt: 8.3
Corrected Temperature: 0
IR gun #: 1
HNO3 lot #:

S2

Sample Receipt Checklist

S2 Work Order# 2303473

Client: PDC Rasman Client Project ID: Willman 42-16 wellhead

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

[ ] [-] [ ] [ ] [ ]

Matrix (Check all that apply) Air [ ] Soil/Solid [ ] Water [ ] Other [ ]

Temp (°C) 6.3 Thermometer # 1

	Yes	No	N/A	Comments (if any)
If samples require cooling, is the temperature < 6°C? (1) **NOTE:** If samples are delivered the same day of sampling, this requirement is met if there is evidence that cooling has begun.	-			ONICE
If custody seals are present, are they intact? (1)	-			
Are samples due within 48 hours present?		-		
Are water samples with short hold times present? Note the short hold analysis in the comments column - pH, Nitrate/Nitrite, Ferrous Iron (Fe^{2+}), Hexavalent Chromium (Cr^{6+}, Cr VI), COD/BOD, Total Coliform, E. Coli, Total Residual Chlorine (TRC), Dissolved Oxygen			-	
Is a chain-of-custody (COC) form present and filled out Completely? (1)	-			
Is the COC properly relinquished by the client w/ date and time recorded? (1)	-			
Were all samples received intact? (1)	✓			
Was adequate sample volume provided? (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)	✓			
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, H_2SO_4, NaOH, HNO_3, etc.	✓			HCl
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.**

[signature] 3.15.23

Custodian Printed Name **Date/Time**

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

BH01

2303423-01 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/15/23 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BGC0648	03/20/23	03/22/23	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **03/15/23 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	15.2	*114 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8	13.6	*102 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.2	*98.8 %*	*21-167*		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/15/23 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**229**	12.0	mg/L	200	BGC0592	03/19/23	03/29/23	EPA 300.0	
Sulfate	**419**	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/15/23 14:16**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	**1720**	10.0	mg/L	1	BGC0637	03/20/23	03/20/23	SM2540C	

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: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

BH02

2303423-02 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/15/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BGC0648	03/20/23	03/22/23	EPA 8260B	
Toluene	ND	1.0	"	"	"	"	"	"	
Ethylbenzene	ND	1.0	"	"	"	"	"	"	
Xylenes (total)	ND	2.0	"	"	"	"	"	"	
Naphthalene	ND	1.0	"	"	"	"	"	"	
1,2,4-Trimethylbenzene	**1.2**	1.0	"	"	"	"	"	"	
1,3,5-Trimethylbenzene	ND	1.0	"	"	"	"	"	"	

Date Sampled: **03/15/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	15.2	*114 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8	13.5	*101 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.6	*102 %*	*21-167*		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/15/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**313**	12.0	mg/L	200	BGC0592	03/19/23	03/29/23	EPA 300.0	
Sulfate	**482**	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/15/23 12:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	**1500**	10.0	mg/L	1	BGC0637	03/20/23	03/20/23	SM2540C	

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: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

BH03

2303423-03 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/15/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BGC0648	03/20/23	03/22/23	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **03/15/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	15.0	*113 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8	13.7	*103 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.4	*101 %*	*21-167*		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/15/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**172**	12.0	mg/L	200	BGC0592	03/19/23	03/29/23	EPA 300.0	
Sulfate	**242**	60.0	"	"	"	"	"	"	

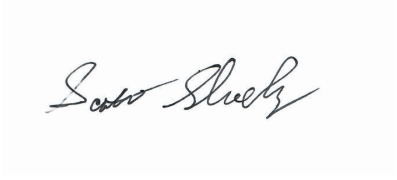
Total Dissolved Solids by SM2540C

Date Sampled: **03/15/23 13:15**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	**1160**	10.0	mg/L	1	BGC0637	03/20/23	03/20/23	SM2540C	

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: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

BH04

2303423-04 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/15/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BGC0648	03/20/23	03/22/23	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **03/15/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	15.1	*113 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8	14.0	*105 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.2	*98.9 %*	*21-167*		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/15/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**136**	12.0	mg/L	200	BGC0592	03/19/23	03/29/23	EPA 300.0	
Sulfate	**188**	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/15/23 11:32**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	**918**	10.0	mg/L	1	BGC0637	03/20/23	03/20/23	SM2540C	

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: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

BH05

2303423-05 (Water)

Summit Scientific

Volatile Organic Compounds by EPA Method 8260B

Date Sampled: **03/15/23 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Benzene	ND	1.0	ug/l	1	BGC0648	03/20/23	03/22/23	EPA 8260B	
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	"	"	"	"	"	"	

Date Sampled: **03/15/23 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Surrogate: 1,2-Dichloroethane-d4	14.9	*112 %*	*23-173*		"	"	"	"	
Surrogate: Toluene-d8	13.7	*103 %*	*20-170*		"	"	"	"	
Surrogate: 4-Bromofluorobenzene	13.1	*98.3 %*	*21-167*		"	"	"	"	

Anions by EPA Method 300.0

Date Sampled: **03/15/23 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**209**	12.0	mg/L	200	BGC0592	03/19/23	03/29/23	EPA 300.0	
Sulfate	**288**	60.0	"	"	"	"	"	"	

Total Dissolved Solids by SM2540C

Date Sampled: **03/15/23 13:41**

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Total Dissolved Solids	**2120**	10.0	mg/L	1	BGC0637	03/20/23	03/20/23	SM2540C	

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: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0648 - EPA 5030 Water MS										
Blank (BGC0648-BLK1)				Prepared: 03/20/23 Analyzed: 03/21/23						
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	*15.1*		"	*13.3*		*113*	*23-173*			
Surrogate: Toluene-d8	*13.8*		"	*13.3*		*103*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*13.5*		"	*13.3*		*101*	*21-167*			
LCS (BGC0648-BS1)				Prepared: 03/20/23 Analyzed: 03/21/23						
Benzene	41.9	1.0	ug/l	33.3		126	51-132			
Toluene	43.3	1.0	"	33.3		130	51-138			
Ethylbenzene	41.3	1.0	"	33.3		124	58-146			
m,p-Xylene	83.2	2.0	"	66.7		125	57-144			
o-Xylene	39.0	1.0	"	33.3		117	53-146			
Naphthalene	28.2	1.0	"	33.3		84.6	70-130			
1,2,4-Trimethylbenzene	39.4	1.0	"	33.3		118	70-130			
1,3,5-Trimethylbenzene	39.9	1.0	"	33.3		120	70-130			
Surrogate: 1,2-Dichloroethane-d4	*14.1*		"	*13.3*		*106*	*23-173*			
Surrogate: Toluene-d8	*13.2*		"	*13.3*		*99.2*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*13.1*		"	*13.3*		*98.6*	*21-167*			
Matrix Spike (BGC0648-MS1)	**Source: 2303409-01**			Prepared: 03/20/23 Analyzed: 03/21/23						
Benzene	42.2	1.0	ug/l	33.3	ND	127	34-141			
Toluene	43.8	1.0	"	33.3	ND	131	27-151			
Ethylbenzene	41.7	1.0	"	33.3	ND	125	29-160			
m,p-Xylene	83.8	2.0	"	66.7	ND	126	20-166			
o-Xylene	39.1	1.0	"	33.3	ND	117	33-159			
Naphthalene	30.8	1.0	"	33.3	ND	92.3	70-130			
1,2,4-Trimethylbenzene	39.4	1.0	"	33.3	ND	118	70-130			
1,3,5-Trimethylbenzene	40.1	1.0	"	33.3	ND	120	70-130			
Surrogate: 1,2-Dichloroethane-d4	*15.1*		"	*13.3*		*113*	*23-173*			
Surrogate: Toluene-d8	*13.4*		"	*13.3*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*13.5*		"	*13.3*		*101*	*21-167*			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

Volatile Organic Compounds by EPA Method 8260B - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0648 - EPA 5030 Water MS										
Matrix Spike Dup (BGC0648-MSD1)	**Source: 2303409-01**			Prepared: 03/20/23 Analyzed: 03/21/23						
Benzene	42.0	1.0	ug/l	33.3	ND	126	34-141	0.498	30	
Toluene	44.1	1.0	"	33.3	ND	132	27-151	0.842	30	
Ethylbenzene	41.2	1.0	"	33.3	ND	123	29-160	1.26	30	
m,p-Xylene	83.1	2.0	"	66.7	ND	125	20-166	0.803	30	
o-Xylene	38.7	1.0	"	33.3	ND	116	33-159	1.21	30	
Naphthalene	32.2	1.0	"	33.3	ND	96.7	70-130	4.73	30	
1,2,4-Trimethylbenzene	38.8	1.0	"	33.3	ND	116	70-130	1.66	30	
1,3,5-Trimethylbenzene	39.7	1.0	"	33.3	ND	119	70-130	1.10	30	
Surrogate: 1,2-Dichloroethane-d4	*15.6*		*"*	*13.3*		*117*	*23-173*			
Surrogate: Toluene-d8	*13.4*		*"*	*13.3*		*100*	*20-170*			
Surrogate: 4-Bromofluorobenzene	*13.2*		*"*	*13.3*		*99.2*	*21-167*			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

Anions by EPA Method 300.0 - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0592 - General Preparation										
Blank (BGC0592-BLK1)				Prepared: 03/19/23 Analyzed: 03/29/23						
Chloride	ND	0.0600	mg/L							
Sulfate	ND	0.300	"							
LCS (BGC0592-BS1)				Prepared: 03/19/23 Analyzed: 03/29/23						
Chloride	2.76	0.0600	mg/L	3.00		91.8	90-110			
Sulfate	13.7	0.300	"	15.0		91.6	90-110			
Duplicate (BGC0592-DUP1)	**Source: 2303408-01**			Prepared: 03/19/23 Analyzed: 03/29/23						
Chloride	18.2	12.0	mg/L		19.0			4.30	20	
Sulfate	296	60.0	"		289			2.60	20	
Matrix Spike (BGC0592-MS1)	**Source: 2303408-01**			Prepared: 03/19/23 Analyzed: 03/29/23						
Chloride	520	12.0	mg/L	600	19.0	83.5	80-120			
Sulfate	2780	60.0	"	3000	289	83.0	80-120			

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

Total Dissolved Solids by SM2540C - Quality Control

Summit Scientific

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch BGC0637 - General Preparation										
Blank (BGC0637-BLK1)				Prepared & Analyzed: 03/20/23						
Total Dissolved Solids	ND	10.0	mg/L							
Duplicate (BGC0637-DUP1)		**Source: 2303405-01**		Prepared & Analyzed: 03/20/23						
Total Dissolved Solids	1030	10.0	mg/L		1030			0.00	20	

S2

PDC Energy 1775 Sherman St. STE. 3000 Denver CO, 80203	Project: Willman 42-16 Wellhead Project Number: [none] Project Manager: Mark Longhurst	**Reported:** 03/30/23 15:00

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