

EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

Sec 3, T4N-R68W 6th PM (KB 29' CORRECT 111917)

Jesser 3E 10-13N

Wellbore #1

Survey: Survey #2

Standard Survey Report

03 January, 2018

Survey Report

Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well Jesser 3E 10-13N
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB=29 @ 5139.0usft
Site:	Sec 3, T4N-R68W 6th PM (KB 29' CORRECT 111917)	MD Reference:	KB=29 @ 5139.0usft
Well:	Jesser 3E 10-13N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Project	WELD COUNTY, COLORADO (NAD 83)		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		Using geodetic scale factor

Site		Sec 3, T4N-R68W 6th PM (KB 29' CORRECT 111917)			
Site Position:		Northing:	1,367,717.12 usft	Latitude:	40° 20' 30.109 N
From:	Map	Easting:	3,139,952.04 usft	Longitude:	104° 59' 52.537 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.32 °

Well	Jesser 3E 10-13N					
Well Position	+N/-S	0.0 usft	Northing:	1,367,721.74 usft	Latitude:	40° 20' 30.141 N
	+E/-W	0.0 usft	Easting:	3,140,191.74 usft	Longitude:	104° 59' 49.441 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	5,110.0 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	12/12/2017	8.28	66.76	52,279

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	102.23	

Survey Program	Date	1/3/2018			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
215.0	1,537.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard	
1,667.0	11,950.0	Survey #2 (Wellbore #1)	MWD	MWD - Standard	

Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
1,537.0	12.81	218.27	1,523.2	-131.1	-93.7	-63.7	0.00	0.00	0.00	
1,667.0	12.28	215.18	1,650.1	-153.8	-110.6	-75.5	0.66	-0.41	-2.38	
1,762.0	13.79	212.66	1,742.6	-171.5	-122.5	-83.4	1.70	1.59	-2.65	
1,857.0	17.10	217.86	1,834.2	-192.1	-137.2	-93.4	3.77	3.48	5.47	
1,952.0	16.79	215.00	1,925.1	-214.4	-153.6	-104.7	0.94	-0.33	-3.01	
2,048.0	16.79	214.38	2,017.0	-237.2	-169.4	-115.3	0.19	0.00	-0.65	
2,143.0	18.29	218.17	2,107.6	-260.2	-186.4	-127.0	1.98	1.58	3.99	
2,239.0	17.72	216.89	2,198.9	-283.7	-204.4	-139.7	0.72	-0.59	-1.33	
2,334.0	16.70	215.97	2,289.6	-306.4	-221.1	-151.2	1.11	-1.07	-0.97	

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Well:	Jesser 3E 10-13N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
2,430.0	16.79	213.99	2,381.5	-329.0	-237.0	-161.9	0.60	0.09	-2.06
2,525.0	17.28	219.98	2,472.4	-351.2	-253.7	-173.5	1.92	0.52	6.31
2,621.0	15.60	218.39	2,564.5	-372.3	-270.9	-185.9	1.81	-1.75	-1.66
2,716.0	16.70	220.77	2,655.7	-392.6	-287.8	-198.0	1.35	1.16	2.51
2,812.0	15.82	221.39	2,747.9	-412.9	-305.4	-211.0	0.93	-0.92	0.65
2,908.0	14.58	221.39	2,840.5	-431.8	-322.1	-223.2	1.29	-1.29	0.00
3,004.0	15.51	222.98	2,933.2	-450.2	-338.8	-235.7	1.06	0.97	1.66
3,099.0	17.41	219.10	3,024.3	-470.5	-356.4	-248.6	2.31	2.00	-4.08
3,195.0	17.50	219.10	3,115.9	-492.9	-374.6	-261.6	0.09	0.09	0.00
3,290.0	19.00	213.77	3,206.1	-516.8	-392.2	-273.8	2.36	1.58	-5.61
3,386.0	17.10	213.06	3,297.4	-541.6	-408.6	-284.5	1.99	-1.98	-0.74
3,481.0	14.80	211.96	3,388.7	-563.6	-422.6	-293.6	2.44	-2.42	-1.16
3,577.0	12.99	210.99	3,481.9	-583.3	-434.7	-301.2	1.90	-1.89	-1.01
3,672.0	15.11	218.79	3,574.1	-602.1	-447.9	-310.2	2.99	2.23	8.21
3,768.0	15.60	216.59	3,666.7	-622.2	-463.5	-321.1	0.79	0.51	-2.29
3,863.0	15.60	218.38	3,758.2	-642.5	-479.0	-332.0	0.51	0.00	1.88
3,959.0	18.38	214.16	3,850.0	-665.1	-495.5	-343.3	3.17	2.90	-4.40
4,054.0	18.91	211.08	3,940.0	-690.7	-511.9	-353.9	1.18	0.56	-3.24
4,150.0	16.22	211.78	4,031.5	-715.4	-527.0	-363.4	2.81	-2.80	0.73
4,245.0	17.81	214.30	4,122.3	-738.7	-542.1	-373.3	1.84	1.67	2.65
4,340.0	16.39	213.37	4,213.1	-761.9	-557.7	-383.6	1.52	-1.49	-0.98
4,436.0	19.49	215.88	4,304.5	-786.2	-574.5	-394.9	3.33	3.23	2.61
4,531.0	17.59	214.56	4,394.5	-810.9	-592.0	-406.7	2.05	-2.00	-1.39
4,626.0	18.29	213.68	4,484.9	-835.1	-608.4	-417.6	0.79	0.74	-0.93
4,722.0	17.10	213.28	4,576.4	-859.4	-624.5	-428.2	1.25	-1.24	-0.42
4,817.0	16.00	212.66	4,667.4	-882.1	-639.2	-437.8	1.17	-1.16	-0.65
4,935.0	14.72	218.48	4,781.2	-907.6	-657.3	-450.1	1.70	-1.08	4.93
5,030.0	12.59	216.50	4,873.5	-925.3	-671.0	-459.7	2.30	-2.24	-2.08
5,126.0	10.91	214.38	4,967.5	-941.3	-682.3	-467.4	1.81	-1.75	-2.21
5,222.0	9.50	211.78	5,062.0	-955.5	-691.7	-473.5	1.54	-1.47	-2.71
5,317.0	7.82	210.90	5,155.9	-967.7	-699.1	-478.2	1.77	-1.77	-0.93
5,413.0	6.72	208.08	5,251.1	-978.3	-705.1	-481.8	1.20	-1.15	-2.94
5,508.0	4.42	218.97	5,345.7	-986.0	-710.0	-484.9	2.65	-2.42	11.46
5,604.0	1.90	264.27	5,441.5	-989.0	-713.9	-488.1	3.51	-2.63	47.19
5,700.0	1.10	12.47	5,537.5	-988.3	-715.3	-489.6	2.58	-0.83	112.71
5,795.0	1.02	25.86	5,632.5	-986.7	-714.7	-489.4	0.27	-0.08	14.09
5,890.0	0.40	347.78	5,727.5	-985.6	-714.4	-489.4	0.79	-0.65	-40.08
5,986.0	0.71	338.30	5,823.5	-984.7	-714.7	-489.8	0.34	0.32	-9.88
6,082.0	1.02	322.39	5,919.5	-983.5	-715.5	-490.8	0.41	0.32	-16.57
6,177.0	1.19	318.16	6,014.5	-982.1	-716.7	-492.3	0.20	0.18	-4.45
6,272.0	1.02	303.49	6,109.4	-980.9	-718.0	-493.9	0.35	-0.18	-15.44
6,368.0	0.88	285.38	6,205.4	-980.2	-719.4	-495.4	0.34	-0.15	-18.86

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6,463.0	0.88	268.89	6,300.4	-980.0	-720.9	-496.8	0.27	0.00	-17.36
6,558.0	0.62	84.78	6,395.4	-980.0	-721.1	-497.1	1.58	-0.27	185.15
6,654.0	9.81	95.67	6,490.9	-980.7	-712.4	-488.4	9.59	9.57	11.34
6,749.0	18.91	88.39	6,582.9	-981.1	-688.9	-465.4	9.75	9.58	-7.66
6,845.0	27.31	87.16	6,671.1	-979.6	-651.3	-428.9	8.76	8.75	-1.28
6,940.0	36.28	89.10	6,751.7	-978.1	-601.3	-380.4	9.50	9.44	2.04
7,036.0	45.91	90.38	6,824.0	-977.8	-538.3	-318.9	10.07	10.03	1.33
7,131.0	52.81	91.79	6,885.8	-979.2	-466.3	-248.2	7.35	7.26	1.48
7,226.0	58.99	88.79	6,939.1	-979.6	-387.7	-171.3	7.01	6.51	-3.16
7,322.0	72.12	87.60	6,978.7	-976.8	-300.5	-86.7	13.72	13.68	-1.24
7,417.0	76.40	87.47	7,004.5	-972.8	-209.2	1.7	4.51	4.51	-0.14
7,513.0	81.62	88.26	7,022.8	-969.3	-115.0	93.0	5.50	5.44	0.82
7,531.7	83.21	88.68	7,025.2	-968.8	-96.5	111.0	8.79	8.50	2.25
Cross 460' FWL 7531.7 MD/7025.2 TVD -968.8 S -96.5 W N: 1366752.4 E: 3140100.7									
7,608.0	89.70	90.38	7,030.0	-968.2	-20.4	185.2	8.79	8.51	2.23
7,704.0	88.51	90.86	7,031.5	-969.3	75.6	279.2	1.34	-1.24	0.50
7,800.0	88.82	90.29	7,033.7	-970.2	171.5	373.2	0.68	0.32	-0.59
7,895.0	88.38	89.58	7,036.0	-970.1	266.5	466.0	0.88	-0.46	-0.75
7,990.0	88.91	89.89	7,038.3	-969.7	361.5	558.8	0.65	0.56	0.33
8,086.0	87.50	91.70	7,041.3	-971.0	457.4	652.8	2.39	-1.47	1.89
8,181.0	87.98	92.10	7,045.0	-974.2	552.3	746.2	0.66	0.51	0.42
8,276.0	89.62	91.26	7,047.0	-976.9	647.2	839.6	1.94	1.73	-0.88
8,372.0	90.41	91.17	7,047.0	-979.0	743.2	933.8	0.83	0.82	-0.09
8,467.0	90.59	90.69	7,046.2	-980.5	838.2	1,026.9	0.54	0.19	-0.51
8,562.0	90.41	90.47	7,045.3	-981.5	933.2	1,120.0	0.30	-0.19	-0.23
8,658.0	89.40	89.10	7,045.5	-981.1	1,029.2	1,213.7	1.77	-1.05	-1.43
8,753.0	89.40	88.39	7,046.5	-979.0	1,124.1	1,306.1	0.75	0.00	-0.75
8,848.0	89.70	88.66	7,047.2	-976.6	1,219.1	1,398.4	0.42	0.32	0.28
8,944.0	89.48	89.28	7,047.9	-974.9	1,315.1	1,491.8	0.69	-0.23	0.65
9,039.0	89.00	90.07	7,049.2	-974.3	1,410.1	1,584.5	0.97	-0.51	0.83
9,135.0	89.00	89.89	7,050.9	-974.3	1,506.1	1,678.3	0.19	0.00	-0.19
9,230.0	89.48	90.20	7,052.1	-974.4	1,601.1	1,771.2	0.60	0.51	0.33
9,326.0	89.79	89.58	7,052.7	-974.2	1,697.1	1,865.0	0.72	0.32	-0.65
9,421.0	90.01	89.10	7,052.9	-973.1	1,792.1	1,957.6	0.56	0.23	-0.51
9,517.0	90.19	88.26	7,052.7	-970.9	1,888.0	2,050.9	0.89	0.19	-0.88
9,612.0	89.00	89.10	7,053.4	-968.7	1,983.0	2,143.2	1.53	-1.25	0.88
9,708.0	89.62	89.50	7,054.5	-967.5	2,079.0	2,236.8	0.77	0.65	0.42
9,804.0	89.79	89.67	7,055.0	-966.8	2,175.0	2,330.5	0.25	0.18	0.18
9,899.0	90.10	89.10	7,055.1	-965.8	2,270.0	2,423.1	0.68	0.33	-0.60
9,995.0	89.09	88.97	7,055.8	-964.2	2,366.0	2,516.5	1.06	-1.05	-0.14
10,090.0	89.31	88.39	7,057.1	-962.0	2,460.9	2,608.9	0.65	0.23	-0.61
10,186.0	90.10	86.90	7,057.6	-958.1	2,556.8	2,701.8	1.76	0.82	-1.55
10,281.0	89.09	86.19	7,058.3	-952.3	2,651.7	2,793.2	1.30	-1.06	-0.75

Survey Report

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Site:	Sec 3, T4N-R68W 6th PM (KB 29' CORRECT 111917)	MD Reference:	KB=29 @ 5139.0usft
Well:	Jesser 3E 10-13N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.1

Survey										
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10,377.0	91.21	89.50	7,058.1	-948.7	2,747.6	2,886.2	4.09	2.21	3.45	
10,472.0	90.72	92.27	7,056.5	-950.2	2,842.5	2,979.3	2.96	-0.52	2.92	
10,567.0	89.31	93.46	7,056.4	-954.9	2,937.4	3,073.1	1.94	-1.48	1.25	
10,663.0	89.70	93.29	7,057.3	-960.6	3,033.2	3,167.9	0.44	0.41	-0.18	
10,758.0	90.28	93.29	7,057.3	-966.0	3,128.1	3,261.8	0.61	0.61	0.00	
10,854.0	90.28	92.67	7,056.8	-971.0	3,224.0	3,356.5	0.65	0.00	-0.65	
10,949.0	89.31	91.39	7,057.1	-974.4	3,318.9	3,450.0	1.69	-1.02	-1.35	
11,045.0	90.99	91.48	7,056.9	-976.8	3,414.9	3,544.3	1.75	1.75	0.09	
11,140.0	91.30	89.98	7,055.0	-978.0	3,509.8	3,637.4	1.61	0.33	-1.58	
11,236.0	93.28	89.36	7,051.2	-977.5	3,605.7	3,731.0	2.16	2.06	-0.65	
11,331.0	91.78	89.98	7,047.0	-976.9	3,700.6	3,823.6	1.71	-1.58	0.65	
11,426.0	90.01	89.36	7,045.5	-976.4	3,795.6	3,916.3	1.97	-1.86	-0.65	
11,522.0	89.22	88.39	7,046.1	-974.5	3,891.6	4,009.7	1.30	-0.82	-1.01	
11,618.0	88.20	87.78	7,048.3	-971.3	3,987.5	4,102.8	1.24	-1.06	-0.64	
11,713.0	89.22	87.60	7,050.4	-967.4	4,082.4	4,194.7	1.09	1.07	-0.19	
11,808.0	90.50	87.60	7,050.7	-963.5	4,177.3	4,286.6	1.35	1.35	0.00	
Last MWD Survey 11808 MD/7050.7 TVD -963.5 S 4177.3 E N: 1366782.0 E: 3144374.3										
11,950.0	90.50	87.60	7,049.4	-957.5	4,319.2	4,424.0	0.00	0.00	0.00	
PTB 494' FEL 11950 MD/7049.4 TVD -957.5 S 4319.2 E N: 1366788.7 E: 3144516.1										

Survey Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
7,531.7	7,025.2	-968.8	-96.5	Cross 460' FWL 7531.7 MD/7025.2 TVD -968.8 S -96.5 W N: 1366752.4 E: 314	
11,808.0	7,050.7	-963.5	4,177.3	Last MWD Survey 11808 MD/7050.7 TVD -963.5 S 4177.3 E N: 1366782.0 E: 3	
11,950.0	7,049.4	-957.5	4,319.2	PTB 494' FEL 11950 MD/7049.4 TVD -957.5 S 4319.2 E N: 1366788.7 E: 31445	

Checked By: _____ Approved By: _____ Date: _____