



EXTRACTION OIL & GAS

WELD COUNTY, COLORADO (NAD 83)

SW SE SEC 36 T6N R66W 6th P.M.

CS-LONGMEADOW 1-1-13

JOB #2017-158-341

Survey: Survey #2

Standard Survey Report

05 October, 2017





Integrity Directional Services, LLC

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well CS-LONGMEADOW 1-1-13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4688.0usft (PATT 341)
Site:	SW SE SEC 36 T6N R66W 6th P.M.	MD Reference:	KB @ 4688.0usft (PATT 341)
Well:	CS-LONGMEADOW 1-1-13	North Reference:	True
Wellbore:	JOB #2017-158-341	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Multi User Db

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	SW SE SEC 36 T6N R66W 6th P.M.				
Site Position:		Northing:	1,403,485.52 usft	Latitude:	40° 26' 18.132 N
From:	Lat/Long	Easting:	3,216,213.28 usft	Longitude:	104° 43' 23.628 W
Position Uncertainty:	0.0 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.50 °

Well	CS-LONGMEADOW 1-1-13					
Well Position	+N/-S	0.0 usft	Northing:	1,403,487.34 usft	Latitude:	40° 26' 18.132 N
	+E/-W	0.0 usft	Easting:	3,216,422.04 usft	Longitude:	104° 43' 20.928 W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,663.0 usft

Wellbore	JOB #2017-158-341				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/23/2015	8.40	66.94	52,644

Design	Final Surveys				
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	173.82	

Survey Program	Date	10/5/2017			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
132.0	1,535.0	FINAL SURVEYS - SURFACE (JOB #201	MWD	MWD - Standard	
1,658.0	20,308.0	Survey #2 (JOB #2017-158-341)	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)	
1,535.0	17.80	95.00	1,504.7	-35.6	238.5	61.1	0.00	0.00	0.00	
1st MWD Survey										
1,658.0	18.78	95.70	1,621.5	-39.2	276.9	68.8	0.82	0.80	0.57	
1,753.0	18.12	93.01	1,711.6	-41.5	306.9	74.3	1.13	-0.69	-2.83	
1,847.0	18.69	97.90	1,800.8	-44.4	336.4	80.3	1.75	0.61	5.20	
1,942.0	18.38	95.30	1,890.9	-47.9	366.4	87.0	0.93	-0.33	-2.74	
2,037.0	18.12	98.52	1,981.1	-51.4	395.9	93.7	1.10	-0.27	3.39	
2,132.0	17.59	97.81	2,071.6	-55.6	424.7	101.0	0.60	-0.56	-0.75	
2,227.0	19.40	100.99	2,161.7	-60.5	454.4	109.1	2.18	1.91	3.35	
2,322.0	20.19	97.28	2,251.0	-65.6	486.2	117.6	1.56	0.83	-3.91	



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Wellbore:	JOB #2017-158-341	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Multi User Db

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)
2,417.0	20.81	92.92	2,340.0	-68.6	519.3	124.0	1.73	0.65	-4.59
2,511.0	22.09	101.29	2,427.5	-72.9	553.3	132.0	3.53	1.36	8.90
2,607.0	22.18	101.38	2,516.5	-80.0	588.8	142.9	0.10	0.09	0.09
2,701.0	22.58	100.41	2,603.4	-86.7	623.9	153.4	0.58	0.43	-1.03
2,795.0	23.99	99.71	2,689.7	-93.2	660.5	163.8	1.53	1.50	-0.74
2,890.0	22.18	98.61	2,777.1	-99.2	697.3	173.6	1.96	-1.91	-1.16
2,984.0	21.39	96.98	2,864.4	-103.9	731.9	182.1	1.06	-0.84	-1.73
3,078.0	21.52	95.92	2,951.9	-107.8	766.0	189.6	0.44	0.14	-1.13
3,172.0	21.21	93.80	3,039.4	-110.7	800.1	196.1	0.89	-0.33	-2.26
3,267.0	18.60	102.40	3,128.8	-115.1	832.1	204.0	4.12	-2.75	9.05
3,361.0	19.31	109.31	3,217.7	-123.4	861.4	215.4	2.50	0.76	7.35
3,455.0	18.91	104.91	3,306.5	-132.5	890.8	227.6	1.59	-0.43	-4.68
3,643.0	16.70	99.00	3,485.5	-144.5	946.9	245.6	1.52	-1.18	-3.14
3,738.0	19.18	97.90	3,575.9	-148.8	975.9	253.0	2.63	2.61	-1.16
3,832.0	20.59	98.30	3,664.3	-153.3	1,007.5	260.9	1.51	1.50	0.43
3,927.0	22.09	98.21	3,752.8	-158.3	1,041.7	269.5	1.58	1.58	-0.09
4,021.0	21.70	94.68	3,840.0	-162.2	1,076.6	277.2	1.46	-0.41	-3.76
4,116.0	19.71	93.01	3,928.8	-164.5	1,110.1	283.0	2.18	-2.09	-1.76
4,210.0	18.91	92.70	4,017.5	-166.1	1,141.1	287.9	0.86	-0.85	-0.33
4,304.0	17.50	93.49	4,106.8	-167.6	1,170.4	292.6	1.52	-1.50	0.84
4,399.0	17.10	92.92	4,197.5	-169.2	1,198.6	297.3	0.46	-0.42	-0.60
4,493.0	16.22	90.89	4,287.6	-170.1	1,225.6	301.1	1.12	-0.94	-2.16
4,587.0	16.74	96.50	4,377.7	-171.9	1,252.1	305.6	1.78	0.55	5.97
4,681.0	17.51	99.09	4,467.6	-175.6	1,279.6	312.3	1.15	0.82	2.76
4,775.0	16.70	97.99	4,557.4	-179.7	1,306.9	319.4	0.93	-0.86	-1.17
4,869.0	15.69	95.79	4,647.7	-182.9	1,332.9	325.3	1.26	-1.07	-2.34
4,964.0	16.22	102.09	4,739.0	-187.0	1,358.7	332.1	1.91	0.56	6.63
5,058.0	16.08	101.78	4,829.3	-192.4	1,384.3	340.3	0.17	-0.15	-0.33
5,152.0	15.69	100.72	4,919.7	-197.4	1,409.5	348.0	0.52	-0.41	-1.13
5,247.0	14.80	101.38	5,011.4	-202.2	1,434.0	355.4	0.95	-0.94	0.69
5,341.0	12.28	104.20	5,102.8	-207.0	1,455.5	362.5	2.77	-2.68	3.00
5,436.0	10.30	105.92	5,195.9	-211.8	1,473.4	369.2	2.11	-2.08	1.81
5,530.0	8.62	109.18	5,288.6	-216.4	1,488.2	375.4	1.88	-1.79	3.47
5,625.0	6.32	111.52	5,382.8	-220.7	1,499.8	380.8	2.44	-2.42	2.46
5,719.0	5.30	109.80	5,476.3	-224.1	1,508.7	385.2	1.10	-1.09	-1.83
5,813.0	2.70	83.89	5,570.1	-225.3	1,514.9	387.1	3.30	-2.77	-27.56
5,908.0	2.12	68.82	5,665.0	-224.4	1,518.8	386.6	0.90	-0.61	-15.86
6,002.0	1.50	60.49	5,759.0	-223.2	1,521.5	385.7	0.71	-0.66	-8.86
6,097.0	0.88	45.90	5,854.0	-222.1	1,523.1	384.7	0.72	-0.65	-15.36
6,191.0	0.62	27.39	5,948.0	-221.1	1,523.9	383.9	0.37	-0.28	-19.69
6,286.0	1.81	150.39	6,042.9	-222.0	1,524.8	384.8	2.33	1.25	129.47
6,380.0	1.81	162.11	6,136.9	-224.7	1,526.0	387.6	0.39	0.00	12.47
6,475.0	4.08	185.11	6,231.8	-229.5	1,526.2	392.4	2.65	2.39	24.21



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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)
6,570.0	13.30	180.39	6,325.6	-243.8	1,525.8	406.6	9.73	9.71	-4.97
6,652.8	22.97	182.43	6,404.2	-269.5	1,525.1	432.1	11.70	11.67	2.47
KOP - CS-LONGMEADOW 1-1-13									
6,665.0	24.39	182.60	6,415.3	-274.4	1,524.8	436.9	11.70	11.68	1.38
6,760.0	32.39	186.61	6,498.9	-319.4	1,521.0	481.2	8.65	8.42	4.22
6,854.0	43.39	184.71	6,572.9	-376.7	1,515.4	537.7	11.77	11.70	-2.02
6,949.0	50.20	182.51	6,637.9	-445.8	1,511.2	605.9	7.36	7.17	-2.32
7,044.0	55.41	179.60	6,695.4	-521.4	1,509.8	680.9	6.00	5.48	-3.06
7,139.0	62.79	178.72	6,744.1	-602.9	1,511.1	762.0	7.81	7.77	-0.93
7,234.0	71.01	181.81	6,781.4	-690.2	1,510.6	848.7	9.15	8.65	3.25
7,328.0	77.60	181.98	6,806.8	-780.6	1,507.6	938.3	7.01	7.01	0.18
7,338.6	77.90	181.69	6,809.0	-790.9	1,507.3	948.5	3.90	2.82	-2.76
LANDING PNT - CS-LONGMEADOW 1-1-13									
7,423.0	80.29	179.38	6,825.0	-873.8	1,506.5	1,030.8	3.90	2.83	-2.73
7,518.0	85.51	178.81	6,836.7	-968.0	1,508.0	1,124.7	5.53	5.49	-0.60
7,613.0	88.11	178.02	6,842.0	-1,062.8	1,510.6	1,219.2	2.86	2.74	-0.83
7,707.0	89.31	179.60	6,844.1	-1,156.7	1,512.6	1,312.8	2.11	1.28	1.68
7,801.0	90.01	180.70	6,844.7	-1,250.7	1,512.3	1,406.3	1.39	0.74	1.17
7,932.0	90.01	181.72	6,844.7	-1,381.7	1,509.5	1,536.2	0.78	0.00	0.78
8,027.0	90.19	181.41	6,844.5	-1,476.7	1,506.9	1,630.3	0.38	0.19	-0.33
8,121.0	89.62	181.58	6,844.7	-1,570.6	1,504.5	1,723.5	0.63	-0.61	0.18
8,215.0	89.70	182.29	6,845.2	-1,664.6	1,501.3	1,816.5	0.76	0.09	0.76
8,310.0	89.70	181.58	6,845.7	-1,759.5	1,498.1	1,910.6	0.75	0.00	-0.75
8,404.0	89.70	181.41	6,846.2	-1,853.5	1,495.7	2,003.7	0.18	0.00	-0.18
8,499.0	89.79	180.31	6,846.6	-1,948.5	1,494.2	2,098.0	1.16	0.09	-1.16
8,593.0	89.70	180.39	6,847.0	-2,042.5	1,493.7	2,191.4	0.13	-0.10	0.09
8,687.0	89.88	179.60	6,847.4	-2,136.5	1,493.7	2,284.8	0.86	0.19	-0.84
8,781.0	90.01	179.60	6,847.5	-2,230.5	1,494.3	2,378.4	0.14	0.14	0.00
8,876.0	89.70	180.00	6,847.7	-2,325.5	1,494.7	2,472.8	0.53	-0.33	0.42
8,970.0	89.70	179.69	6,848.2	-2,419.5	1,494.9	2,566.3	0.33	0.00	-0.33
9,065.0	89.70	179.29	6,848.7	-2,514.5	1,495.8	2,660.9	0.42	0.00	-0.42
9,159.0	89.70	179.78	6,849.2	-2,608.5	1,496.5	2,754.4	0.52	0.00	0.52
9,254.0	89.70	179.69	6,849.7	-2,703.5	1,497.0	2,848.9	0.09	0.00	-0.09
9,348.0	89.70	180.00	6,850.2	-2,797.5	1,497.2	2,942.4	0.33	0.00	0.33
9,537.0	89.89	180.22	6,850.9	-2,986.5	1,496.9	3,130.2	0.15	0.10	0.12
9,632.0	89.70	180.22	6,851.2	-3,081.5	1,496.5	3,224.6	0.20	-0.20	0.00
9,726.0	89.88	180.22	6,851.5	-3,175.5	1,496.1	3,318.0	0.19	0.19	0.00
9,820.0	89.70	180.39	6,851.9	-3,269.5	1,495.6	3,411.4	0.26	-0.19	0.18
9,915.0	89.64	179.91	6,852.4	-3,364.5	1,495.4	3,505.9	0.51	-0.06	-0.51
10,009.0	89.79	179.78	6,852.9	-3,458.4	1,495.6	3,599.3	0.21	0.16	-0.14
10,104.0	89.70	180.22	6,853.3	-3,553.4	1,495.6	3,693.8	0.47	-0.09	0.46
10,198.0	89.79	180.22	6,853.7	-3,647.4	1,495.3	3,787.2	0.10	0.10	0.00
10,293.0	89.88	180.39	6,854.0	-3,742.4	1,494.8	3,881.6	0.20	0.09	0.18
10,388.0	89.79	180.70	6,854.3	-3,837.4	1,493.9	3,975.9	0.34	-0.09	0.33



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10,482.0	89.88	179.51	6,854.6	-3,931.4	1,493.7	4,069.4	1.27	0.10	-1.27
10,577.0	89.09	179.78	6,855.4	-4,026.4	1,494.3	4,163.9	0.88	-0.83	0.28
10,672.0	88.91	180.31	6,857.1	-4,121.4	1,494.2	4,258.3	0.59	-0.19	0.56
10,766.0	88.69	180.48	6,859.0	-4,215.4	1,493.6	4,351.7	0.30	-0.23	0.18
10,860.0	88.60	179.91	6,861.3	-4,309.4	1,493.2	4,445.1	0.61	-0.10	-0.61
10,955.0	88.60	179.91	6,863.6	-4,404.3	1,493.4	4,539.5	0.00	0.00	0.00
11,050.0	88.82	179.78	6,865.7	-4,499.3	1,493.6	4,633.9	0.27	0.23	-0.14
11,145.0	88.60	180.70	6,867.9	-4,594.3	1,493.2	4,728.3	1.00	-0.23	0.97
11,240.0	88.60	180.62	6,870.2	-4,689.3	1,492.1	4,822.6	0.08	0.00	-0.08
11,335.0	88.60	179.69	6,872.5	-4,784.2	1,491.9	4,917.0	0.98	0.00	-0.98
11,430.0	88.60	179.60	6,874.8	-4,879.2	1,492.5	5,011.5	0.09	0.00	-0.09
11,523.0	88.60	179.69	6,877.1	-4,972.2	1,493.1	5,104.0	0.10	0.00	0.10
11,617.0	89.00	180.39	6,879.1	-5,066.1	1,493.0	5,197.4	0.86	0.43	0.74
11,711.0	88.51	179.91	6,881.1	-5,160.1	1,492.7	5,290.8	0.73	-0.52	-0.51
11,805.0	88.82	180.22	6,883.3	-5,254.1	1,492.6	5,384.2	0.47	0.33	0.33
11,900.0	88.60	179.91	6,885.4	-5,349.1	1,492.5	5,478.6	0.40	-0.23	-0.33
11,995.0	88.69	180.09	6,887.7	-5,444.0	1,492.5	5,573.1	0.21	0.09	0.19
12,089.0	89.09	180.31	6,889.5	-5,538.0	1,492.2	5,666.5	0.49	0.43	0.23
12,184.0	89.70	179.78	6,890.5	-5,633.0	1,492.1	5,760.9	0.85	0.64	-0.56
12,278.0	89.62	180.00	6,891.1	-5,727.0	1,492.3	5,854.4	0.25	-0.09	0.23
12,373.0	89.88	179.69	6,891.5	-5,822.0	1,492.6	5,948.8	0.43	0.27	-0.33
12,467.0	90.41	178.81	6,891.2	-5,916.0	1,493.8	6,042.4	1.09	0.56	-0.94
12,563.0	90.28	178.28	6,890.7	-6,012.0	1,496.2	6,138.1	0.57	-0.14	-0.55
12,657.0	90.28	178.28	6,890.2	-6,105.9	1,499.1	6,231.8	0.00	0.00	0.00
12,752.0	90.72	178.50	6,889.4	-6,200.9	1,501.7	6,326.5	0.52	0.46	0.23
12,847.0	90.72	178.19	6,888.2	-6,295.8	1,504.5	6,421.2	0.33	0.00	-0.33
12,942.0	90.59	178.81	6,887.1	-6,390.8	1,507.0	6,515.9	0.67	-0.14	0.65
13,036.0	90.72	178.72	6,886.0	-6,484.8	1,509.0	6,609.5	0.17	0.14	-0.10
13,131.0	90.72	178.41	6,884.8	-6,579.7	1,511.4	6,704.2	0.33	0.00	-0.33
13,225.0	91.21	178.81	6,883.2	-6,673.7	1,513.6	6,797.8	0.67	0.52	0.43
13,320.0	91.30	178.59	6,881.2	-6,768.6	1,515.8	6,892.5	0.25	0.09	-0.23
13,415.0	91.12	178.41	6,879.2	-6,863.6	1,518.3	6,987.1	0.27	-0.19	-0.19
13,509.0	91.52	178.50	6,877.0	-6,957.5	1,520.8	7,080.8	0.44	0.43	0.10
13,604.0	91.12	179.51	6,874.8	-7,052.5	1,522.5	7,175.4	1.14	-0.42	1.06
13,698.0	91.12	181.10	6,873.0	-7,146.5	1,522.0	7,268.8	1.69	0.00	1.69
13,794.0	91.30	182.11	6,870.9	-7,242.4	1,519.3	7,363.9	1.07	0.19	1.05
13,889.0	91.12	183.70	6,868.9	-7,337.3	1,514.5	7,457.6	1.68	-0.19	1.67
13,984.0	91.30	183.61	6,866.9	-7,432.0	1,508.4	7,551.2	0.21	0.19	-0.09
14,079.0	91.30	184.58	6,864.8	-7,526.8	1,501.6	7,644.7	1.02	0.00	1.02
14,174.0	90.90	183.61	6,863.0	-7,621.5	1,494.8	7,738.1	1.10	-0.42	-1.02
14,269.0	90.72	181.32	6,861.6	-7,716.4	1,490.8	7,832.0	2.42	-0.19	-2.41
14,364.0	90.85	179.51	6,860.3	-7,811.4	1,490.1	7,926.4	1.91	0.14	-1.91
14,458.0	90.72	178.81	6,859.0	-7,905.4	1,491.4	8,020.0	0.76	-0.14	-0.74



Integrity Directional Services, LLC

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well CS-LONGMEADOW 1-1-13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4688.0usft (PATT 341)
Site:	SW SE SEC 36 T6N R66W 6th P.M.	MD Reference:	KB @ 4688.0usft (PATT 341)
Well:	CS-LONGMEADOW 1-1-13	North Reference:	True
Wellbore:	JOB #2017-158-341	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Multi User Db

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)
14,553.0	90.19	178.90	6,858.3	-8,000.3	1,493.3	8,114.6	0.57	-0.56	0.09
14,648.0	90.41	177.31	6,857.8	-8,095.3	1,496.5	8,209.3	1.69	0.23	-1.67
14,744.0	90.19	177.88	6,857.3	-8,191.2	1,500.5	8,305.1	0.64	-0.23	0.59
14,839.0	90.28	177.40	6,856.9	-8,286.1	1,504.4	8,399.9	0.51	0.09	-0.51
14,934.0	90.19	177.62	6,856.5	-8,381.0	1,508.6	8,494.7	0.25	-0.09	0.23
15,029.0	89.79	177.80	6,856.5	-8,476.0	1,512.3	8,589.5	0.46	-0.42	0.19
15,124.0	89.09	178.10	6,857.4	-8,570.9	1,515.7	8,684.2	0.80	-0.74	0.32
15,219.0	89.40	178.90	6,858.7	-8,665.8	1,518.2	8,778.9	0.90	0.33	0.84
15,313.0	89.22	179.29	6,859.8	-8,759.8	1,519.7	8,872.5	0.46	-0.19	0.41
15,408.0	89.31	179.21	6,861.0	-8,854.8	1,521.0	8,967.1	0.13	0.09	-0.08
15,503.0	89.22	179.38	6,862.3	-8,949.8	1,522.1	9,061.6	0.20	-0.09	0.18
15,598.0	89.27	178.98	6,863.5	-9,044.8	1,523.5	9,156.2	0.42	0.05	-0.42
15,692.0	89.31	179.12	6,864.7	-9,138.8	1,525.0	9,249.8	0.15	0.04	0.15
15,786.0	89.31	178.72	6,865.8	-9,232.7	1,526.8	9,343.4	0.43	0.00	-0.43
15,881.0	89.31	178.90	6,866.9	-9,327.7	1,528.8	9,438.1	0.19	0.00	0.19
15,976.0	90.01	180.09	6,867.5	-9,422.7	1,529.6	9,532.6	1.45	0.74	1.25
16,070.0	90.50	181.32	6,867.1	-9,516.7	1,528.5	9,625.9	1.41	0.52	1.31
16,165.0	89.79	182.91	6,866.8	-9,611.6	1,525.0	9,719.9	1.83	-0.75	1.67
16,260.0	89.88	184.32	6,867.1	-9,706.4	1,519.0	9,813.5	1.49	0.09	1.48
16,354.0	90.81	183.70	6,866.6	-9,800.2	1,512.4	9,906.0	1.19	0.99	-0.66
16,450.0	91.12	184.10	6,864.9	-9,896.0	1,505.9	10,000.6	0.53	0.32	0.42
16,544.0	91.12	184.49	6,863.1	-9,989.7	1,498.8	10,093.0	0.41	0.00	0.41
16,639.0	91.21	184.10	6,861.2	-10,084.4	1,491.7	10,186.4	0.42	0.09	-0.41
16,734.0	91.78	184.32	6,858.7	-10,179.1	1,484.8	10,279.8	0.64	0.60	0.23
16,828.0	91.12	186.52	6,856.3	-10,272.6	1,475.9	10,371.8	2.44	-0.70	2.34
16,923.0	91.52	186.39	6,854.1	-10,367.0	1,465.2	10,464.5	0.44	0.42	-0.14
17,113.0	89.88	185.42	6,851.8	-10,556.0	1,445.7	10,650.3	1.00	-0.86	-0.51
17,208.0	90.19	182.29	6,851.7	-10,650.8	1,439.3	10,743.8	3.31	0.33	-3.29
17,302.0	90.19	179.69	6,851.4	-10,744.8	1,437.6	10,837.1	2.77	0.00	-2.77
17,398.0	90.19	177.40	6,851.1	-10,840.7	1,440.1	10,932.8	2.39	0.00	-2.39
17,493.0	90.41	175.90	6,850.6	-10,935.6	1,445.6	11,027.6	1.60	0.23	-1.58
17,587.0	90.19	177.31	6,850.1	-11,029.4	1,451.2	11,121.5	1.52	-0.23	1.50
17,682.0	90.50	177.31	6,849.6	-11,124.3	1,455.7	11,216.3	0.33	0.33	0.00
17,777.0	90.41	176.78	6,848.8	-11,219.2	1,460.6	11,311.2	0.57	-0.09	-0.56
17,872.0	90.41	176.78	6,848.1	-11,314.0	1,465.9	11,406.1	0.00	0.00	0.00
17,966.0	90.28	178.26	6,847.6	-11,407.9	1,470.0	11,499.9	1.58	-0.14	1.57
18,060.0	90.19	177.88	6,847.2	-11,501.9	1,473.1	11,593.6	0.42	-0.10	-0.40
18,155.0	90.10	177.88	6,846.9	-11,596.8	1,476.6	11,688.4	0.09	-0.09	0.00
18,250.0	90.28	177.18	6,846.6	-11,691.7	1,480.7	11,783.2	0.76	0.19	-0.74
18,345.0	90.10	177.62	6,846.3	-11,786.6	1,485.0	11,878.0	0.50	-0.19	0.46
18,440.0	90.19	177.62	6,846.1	-11,881.5	1,489.0	11,972.8	0.09	0.09	0.00
18,534.0	90.28	177.09	6,845.7	-11,975.4	1,493.3	12,066.6	0.57	0.10	-0.56
18,629.0	90.19	177.18	6,845.3	-12,070.3	1,498.1	12,161.4	0.13	-0.09	0.09



Integrity Directional Services, LLC

Survey Report



Company:	EXTRACTION OIL & GAS	Local Co-ordinate Reference:	Well CS-LONGMEADOW 1-1-13
Project:	WELD COUNTY, COLORADO (NAD 83)	TVD Reference:	KB @ 4688.0usft (PATT 341)
Site:	SW SE SEC 36 T6N R66W 6th P.M.	MD Reference:	KB @ 4688.0usft (PATT 341)
Well:	CS-LONGMEADOW 1-1-13	North Reference:	True
Wellbore:	JOB #2017-158-341	Survey Calculation Method:	Minimum Curvature
Design:	Final Surveys	Database:	EDM 5000.1 Multi User Db

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)
18,723.0	90.28	177.09	6,844.9	-12,164.2	1,502.8	12,255.3	0.14	0.10	-0.10
18,818.0	90.28	176.21	6,844.4	-12,259.0	1,508.3	12,350.2	0.93	0.00	-0.93
18,912.0	90.41	176.21	6,843.9	-12,352.8	1,514.5	12,444.1	0.14	0.14	0.00
19,007.0	90.28	178.50	6,843.3	-12,447.7	1,518.9	12,538.9	2.41	-0.14	2.41
19,102.0	90.28	179.21	6,842.8	-12,542.7	1,520.8	12,633.5	0.75	0.00	0.75
19,196.0	90.01	179.29	6,842.6	-12,636.7	1,522.0	12,727.1	0.30	-0.29	0.09
19,291.0	90.19	179.38	6,842.4	-12,731.7	1,523.1	12,821.6	0.21	0.19	0.09
19,385.0	90.19	178.28	6,842.1	-12,825.6	1,525.1	12,915.3	1.17	0.00	-1.17
19,480.0	90.25	180.38	6,841.7	-12,920.6	1,526.2	13,009.8	2.21	0.06	2.21
19,575.0	90.59	181.50	6,841.1	-13,015.6	1,524.6	13,104.1	1.23	0.36	1.18
19,669.0	90.72	182.51	6,840.0	-13,109.6	1,521.3	13,197.1	1.08	0.14	1.07
19,764.0	90.50	182.82	6,839.0	-13,204.4	1,516.9	13,291.0	0.40	-0.23	0.33
19,858.0	90.72	182.69	6,838.0	-13,298.3	1,512.4	13,383.9	0.27	0.23	-0.14
19,953.0	90.61	181.72	6,836.9	-13,393.3	1,508.7	13,477.8	1.03	-0.12	-1.02
20,048.0	90.81	182.91	6,835.7	-13,488.2	1,504.9	13,571.8	1.27	0.21	1.25
20,143.0	90.90	183.48	6,834.3	-13,583.0	1,499.6	13,665.5	0.61	0.09	0.60
20,238.0	90.72	182.11	6,832.9	-13,677.9	1,495.0	13,759.3	1.45	-0.19	-1.44
Last MWD Survey 20238 MD/6832.9 TVD -13677.9 S 1495.0 E N: 1389823.6 E: 3218036.8									
20,308.0	90.72	182.11	6,832.0	-13,747.8	1,492.4	13,828.6	0.00	0.00	0.00
PTB 20308 MD/6832.0 TVD -13747.8 S 1492.4 E N: 1389753.6 E: 3218034.8 - BHL - CS-LONGMEADOW 1-1-13 - BHL CS Longmeadow 1-1-									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
KOP - CS-LONGMEAD(0.00	0.00	6,423.0	-213.9	1,512.4	1,403,286.72	3,217,936.20	40° 26' 16.018 N	104° 43' 1.369 W
- hit/miss target									
- Shape									
- survey misses target center by 60.1usft at 6652.8usft MD (6404.2 TVD, -269.5 N, 1525.1 E)									
- Point									
LANDING PNT - CS-LOI	0.00	0.00	6,830.0	-786.9	1,511.6	1,402,713.79	3,217,940.38	40° 26' 10.356 N	104° 43' 1.380 W
- survey misses target center by 21.8usft at 7338.6usft MD (6809.0 TVD, -790.9 N, 1507.3 E)									
- Point									
BHL - CS-LONGMEADC	0.00	0.00	6,996.0	-13,789.2	1,492.9	1,389,712.31	3,218,035.69	40° 24' 1.872 N	104° 43' 1.632 W
- survey misses target center by 169.1usft at 20308.0usft MD (6832.0 TVD, -13747.8 N, 1492.4 E)									
- Point									

Survey Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
1,535.0	1,504.7	+N/-S (usft)	+E/-W (usft)	
20,238.0	6,832.9	-35.6	238.5	1st MWD Survey
20,308.0	6,832.0	-13,677.9	1,495.0	Last MWD Survey 20238 MD/6832.9 TVD -13677.9 S 1495.0 E N: 1389823.6 E
		-13,747.8	1,492.4	PTB 20308 MD/6832.0 TVD -13747.8 S 1492.4 E N: 1389753.6 E: 3218034.8

Checked By: _____	Approved By: _____	Date: _____
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