

Extraction Oil & Gas

Weld County, CO (NAD83)

Sec 10-T01S-R68W Interchange Pad

Interchange B N35-20-3N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

22 May, 2019

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B N35-20-3N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5241.00usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	kb @ 5241.00usft (Patterson 901)
Well:	Interchange B N35-20-3N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Project	Weld County, CO (NAD83),		
Map System:	US State Plane 1983	System Datum:	Ground Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site		Sec 10-T01S-R68W Interchange Pad			
Site Position:		Northing:	1,235,601.28 usft	Latitude:	39.978987
From:	Map	Easting:	3,142,562.59 usft	Longitude:	-104.991281
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:	0.33 °

Well		Interchange B N35-20-3N				
Well Position	+N/-S	0.00 usft	Northing:	1,235,584.12 usft	Latitude:	39.978941
	+E/-W	0.00 usft	Easting:	3,142,492.62 usft	Longitude:	-104.991531
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,212.00 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/17/2019	8.10	66.44	51,897.14448013

Design	Wellbore #1				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.00	0.00	0.00	5.39	

Survey Program	Date	5/22/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
122.30	1,600.30	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,675.00	18,288.00	Atlas MWD Surveys (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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
122.30	0.31	335.06	122.30	0.30	-0.14	0.29	0.25	0.25	0.00	
209.30	0.31	312.30	209.30	0.67	-0.41	0.63	0.14	0.00	-26.16	
297.30	0.88	333.22	297.29	1.44	-0.89	1.35	0.68	0.65	23.77	
384.30	0.13	149.00	384.29	1.95	-1.14	1.83	1.16	-0.86	202.05	
471.30	0.44	205.07	471.29	1.56	-1.23	1.44	0.44	0.36	64.45	
559.30	0.92	175.19	559.28	0.55	-1.32	0.42	0.66	0.55	-33.95	
646.30	0.40	36.24	646.28	0.10	-1.08	0.00	1.44	-0.60	-159.71	
733.30	0.40	11.01	733.28	0.64	-0.84	0.56	0.20	0.00	-29.00	
820.30	0.88	49.68	820.27	1.37	-0.28	1.34	0.71	0.55	44.45	

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Design:	Wellbore #1	Database:	EDM 5000.15 Single 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)
908.30	2.64	19.89	908.23	3.72	0.93	3.79	2.19	2.00	-33.85
995.30	3.73	23.67	995.09	8.19	2.75	8.41	1.28	1.25	4.34
1,082.30	5.27	19.62	1,081.82	14.55	5.23	14.97	1.81	1.77	-4.66
1,169.30	7.47	24.55	1,168.28	23.46	8.92	24.19	2.60	2.53	5.67
1,257.30	9.05	25.07	1,255.37	34.93	14.23	36.11	1.80	1.80	0.59
1,344.30	10.68	23.58	1,341.08	48.52	20.35	50.21	1.90	1.87	-1.71
1,431.30	12.57	25.78	1,426.29	64.43	27.69	66.75	2.23	2.17	2.53
1,518.30	12.88	25.86	1,511.15	81.68	36.04	84.70	0.36	0.36	0.09
1,600.30	15.69	27.36	1,590.61	99.76	45.12	103.55	3.46	3.43	1.83
Tie into Surface Surveys									
1,675.00	16.70	26.65	1,662.34	118.32	54.58	122.92	1.38	1.35	-0.95
First MWD Survey @ 1675' MD									
1,771.00	18.03	29.25	1,753.97	143.61	68.03	149.37	1.60	1.39	2.71
1,866.00	22.45	30.97	1,843.08	172.01	84.55	179.19	4.69	4.65	1.81
1,961.00	24.97	27.71	1,930.06	205.32	103.22	214.10	2.99	2.65	-3.43
2,057.00	23.69	25.99	2,017.53	240.60	121.09	250.90	1.52	-1.33	-1.79
2,152.00	26.56	27.14	2,103.53	276.66	139.15	288.50	3.06	3.02	1.21
2,248.00	29.03	28.28	2,188.45	316.28	159.98	329.90	2.63	2.57	1.19
2,343.00	27.00	26.74	2,272.32	355.84	180.60	371.23	2.27	-2.14	-1.62
2,438.00	29.65	28.06	2,355.94	395.84	201.36	413.00	2.87	2.79	1.39
2,534.00	27.75	24.63	2,440.14	437.12	221.85	456.02	2.62	-1.98	-3.57
2,629.00	30.62	24.58	2,523.07	479.23	241.13	499.76	3.02	3.02	-0.05
2,724.00	28.37	21.72	2,605.76	522.21	259.55	544.27	2.79	-2.37	-3.01
2,820.00	29.65	27.14	2,689.73	564.54	278.83	588.23	3.04	1.33	5.65
2,915.00	27.84	25.15	2,773.02	605.53	298.98	630.93	2.15	-1.91	-2.09
3,011.00	30.53	26.43	2,856.83	647.67	319.36	674.79	2.88	2.80	1.33
3,106.00	27.97	24.36	2,939.71	689.58	339.30	718.39	2.90	-2.69	-2.18
3,202.00	29.47	26.17	3,023.90	731.28	359.00	761.76	1.81	1.56	1.89
3,297.00	26.47	24.14	3,107.79	771.59	377.97	803.67	3.31	-3.16	-2.14
3,392.00	28.46	26.39	3,192.09	811.19	396.69	844.85	2.36	2.09	2.37
3,488.00	30.09	29.74	3,275.83	852.58	418.80	888.14	2.41	1.70	3.49
3,583.00	26.56	27.80	3,359.44	892.06	440.53	929.48	3.84	-3.72	-2.04
3,679.00	26.56	31.50	3,445.32	929.35	461.75	968.60	1.72	0.00	3.85
3,774.00	30.36	30.53	3,528.82	968.15	485.05	1,009.42	4.03	4.00	-1.02
3,869.00	28.33	27.84	3,611.63	1,008.77	507.78	1,051.99	2.55	-2.14	-2.83
3,964.00	30.00	27.67	3,694.58	1,049.74	529.34	1,094.80	1.76	1.76	-0.18
4,060.00	26.12	24.98	3,779.29	1,090.16	549.41	1,136.94	4.25	-4.04	-2.80
4,155.00	28.59	24.63	3,863.66	1,129.79	567.72	1,178.11	2.61	2.60	-0.37
4,250.00	29.61	28.46	3,946.67	1,171.09	588.38	1,221.16	2.23	1.07	4.03
4,346.00	26.65	26.65	4,031.32	1,211.19	609.34	1,263.06	3.21	-3.08	-1.89
4,441.00	27.93	26.04	4,115.75	1,250.23	628.67	1,303.73	1.38	1.35	-0.64
4,537.00	29.39	26.08	4,199.98	1,291.59	648.90	1,346.81	1.52	1.52	0.04
4,632.00	30.67	25.46	4,282.23	1,334.40	669.56	1,391.38	1.39	1.35	-0.65

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4,728.00	27.44	23.26	4,366.14	1,376.84	688.83	1,435.44	3.54	-3.36	-2.29	
4,822.00	29.47	25.99	4,448.78	1,417.53	707.51	1,477.70	2.56	2.16	2.90	
4,918.00	31.60	25.99	4,531.47	1,461.37	728.89	1,523.36	2.22	2.22	0.00	
5,014.00	27.71	23.92	4,614.88	1,504.40	748.97	1,568.08	4.19	-4.05	-2.16	
5,109.00	29.52	24.01	4,698.27	1,545.97	767.45	1,611.20	1.91	1.91	0.09	
5,205.00	27.75	27.36	4,782.53	1,587.43	787.34	1,654.35	2.49	-1.84	3.49	
5,300.00	29.83	27.80	4,865.78	1,627.98	808.53	1,696.71	2.20	2.19	0.46	
5,395.00	32.39	28.06	4,947.11	1,671.34	831.52	1,742.04	2.70	2.69	0.27	
5,491.00	29.61	25.42	5,029.40	1,715.46	853.80	1,788.06	3.22	-2.90	-2.75	
5,586.00	31.33	26.21	5,111.27	1,758.82	874.79	1,833.19	1.86	1.81	0.83	
5,681.00	28.41	25.59	5,193.65	1,801.37	895.46	1,877.50	3.09	-3.07	-0.65	
5,777.00	29.34	26.17	5,277.71	1,843.08	915.70	1,920.92	1.01	0.97	0.60	
5,872.00	25.63	25.37	5,361.97	1,882.55	934.78	1,962.01	3.92	-3.91	-0.84	
5,968.00	27.22	23.04	5,447.94	1,921.52	952.27	2,002.44	1.98	1.66	-2.43	
6,063.00	30.05	27.00	5,530.33	1,962.26	976.05	2,055.19	2.91	2.42	3.38	
6,158.00	29.92	27.36	5,612.72	2,004.49	997.73	2,099.28	0.23	-0.14	0.38	
6,253.00	28.90	25.82	5,695.11	2,046.64	1,018.84	2,143.22	1.32	-1.06	-1.60	
6,348.00	26.87	26.83	5,777.50	2,088.88	1,038.53	2,184.72	2.19	-2.14	1.06	
6,443.00	26.69	28.55	5,860.89	2,131.11	1,058.42	2,224.32	0.84	-0.19	1.81	
6,538.00	26.87	29.30	5,943.28	2,173.35	1,079.34	2,263.97	0.40	0.19	0.78	
6,633.00	23.86	25.68	6,025.67	2,215.59	1,098.18	2,301.63	3.56	-3.17	-3.81	
6,728.00	19.93	19.60	6,108.06	2,257.83	1,111.94	2,335.37	4.77	-4.14	-6.40	
6,823.00	17.15	14.62	6,190.45	2,299.97	1,121.00	2,365.21	3.33	-2.90	-5.19	
6,918.00	15.86	23.22	6,272.84	2,342.21	1,129.66	2,391.39	2.90	-1.36	9.05	
7,013.00	13.83	14.62	6,355.23	2,384.45	1,137.73	2,415.21	3.12	-2.11	-8.96	
7,108.00	11.62	17.79	6,437.62	2,426.69	1,143.52	2,435.77	2.44	-2.33	3.34	
7,203.00	8.00	28.59	6,520.01	2,468.93	1,149.61	2,451.19	4.26	-3.81	11.37	
7,298.00	6.85	22.69	6,602.40	2,511.17	1,154.96	2,462.68	1.45	-1.21	-6.21	
7,393.00	3.84	22.16	6,684.79	2,553.41	1,158.38	2,471.22	3.14	-3.14	-0.55	
7,488.00	1.33	355.48	6,767.18	2,595.65	1,159.49	2,475.36	2.86	-2.64	-28.08	
7,583.00	1.28	0.24	6,849.57	2,637.89	1,159.41	2,477.50	0.13	-0.05	5.01	
7,678.00	1.46	3.99	6,931.96	2,680.13	1,159.50	2,479.79	0.21	0.19	3.91	
7,773.00	8.00	5.93	7,014.35	2,722.37	1,160.27	2,487.62	6.89	6.88	2.04	
7,868.00	17.72	7.91	7,096.74	2,764.61	1,162.95	2,508.72	10.24	10.23	2.08	
7,963.00	23.46	7.51	7,179.13	2,806.85	1,167.46	2,542.44	5.98	5.98	-0.42	
8,058.00	29.99	5.18	7,261.52	2,849.09	1,170.61	2,571.56	10.21	10.08	-3.60	
30° Inclination @ 8056.79' MD										
8,153.00	33.05	4.38	7,343.91	2,891.33	1,171.92	2,587.35	10.21	10.12	-2.63	
8,248.00	43.39	358.17	7,426.30	2,933.57	1,172.86	2,645.80	11.60	10.88	-6.54	
8,343.00	50.73	357.47	7,508.69	2,975.81	1,170.19	2,714.69	7.75	7.73	-0.74	
8,438.00	57.31	0.37	7,591.08	3,018.05	1,168.81	2,791.84	7.28	6.85	3.02	
8,533.00	70.00	3.02	7,673.47	3,060.29	1,171.26	2,871.12	14.53	14.28	2.99	
70° Inclination @ 8461.84' MD										
8,628.00	70.88	3.19	7,755.86	3,102.53	1,171.58	2,876.92	14.53	14.31	2.68	

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8,484.72	71.84	3.65	7,684.72	2,795.00	1,172.52	2,892.75	6.29	5.74	2.73	
Cross @ 8484.72' MD										
8,564.00	76.40	5.75	7,706.41	2,870.97	1,178.78	2,968.97	6.29	5.75	2.65	
8,659.00	86.96	5.88	7,720.14	2,964.36	1,188.29	3,062.84	11.12	11.12	0.14	
8,755.00	90.10	1.12	7,722.60	3,060.11	1,194.15	3,158.72	5.94	3.27	-4.96	
8,850.00	89.44	1.17	7,722.99	3,155.09	1,196.04	3,253.45	0.70	-0.69	0.05	
8,946.00	90.46	359.54	7,723.07	3,251.08	1,196.64	3,349.08	2.00	1.06	-1.70	
9,041.00	90.68	359.58	7,722.13	3,346.07	1,195.91	3,443.58	0.24	0.23	0.04	
9,136.00	90.59	359.71	7,721.07	3,441.06	1,195.32	3,538.10	0.17	-0.09	0.14	
9,232.00	90.15	359.67	7,720.45	3,537.06	1,194.80	3,633.62	0.46	-0.46	-0.04	
9,327.00	89.53	359.71	7,720.72	3,632.06	1,194.29	3,728.15	0.65	-0.65	0.04	
9,423.00	89.13	359.76	7,721.84	3,728.05	1,193.84	3,823.68	0.42	-0.42	0.05	
9,518.00	89.17	358.92	7,723.25	3,823.03	1,192.75	3,918.14	0.89	0.04	-0.88	
9,613.00	88.64	358.48	7,725.06	3,917.99	1,190.60	4,012.48	0.73	-0.56	-0.46	
9,708.00	89.79	358.83	7,726.37	4,012.95	1,188.37	4,106.81	1.27	1.21	0.37	
9,804.00	90.46	0.07	7,726.16	4,108.95	1,187.44	4,202.29	1.47	0.70	1.29	
9,899.00	90.99	359.71	7,724.95	4,203.94	1,187.26	4,296.85	0.67	0.56	-0.38	
9,995.00	90.46	359.76	7,723.74	4,299.93	1,186.82	4,392.37	0.55	-0.55	0.05	
10,090.00	90.77	358.48	7,722.72	4,394.91	1,185.36	4,486.80	1.39	0.33	-1.35	
10,186.00	90.32	357.47	7,721.81	4,490.84	1,181.97	4,581.99	1.15	-0.47	-1.05	
10,281.00	90.90	0.55	7,720.80	4,585.81	1,180.33	4,676.38	3.30	0.61	3.24	
10,377.00	90.15	359.63	7,719.92	4,681.81	1,180.48	4,771.97	1.24	-0.78	-0.96	
10,472.00	91.30	0.46	7,718.71	4,776.80	1,180.55	4,866.54	1.49	1.21	0.87	
10,568.00	90.50	359.80	7,717.21	4,872.78	1,180.77	4,962.13	1.08	-0.83	-0.69	
10,663.00	89.84	359.49	7,716.92	4,967.78	1,180.18	5,056.65	0.77	-0.69	-0.33	
10,759.00	89.70	1.87	7,717.31	5,063.77	1,181.32	5,152.32	2.48	-0.15	2.48	
10,854.00	91.60	1.87	7,716.23	5,158.71	1,184.42	5,247.13	2.00	2.00	0.00	
10,949.00	90.68	0.95	7,714.34	5,253.66	1,186.76	5,341.88	1.37	-0.97	-0.97	
11,045.00	92.22	1.48	7,711.91	5,349.60	1,188.79	5,437.59	1.70	1.60	0.55	
11,140.00	90.90	0.64	7,709.33	5,444.55	1,190.55	5,532.28	1.65	-1.39	-0.88	
11,236.00	90.06	359.80	7,708.52	5,540.54	1,190.92	5,627.89	1.24	-0.88	-0.88	
11,331.00	91.69	359.85	7,707.07	5,635.53	1,190.63	5,722.42	1.72	1.72	0.05	
11,427.00	91.47	359.45	7,704.42	5,731.49	1,190.04	5,817.91	0.48	-0.23	-0.42	
11,522.00	90.99	359.49	7,702.39	5,826.46	1,189.16	5,912.38	0.51	-0.51	0.04	
11,618.00	89.75	358.44	7,701.77	5,922.44	1,187.43	6,007.77	1.69	-1.29	-1.09	
11,713.00	91.34	1.30	7,700.86	6,017.42	1,187.21	6,102.31	3.44	1.67	3.01	
11,809.00	90.77	0.99	7,699.09	6,113.39	1,189.13	6,198.03	0.68	-0.59	-0.32	
11,904.00	90.54	0.60	7,698.01	6,208.37	1,190.45	6,292.72	0.48	-0.24	-0.41	
11,999.00	89.79	359.85	7,697.73	6,303.37	1,190.82	6,387.34	1.12	-0.79	-0.79	
12,095.00	93.81	1.12	7,694.72	6,399.30	1,191.63	6,482.92	4.39	4.19	1.32	
12,190.00	93.02	0.46	7,689.06	6,494.12	1,192.94	6,577.44	1.08	-0.83	-0.69	
12,286.00	92.44	359.71	7,684.49	6,590.01	1,193.08	6,672.92	0.99	-0.60	-0.78	
12,381.00	91.96	358.92	7,680.84	6,684.93	1,191.95	6,767.32	0.97	-0.51	-0.83	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B N35-20-3N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5241.00usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	kb @ 5241.00usft (Patterson 901)
Well:	Interchange B N35-20-3N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single 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)
12,477.00	90.94	358.30	7,678.41	6,780.87	1,189.62	6,862.61	1.24	-1.06	-0.65
12,572.00	91.21	357.20	7,676.63	6,875.78	1,185.89	6,956.75	1.19	0.28	-1.16
12,667.00	90.06	0.51	7,675.58	6,970.74	1,183.99	7,051.11	3.69	-1.21	3.48
12,762.00	89.44	359.67	7,675.99	7,065.73	1,184.14	7,145.71	1.10	-0.65	-0.88
12,858.00	89.35	358.83	7,677.00	7,161.72	1,182.88	7,241.15	0.88	-0.09	-0.88
12,953.00	89.70	359.01	7,677.79	7,256.70	1,181.09	7,335.54	0.41	0.37	0.19
13,049.00	89.17	358.44	7,678.74	7,352.67	1,178.96	7,430.89	0.81	-0.55	-0.59
13,144.00	88.73	357.29	7,680.48	7,447.59	1,175.42	7,525.05	1.30	-0.46	-1.21
13,239.00	89.97	359.80	7,681.56	7,542.54	1,173.01	7,619.36	2.95	1.31	2.64
13,335.00	90.46	0.20	7,681.20	7,638.54	1,173.01	7,714.93	0.66	0.51	0.42
13,430.00	90.59	359.58	7,680.33	7,733.53	1,172.82	7,809.49	0.67	0.14	-0.65
13,481.47	90.80	0.64	7,679.70	7,785.00	1,172.92	7,860.74	2.10	0.42	2.06
Cross @ 13481.47' MD									
13,526.00	90.99	1.56	7,679.00	7,829.52	1,173.78	7,905.14	2.10	0.42	2.06
13,621.00	90.90	0.82	7,677.44	7,924.48	1,175.75	7,999.87	0.78	-0.09	-0.78
13,717.00	90.72	0.11	7,676.08	8,020.47	1,176.53	8,095.51	0.76	-0.19	-0.74
13,812.00	91.21	359.32	7,674.48	8,115.45	1,176.06	8,190.03	0.98	0.52	-0.83
13,908.00	91.03	358.70	7,672.60	8,211.42	1,174.40	8,285.41	0.67	-0.19	-0.65
14,003.00	91.65	358.08	7,670.38	8,306.36	1,171.73	8,379.68	0.92	0.65	-0.65
14,099.00	91.07	1.21	7,668.10	8,402.31	1,171.14	8,475.16	3.32	-0.60	3.26
14,195.00	89.70	0.82	7,667.46	8,498.29	1,172.84	8,570.88	1.48	-1.43	-0.41
14,290.00	89.00	0.33	7,668.53	8,593.28	1,173.79	8,665.53	0.90	-0.74	-0.52
14,386.00	88.16	359.85	7,670.91	8,689.25	1,173.94	8,761.09	1.01	-0.88	-0.50
14,481.00	89.31	2.75	7,673.01	8,784.19	1,176.10	8,855.82	3.28	1.21	3.05
14,577.00	90.32	3.02	7,673.32	8,880.07	1,180.93	8,951.72	1.09	1.05	0.28
14,672.00	90.50	2.27	7,672.64	8,974.96	1,185.31	9,046.61	0.81	0.19	-0.79
14,768.00	89.93	1.96	7,672.28	9,070.90	1,188.86	9,142.45	0.68	-0.59	-0.32
14,863.00	88.91	1.92	7,673.24	9,165.84	1,192.07	9,237.27	1.07	-1.07	-0.04
14,958.00	90.59	2.05	7,673.66	9,260.78	1,195.36	9,332.10	1.77	1.77	0.14
15,053.00	89.93	1.65	7,673.23	9,355.73	1,198.43	9,426.92	0.81	-0.69	-0.42
15,149.00	90.77	1.83	7,672.64	9,451.68	1,201.34	9,522.72	0.89	0.88	0.19
15,245.00	89.88	1.17	7,672.10	9,547.64	1,203.86	9,618.50	1.15	-0.93	-0.69
15,340.00	90.99	1.34	7,671.37	9,642.62	1,205.94	9,713.25	1.18	1.17	0.18
15,436.00	90.41	0.55	7,670.20	9,738.59	1,207.52	9,808.95	1.02	-0.60	-0.82
15,531.00	89.79	359.67	7,670.04	9,833.59	1,207.70	9,903.55	1.13	-0.65	-0.93
15,627.00	89.00	358.66	7,671.05	9,929.57	1,206.30	9,998.97	1.34	-0.82	-1.05
15,722.00	92.27	358.79	7,670.00	10,024.53	1,204.19	10,093.31	3.44	3.44	0.14
15,817.00	90.90	357.86	7,667.37	10,119.45	1,201.41	10,187.55	1.74	-1.44	-0.98
15,913.00	90.63	357.16	7,666.09	10,215.35	1,197.24	10,282.64	0.78	-0.28	-0.73
16,008.00	89.93	356.10	7,665.62	10,310.18	1,191.66	10,376.53	1.34	-0.74	-1.12
16,104.00	90.50	357.64	7,665.26	10,406.04	1,186.42	10,471.46	1.71	0.59	1.60
16,199.00	90.54	0.64	7,664.40	10,501.01	1,184.99	10,565.89	3.16	0.04	3.16
16,294.00	89.93	359.76	7,664.01	10,596.01	1,185.32	10,660.49	1.13	-0.64	-0.93
16,390.00	89.31	1.61	7,664.65	10,692.00	1,186.47	10,756.16	2.03	-0.65	1.93

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B N35-20-3N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5241.00usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	kb @ 5241.00usft (Patterson 901)
Well:	Interchange B N35-20-3N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single 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)	
16,485.00	89.40	0.82	7,665.72	10,786.97	1,188.49	10,850.91	0.84	0.09	-0.83	
16,581.00	91.16	2.14	7,665.25	10,882.93	1,190.97	10,946.68	2.29	1.83	1.38	
16,676.00	91.12	1.21	7,663.36	10,977.87	1,193.74	11,041.46	0.98	-0.04	-0.98	
16,771.00	91.47	0.46	7,661.21	11,072.83	1,195.13	11,136.13	0.87	0.37	-0.79	
16,867.00	91.56	0.02	7,658.67	11,168.80	1,195.53	11,231.71	0.47	0.09	-0.46	
16,962.00	90.81	1.52	7,656.71	11,263.77	1,196.80	11,326.38	1.77	-0.79	1.58	
17,058.00	91.07	1.04	7,655.13	11,359.73	1,198.95	11,422.12	0.57	0.27	-0.50	
17,153.00	91.25	0.64	7,653.21	11,454.70	1,200.34	11,516.80	0.46	0.19	-0.42	
17,249.00	90.94	359.85	7,651.37	11,550.68	1,200.75	11,612.39	0.88	-0.32	-0.82	
17,344.00	90.37	359.23	7,650.29	11,645.67	1,199.99	11,706.89	0.89	-0.60	-0.65	
17,440.00	90.94	359.05	7,649.19	11,741.65	1,198.55	11,802.32	0.62	0.59	-0.19	
17,535.00	91.69	359.18	7,647.01	11,836.61	1,197.08	11,896.72	0.80	0.79	0.14	
17,631.00	90.59	0.90	7,645.10	11,932.59	1,197.15	11,992.28	2.13	-1.15	1.79	
17,726.00	90.37	0.11	7,644.31	12,027.58	1,197.99	12,086.93	0.86	-0.23	-0.83	
17,821.00	90.37	359.54	7,643.69	12,122.58	1,197.70	12,181.48	0.60	0.00	-0.60	
17,917.00	90.54	358.88	7,642.93	12,218.57	1,196.37	12,276.92	0.71	0.18	-0.69	
18,013.00	91.52	358.52	7,641.20	12,314.53	1,194.19	12,372.25	1.09	1.02	-0.38	
18,108.00	92.09	358.57	7,638.21	12,409.45	1,191.78	12,466.53	0.60	0.60	0.05	
18,203.00	89.40	358.61	7,636.98	12,504.40	1,189.45	12,560.84	2.83	-2.83	0.04	
Last MWD Survey @ 18203' MD										
18,288.00	89.40	358.61	7,637.87	12,589.37	1,187.38	12,645.24	0.00	0.00	0.00	
Projection to TD @ 18288' MD 506.5' FNL/ 1992' FEL										

Design Targets										
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude	
30° Inclination @ 8056'	0.00	0.00	7,416.60	2,472.56	1,170.66	1,238,063.35	3,143,649.09	39.985729	-104.987353	
- hit/miss target										
- Shape										
- actual wellpath misses target center by 0.06usft at 8056.79usft MD (7416.60 TVD, 2472.56 N, 1170.61 E)										
- Point										
70° Inclination @ 8461.8'	0.00	0.00	7,677.32	2,773.39	1,171.25	1,238,364.18	3,143,647.95	39.986554	-104.987351	
- hit/miss target										
- Shape										
- actual wellpath misses target center by 0.01usft at 8461.84usft MD (7677.32 TVD, 2773.39 N, 1171.26 E)										
- Point										
Cross @ 13481.47' MD	0.00	0.00	7,679.70	7,785.00	1,172.92	1,243,375.72	3,143,620.89	40.000312	-104.987345	
- hit/miss target										
- Shape										
- actual wellpath hits target center										
- Point										
Cross @ 8484.72' MD	0.00	0.00	7,684.72	2,795.00	1,172.52	1,238,385.80	3,143,649.10	39.986614	-104.987347	
- hit/miss target										
- Shape										
- actual wellpath hits target center										
- Point										

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B N35-20-3N
Project:	Weld County, CO (NAD83)	TVD Reference:	kb @ 5241.00usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	kb @ 5241.00usft (Patterson 901)
Well:	Interchange B N35-20-3N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	EDM 5000.15 Single User Db

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,600.30	1,590.61	99.76	45.12	Tie into Surface Surveys
1,675.00	1,662.34	118.32	54.58	First MWD Survey @ 1675' MD
8,056.79	7,416.60	2,472.56	1,170.61	30° Inclination @ 8056.79' MD
8,461.84	7,677.32	2,773.39	1,171.26	70° Inclination @ 8461.84' MD
8,484.72	7,684.72	2,795.00	1,172.52	Cross @ 8484.72' MD
13,481.47	7,679.70	7,785.00	1,172.92	Cross @ 13481.47' MD
18,203.00	7,636.98	12,504.40	1,189.45	Last MWD Survey @ 18203' MD
18,288.00	7,637.87	12,589.37	1,187.38	Projection to TD @ 18288' MD 506.5' FNL/ 1992' FEL

Checked By: _____	Approved By: _____	Date: _____
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