

**Analytical Report**

OIL CONS. DIV DIST. 3

JAN 23 2017

Report Summary

Client: ConocoPhillips

Chain Of Custody Number:

Samples Received: 1/5/2017 1:05:00PM

Job Number: 96052-1706

Work Order: P701003

Project Name/Location: **Shepherd & Kelsey #1E**

Report Reviewed By:

A handwritten signature in dark ink, appearing to read 'Walter Hinchman'.

Date: 1/10/17

Walter Hinchman, Laboratory Director

A handwritten signature in dark ink, appearing to read 'Tim Cain' with 'TC' written to the right.

Date: 1/10/17

Tim Cain, Quality Assurance Officer

The results in this report apply to the samples submitted to Envirotech's Analytical Laboratory and were analyzed in accordance with the chain of custody document supplied by you, the client, and as such are for your exclusive use only. The results in this report are based on the sample as received unless otherwise noted. Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc. If you have any questions regarding this analytical report, please don't hesitate to contact Envirotech's Laboratory Staff.



ConocoPhillips
PO Box 2200
Bartlesville OK, 74005

Project Name: Shepherd & Kelsey #1E
Project Number: 96052-1706
Project Manager: Michelle Bentson

Reported:
10-Jan-17 14:29

Analytical Report for Samples

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
Shepherd and Kelsey 1E CP Well	P701003-01A	Water	01/04/17	01/05/17	Poly 250mL
Shepherd and Kelsey 1E Production Tubing	P701003-02A	Water	01/04/17	01/05/17	Poly 250mL

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (505) 632-0615 Fx (505) 632-1865

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	Reported: 10-Jan-17 14:29
PO Box 2200	Project Number:	96052-1706	
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	

**Shepherd and Kelsey 1E CP Well
P701003-01 (Water)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Wet Chem/Gravimetric									
Total Dissolved Solids	3190	10.0	mg/L	1	1702001	01/08/17	01/10/17	SM2540C	
Cation/Anion Analysis									
pH @25°C	7.25		pH Units	1	1701008	01/06/17 08:46	01/06/17 13:57	9040C/4500 H	H2
Electrical Conductivity	3320		umhos/cm	1	1701007	01/06/17	01/06/17	9050A/2510	
Sodium Absorption Ratio	6.22		N/A	1	1702003	01/10/17	01/10/17	[CALC]	
Total Alkalinity as CaCO3	1600	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Bicarbonate as CaCO3	1600	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Carbonate as CaCO3	ND	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Hydroxide as CaCO3	ND	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Fluoride	ND	2.50	mg/L	10	1701010	01/06/17	01/06/17	EPA 300.0	
Chloride	ND	20.0	mg/L	10	1701010	01/06/17	01/06/17	EPA 300.0	
Nitrite-N	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 16:28	EPA 300.0	H2
Nitrate-N	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 16:28	EPA 300.0	H2
o-Phosphate-P	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 16:28	EPA 300.0	H2
Sulfate	2130	20.0	mg/L	10	1701010	01/06/17	01/06/17	EPA 300.0	
Iron	ND	0.50	mg/L	1	1701009	01/06/17	01/09/17	EPA 6010C	
Calcium	430	0.50	mg/L	1	1701009	01/06/17	01/09/17	EPA 6010C	
Magnesium	15.0	0.20	mg/L	1	1701009	01/06/17	01/09/17	EPA 6010C	
Potassium	6.64	0.50	mg/L	1	1701009	01/06/17	01/09/17	EPA 6010C	
Sodium	482	2.00	mg/L	1	1701009	01/06/17	01/09/17	EPA 6010C	

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (505) 632-0615 Fx (505) 632-1865

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	Reported: 10-Jan-17 14:29
PO Box 2200	Project Number:	96052-1706	
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	

**Shepherd and Kelsey 1E Production Tubing
P701003-02 (Water)**

Reporting									
Analyte	Result	Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Wet Chem/Gravimetric									
Total Dissolved Solids	20800	10.0	mg/L	1	1702001	01/08/17	01/10/17	SM2540C	
Cation/Anion Analysis									
pH @25°C	7.43		pH Units	1	1701008	01/06/17 08:46	01/06/17 13:57	9040C/4500 H	H2
Electrical Conductivity	33800		umhos/cm	1	1701007	01/06/17	01/06/17	9050A/2510	
Sodium Absorption Ratio	142		N/A	1	1702003	01/10/17	01/10/17	[CALC]	
Total Alkalinity as CaCO3	1500	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Bicarbonate as CaCO3	1500	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Carbonate as CaCO3	ND	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Hydroxide as CaCO3	ND	10.0	mg/L	1	1702002	01/10/17	01/10/17	Hach Method 8203	
Fluoride	ND	2.50	mg/L	10	1701010	01/06/17	01/06/17	EPA 300.0	
Chloride	14800	200	mg/L	100	1701010	01/06/17	01/06/17	EPA 300.0	
Nitrite-N	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 18:16	EPA 300.0	H2
Nitrate-N	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 18:16	EPA 300.0	H2
o-Phosphate-P	ND	2.50	mg/L	10	1701010	01/06/17 14:10	01/06/17 18:16	EPA 300.0	H2
Sulfate	ND	20.0	mg/L	10	1701010	01/06/17	01/06/17	EPA 300.0	
Iron	ND	4.50	mg/L	9	1701009	01/06/17	01/09/17	EPA 6010C	
Calcium	147	4.50	mg/L	9	1701009	01/06/17	01/09/17	EPA 6010C	
Magnesium	50.7	1.80	mg/L	9	1701009	01/06/17	01/09/17	EPA 6010C	
Potassium	88.6	4.50	mg/L	9	1701009	01/06/17	01/09/17	EPA 6010C	
Sodium	7850	18.0	mg/L	9	1701009	01/06/17	01/09/17	EPA 6010C	

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (505) 632-0615 Fx (505) 632-1865

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	Reported: 10-Jan-17 14:29
PO Box 2200	Project Number:	96052-1706	
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	

Wet Chem/Gravimetric - Quality Control

Envirotech Analytical Laboratory

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1702001 - No Prep Wet Chem										
Blank (1702001-BLK1)				Prepared: 08-Jan-17 Analyzed: 10-Jan-17						
Total Dissolved Solids	ND	10.0	mg/L							
LCS (1702001-BS1)				Prepared: 08-Jan-17 Analyzed: 10-Jan-17						
Total Dissolved Solids	118	10.0	mg/L				0-200			
Duplicate (1702001-DUP1)				Source: P701003-02 Prepared: 08-Jan-17 Analyzed: 10-Jan-17						
Total Dissolved Solids	20300	10.0	mg/L		20800			2.19	5	

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (505) 632-0615 Fx (505) 632-1865

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	Reported: 10-Jan-17 14:29
PO Box 2200	Project Number:	96052-1706	
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

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

Batch 1701007 - No Prep Wet Chem

Duplicate (1701007-DUP1)	Source: P701003-01		Prepared & Analyzed: 06-Jan-17							
Electrical Conductivity	3360		umhos/cm		3320			1.20	20	

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (505) 632-0615 Fx (505) 632-1865

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	Reported: 10-Jan-17 14:29
PO Box 2200	Project Number:	96052-1706	
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

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

Batch 1701008 - No Prep Wet Chem

LCS (1701008-BS1)			Prepared & Analyzed: 06-Jan-17		
pH	8.01	pH Units	98.75-101.25		
Duplicate (1701008-DUP1)			Source: P701003-01 Prepared & Analyzed: 06-Jan-17		
pH	7.25	pH Units	7.25	0.00	20

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Ph (505) 632-0615 Fx (505) 632-1865

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips
PO Box 2200
Bartlesville OK, 74005

Project Name: Shepherd & Kelsey #1E
Project Number: 96052-1706
Project Manager: Michelle Bentson

Reported:
10-Jan-17 14:29

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

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

Batch 1701009 - Metal Water Digestion EPA 3015A

Blank (1701009-BLK1)

Prepared: 06-Jan-17 Analyzed: 09-Jan-17

Iron	ND	0.50	mg/L
Calcium	ND	0.50	"
Magnesium	ND	0.20	"
Potassium	ND	0.50	"
Sodium	ND	2.00	"

LCS (1701009-BS1)

Prepared: 06-Jan-17 Analyzed: 09-Jan-17

Iron	95.8	0.50	mg/L	100		95.8	80-120
Calcium	95.8	0.50	"	100		95.8	80-120
Magnesium	95.8	0.20	"	100		95.8	80-120
Potassium	1.04	0.50	"	1.00		104	80-120
Sodium	97.5	2.00	"	100		97.5	80-120

Matrix Spike (1701009-MS1)

Source: P701003-01

Prepared: 06-Jan-17 Analyzed: 09-Jan-17

Iron	94.3	0.50	mg/L	100	ND	94.3	75-125	
Calcium	499	0.50	"	100	430	69.2	75-125	SPK2
Magnesium	108	0.20	"	100	15.0	93.3	75-125	
Potassium	7.58	0.50	"	1.00	6.64	94.4	75-125	
Sodium	516	2.00	"	100	482	33.4	75-125	SPK2

Matrix Spike Dup (1701009-MSD1)

Source: P701003-01

Prepared: 06-Jan-17 Analyzed: 09-Jan-17

Iron	97.7	0.50	mg/L	100	ND	97.7	75-125	3.54	20	
Calcium	511	0.50	"	100	430	80.9	75-125	2.31	20	
Magnesium	112	0.20	"	100	15.0	97.3	75-125	3.60	20	
Potassium	7.84	0.50	"	1.00	6.64	120	75-125	3.33	20	
Sodium	531	2.00	"	100	482	48.4	75-125	2.87	20	SPK2

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Ph (505) 632-0615 Fx (505) 632-1865

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips PO Box 2200 Bartlesville OK, 74005	Project Name: Shepherd & Kelsey #1E Project Number: 96052-1706 Project Manager: Michelle Bentson	Reported: 10-Jan-17 14:29
---	--	------------------------------

Cation/Anion Analysis - Quality Control
Envirotech Analytical Laboratory

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

Batch 1701010 - Anion Extraction EPA 300.0

Blank (1701010-BLK1)

Prepared & Analyzed: 06-Jan-17

Fluoride	ND	0.25	mg/L
Chloride	ND	2.00	"
Nitrite-N	ND	0.25	"
Nitrate-N	ND	0.25	"
o-Phosphate-P	ND	0.25	"
Sulfate	ND	2.00	"

LCS (1701010-BS1)

Prepared & Analyzed: 06-Jan-17

Fluoride	5.09	0.25	mg/L	5.00	102	90-110
Chloride	50.5	2.00	"	50.0	101	90-110
Nitrite-N	5.16	0.25	"	5.00	103	90-110
Nitrate-N	5.16	0.25	"	5.00	103	90-110
o-Phosphate-P	8.39	0.25	"	8.15	103	90-110
Sulfate	50.3	2.00	"	50.0	101	90-110

Matrix Spike (1701010-MS1)

Source: P701003-01

Prepared & Analyzed: 06-Jan-17

Fluoride	50.7	2.50	mg/L	50.0	ND	101	80-120
Chloride	523	20.0	"	500	ND	105	80-120
Nitrite-N	51.7	2.50	"	50.0	ND	103	80-120
Nitrate-N	52.3	2.50	"	50.0	ND	105	80-120
o-Phosphate-P	16.8	2.50	"	81.5	ND	20.7	80-120
Sulfate	2640	20.0	"	500	2130	102	80-120

SPK1

Matrix Spike Dup (1701010-MSD1)

Source: P701003-01

Prepared & Analyzed: 06-Jan-17

Fluoride	51.0	2.50	mg/L	50.0	ND	102	80-120	0.472	20
Chloride	526	20.0	"	500	ND	105	80-120	0.564	20
Nitrite-N	52.3	2.50	"	50.0	ND	105	80-120	1.23	20
Nitrate-N	52.6	2.50	"	50.0	ND	105	80-120	0.515	20
o-Phosphate-P	13.7	2.50	"	81.5	ND	16.8	80-120	20.5	20
Sulfate	2650	20.0	"	500	2130	104	80-120	0.400	20

SPK1

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Ph (505) 632-0615 Fx (505) 632-1865

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips	Project Name:	Shepherd & Kelsey #1E	
PO Box 2200	Project Number:	96052-1706	Reported:
Bartlesville OK, 74005	Project Manager:	Michelle Bentson	10-Jan-17 14:29

Cation/Anion Analysis - Quality Control

Envirotech Analytical Laboratory

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

Batch 1702002 - No Prep Wet Chem

Duplicate (1702002-DUP1)	Source: P701003-02			Prepared & Analyzed: 10-Jan-17					
Total Alkalinity as CaCO ₃	1600	10.0	mg/L		1500			6.45	30
Bicarbonate as CaCO ₃	1600	10.0	"		1500			6.45	30
Carbonate as CaCO ₃	ND	10.0	"		ND				30
Hydroxide as CaCO ₃	ND	10.0	"		ND				30

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Ph (505) 632-0615 Fx (505) 632-1865

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com



ConocoPhillips
PO Box 2200
Bartlesville OK, 74005

Project Name: Shepherd & Kelsey #1E
Project Number: 96052-1706
Project Manager: Michelle Bentson

Reported:
10-Jan-17 14:29

Notes and Definitions

SPK2 The spike recovery was outside of QC acceptance limits for the MS and/or MSD due to native analyte concentration at 4 times or greater than the spike concentration.

SPK1 The spike recovery is outside of quality control limits.

H2 Sample was analyzed after regulatory hold-time exceeded for target analyte.

D1 Duplicates or Matrix Spike Duplicates Relative Percent Difference is outside of control limits.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech, Inc.

5796 US Highway 64, Farmington, NM 87401

Ph (505) 632-0615 Fx (505) 632-1865

Three Springs • 65 Mercado Street, Suite 115, Durango, CO 81301

Ph (970) 259-0615 Fr (800) 362-1879

envirotech-inc.com
laboratory@envirotech-inc.com

