

# **Extraction Oil & Gas**

**Weld County, CO (NAD83)**

**Sec 10-T01S-R68W Interchange Pad**

**Interchange B N35-20-10N**

**Wellbore #1**

**Design: Wellbore #1**

## **Standard Survey Report**

**01 July, 2019**

## Survey Report

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

<b>Project</b>	Weld County, CO (NAD83),		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Ground Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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 N35-20-10N				
Well Position	+N/-S	0.00 usft	Northing:	1,235,614.33 usft	Latitude:	39.979022
	+E/-W	0.00 usft	Easting:	3,142,614.92 usft	Longitude:	-104.991094
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,213.00 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	5/8/2019	8.09	66.44	51,890.71101487

<b>Design</b>	Wellbore #1				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	12.62	

<b>Survey Program</b>	<b>Date</b>	7/1/2019			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
122.30	1,607.30	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,668.00	18,912.00	Atlas MWD Surveys (Wellbore #1)	MWD	MWD - Standard	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
122.30	0.22	327.30	122.30	0.20	-0.13	0.17	0.18	0.18	0.00	
209.30	1.76	29.73	209.29	1.50	0.45	1.56	1.92	1.77	71.76	
297.30	4.53	33.77	297.14	5.56	3.05	6.09	3.16	3.15	4.59	
384.30	5.76	43.00	383.79	11.61	7.94	13.06	1.70	1.41	10.61	
471.30	7.82	46.78	470.18	18.86	15.23	21.73	2.42	2.37	4.34	
559.30	9.23	55.83	557.21	26.92	25.43	31.83	2.21	1.60	10.28	
646.30	9.32	55.66	643.07	34.81	37.02	42.06	0.11	0.10	-0.20	
733.30	11.91	50.56	728.58	44.49	49.77	54.29	3.16	2.98	-5.86	
820.30	14.63	51.26	813.25	57.07	65.28	69.96	3.13	3.13	0.80	

# Survey Report

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<b>Site:</b>	Sec 10-T01S-R68W Interchange Pad	<b>MD Reference:</b>	KB @ 5241.00usft (Patterson 901)
<b>Well:</b>	Interchange B N35-20-10N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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	16.30	50.47	898.06	71.89	83.47	88.39	1.91	1.90	-0.90
995.30	18.46	49.51	981.08	88.61	103.37	109.05	2.50	2.48	-1.10
1,082.30	20.87	53.90	1,063.00	106.68	126.37	131.71	3.25	2.77	5.05
1,169.30	21.58	54.16	1,144.10	125.18	151.86	155.33	0.82	0.82	0.30
1,257.30	22.06	54.60	1,225.80	144.23	178.45	179.73	0.58	0.55	0.50
1,344.30	24.65	51.70	1,305.67	164.94	206.01	205.97	3.26	2.98	-3.33
1,431.30	25.40	50.91	1,384.50	187.95	234.73	234.69	0.94	0.86	-0.91
1,518.30	27.77	50.12	1,462.29	212.72	264.77	265.42	2.75	2.72	-0.91
1,607.30	29.93	49.33	1,540.24	240.49	297.52	299.67	2.46	2.43	-0.89
Tie into Surface Surveys									
1,668.00	30.62	47.93	1,592.67	260.71	320.49	324.43	1.63	1.14	-2.31
First MWD Survey @ 1668' MD									
1,763.00	32.88	47.79	1,673.44	294.25	357.55	365.26	2.38	2.38	-0.15
1,858.00	34.56	49.12	1,752.46	329.22	397.03	408.00	1.93	1.77	1.40
1,954.00	36.41	51.72	1,830.63	364.69	439.99	452.00	2.49	1.93	2.71
2,049.00	35.13	49.73	1,907.71	399.83	482.98	495.68	1.82	-1.35	-2.09
2,144.00	35.79	50.75	1,985.09	435.07	525.34	539.33	0.93	0.69	1.07
2,240.00	34.38	49.43	2,063.65	470.46	567.67	583.11	1.67	-1.47	-1.38
2,335.00	34.38	51.06	2,142.05	504.77	608.91	625.60	0.97	0.00	1.72
2,431.00	34.16	47.79	2,221.39	539.91	649.96	668.86	1.93	-0.23	-3.41
2,526.00	34.69	52.20	2,299.77	574.41	691.08	711.51	2.68	0.56	4.64
2,621.00	35.09	55.37	2,377.70	606.50	734.92	752.40	1.95	0.42	3.34
2,717.00	31.90	53.74	2,457.75	637.19	778.09	791.78	3.45	-3.32	-1.70
2,812.00	33.58	51.94	2,537.65	668.23	819.02	831.02	2.04	1.77	-1.89
2,908.00	35.17	51.01	2,616.89	702.00	861.41	873.23	1.74	1.66	-0.97
3,003.00	36.24	49.82	2,694.03	737.33	904.13	917.04	1.34	1.13	-1.25
3,099.00	34.29	55.33	2,772.43	771.04	948.07	959.53	3.89	-2.03	5.74
3,194.00	33.41	56.87	2,851.33	800.55	991.98	997.93	1.29	-0.93	1.62
3,289.00	34.91	56.74	2,929.93	829.76	1,036.62	1,036.18	1.58	1.58	-0.14
3,385.00	35.97	55.15	3,008.15	860.94	1,082.73	1,076.67	1.46	1.10	-1.66
3,481.00	33.14	51.50	3,087.21	893.39	1,126.42	1,117.89	3.65	-2.95	-3.80
3,576.00	34.34	45.42	3,166.23	928.38	1,165.84	1,160.64	3.77	1.26	-6.40
3,671.00	35.48	47.31	3,244.14	965.88	1,205.19	1,205.83	1.65	1.20	1.99
3,767.00	35.57	51.72	3,322.28	1,002.07	1,247.59	1,250.42	2.67	0.09	4.59
3,861.00	36.10	53.26	3,398.49	1,035.58	1,291.25	1,292.65	1.11	0.56	1.64
3,957.00	36.50	52.33	3,475.86	1,069.94	1,336.51	1,336.07	0.71	0.42	-0.97
4,052.00	36.41	53.61	3,552.27	1,103.94	1,381.57	1,379.09	0.81	-0.09	1.35
4,147.00	36.85	51.80	3,628.51	1,138.28	1,426.66	1,422.45	1.23	0.46	-1.91
4,243.00	35.62	51.45	3,705.94	1,173.51	1,471.14	1,466.55	1.30	-1.28	-0.36
4,338.00	34.82	48.98	3,783.56	1,208.55	1,513.25	1,509.94	1.72	-0.84	-2.60
4,434.00	32.70	51.36	3,863.37	1,242.74	1,554.19	1,552.24	2.60	-2.21	2.48
4,529.00	33.76	50.97	3,942.83	1,275.38	1,594.74	1,592.96	1.14	1.12	-0.41
4,625.00	35.40	51.67	4,021.87	1,309.43	1,637.27	1,635.48	1.76	1.71	0.73

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
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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)	
4,720.00	35.48	51.36	4,099.27	1,343.71	1,680.39	1,678.35	0.21	0.08	-0.33	
4,815.00	34.47	49.56	4,177.11	1,378.36	1,722.39	1,721.34	1.52	-1.06	-1.89	
4,910.00	30.84	49.78	4,257.08	1,411.54	1,761.46	1,762.25	3.82	-3.82	0.23	
5,006.00	32.83	50.62	4,338.64	1,443.94	1,800.36	1,802.37	2.12	2.07	0.88	
5,102.00	34.56	50.31	4,418.51	1,477.84	1,841.43	1,844.42	1.81	1.80	-0.32	
5,197.00	34.69	50.31	4,496.68	1,512.32	1,882.97	1,887.14	0.14	0.14	0.00	
5,293.00	37.69	49.91	4,574.15	1,548.67	1,926.46	1,932.11	3.13	3.13	-0.42	
5,388.00	38.98	51.10	4,648.67	1,586.14	1,971.93	1,978.61	1.56	1.36	1.25	
5,506.00	35.17	51.28	4,742.80	1,630.72	2,027.35	2,034.22	3.23	-3.23	0.15	
5,601.00	35.97	51.67	4,820.07	1,665.14	2,070.58	2,077.25	0.88	0.84	0.41	
5,696.00	35.79	48.32	4,897.05	1,700.91	2,113.22	2,121.48	2.08	-0.19	-3.53	
5,792.00	37.91	49.56	4,973.87	1,738.72	2,156.64	2,167.86	2.34	2.21	1.29	
5,887.00	35.17	47.18	5,050.19	1,776.25	2,198.93	2,213.72	3.25	-2.88	-2.51	
5,983.00	37.16	51.19	5,127.70	1,813.23	2,241.81	2,259.17	3.22	2.07	4.18	
6,078.00	35.22	51.94	5,204.37	1,848.10	2,285.74	2,302.80	2.09	-2.04	0.79	
6,173.00	33.80	53.96	5,282.65	1,880.54	2,328.68	2,343.84	1.92	-1.49	2.13	
6,269.00	35.13	53.13	5,361.80	1,912.82	2,372.37	2,384.88	1.47	1.39	-0.86	
6,364.00	32.39	53.26	5,440.77	1,944.45	2,414.64	2,424.98	2.89	-2.88	0.14	
6,459.00	34.95	51.72	5,519.83	1,976.53	2,456.39	2,465.41	2.84	2.69	-1.62	
6,555.00	37.78	52.07	5,597.13	2,011.65	2,501.18	2,509.47	2.96	2.95	0.36	
6,650.00	35.17	50.79	5,673.51	2,046.84	2,545.34	2,553.45	2.86	-2.75	-1.35	
6,745.00	33.58	53.96	5,751.93	2,079.60	2,587.79	2,594.69	2.52	-1.67	3.34	
6,840.00	29.21	52.55	5,833.00	2,109.17	2,627.46	2,632.21	4.66	-4.60	-1.48	
6,936.00	30.00	50.84	5,916.47	2,138.57	2,664.67	2,669.03	1.20	0.82	-1.78	
7,032.00	28.86	52.82	6,000.08	2,167.72	2,701.74	2,705.58	1.56	-1.19	2.06	
7,127.00	24.75	51.32	6,084.86	2,194.02	2,735.54	2,738.63	4.38	-4.33	-1.58	
7,222.00	23.24	50.75	6,171.64	2,218.31	2,765.58	2,768.89	1.61	-1.59	-0.60	
7,317.00	19.40	48.59	6,260.13	2,240.61	2,791.94	2,796.42	4.13	-4.04	-2.27	
7,412.00	15.95	45.86	6,350.63	2,260.14	2,813.15	2,820.11	3.73	-3.63	-2.87	
7,508.00	13.52	45.77	6,443.47	2,277.16	2,830.66	2,840.54	2.53	-2.53	-0.09	
7,603.00	10.21	43.21	6,536.42	2,291.05	2,844.38	2,857.09	3.53	-3.48	-2.69	
7,698.00	10.08	43.96	6,629.94	2,303.17	2,855.92	2,871.44	0.20	-0.14	0.79	
7,794.00	7.56	38.98	6,724.80	2,314.13	2,865.73	2,884.27	2.74	-2.63	-5.19	
7,889.00	6.45	49.25	6,819.09	2,322.47	2,873.70	2,894.16	1.76	-1.17	10.81	
7,984.00	3.89	61.85	6,913.70	2,327.47	2,880.58	2,900.54	2.93	-2.69	13.26	
8,080.00	1.06	35.37	7,009.60	2,329.73	2,883.97	2,903.49	3.10	-2.95	-27.58	
8,175.00	1.68	28.98	7,104.57	2,331.67	2,885.15	2,905.64	0.67	0.65	-6.73	
8,270.00	2.39	27.52	7,199.51	2,334.64	2,886.74	2,908.89	0.75	0.75	-1.54	
8,366.00	9.85	339.83	7,294.94	2,344.14	2,884.83	2,917.74	8.78	7.77	-49.68	
8,461.00	14.63	341.81	7,387.75	2,363.18	2,878.28	2,934.89	5.05	5.03	2.08	
8,557.00	20.42	347.32	7,479.26	2,391.06	2,870.82	2,960.46	6.27	6.03	5.74	
8,652.00	27.35	348.33	7,566.07	2,428.65	2,862.75	2,995.38	7.31	7.29	1.06	
8,689.97	29.99	349.67	7,599.39	2,446.53	2,859.29	3,012.07	7.16	6.96	3.54	
30° Inclination @ 8689.97' MD										

# Survey Report

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<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
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Survey									
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8,747.00	33.98	351.33	7,647.75	2,476.32	2,854.33	3,040.06	7.16	6.99	2.91
8,843.00	43.53	353.27	7,722.53	2,535.81	2,846.39	3,096.38	10.03	9.95	2.02
8,938.00	57.14	358.16	7,783.05	2,608.55	2,841.25	3,166.24	14.86	14.33	5.15
9,013.74	69.99	2.08	7,816.70	2,676.21	2,841.52	3,232.32	17.58	16.96	5.18
70° Inclination @ 9013.74' MD									
9,034.00	73.44	3.01	7,823.06	2,695.42	2,842.38	3,251.26	17.58	17.04	4.57
9,090.93	83.84	5.61	7,834.26	2,751.00	2,846.59	3,306.41	18.81	18.27	4.57
Cross @ 9090.93' MD									
9,130.00	90.99	7.33	7,836.02	2,789.75	2,850.99	3,345.19	18.81	18.29	4.40
9,226.00	89.22	3.89	7,835.84	2,885.27	2,860.37	3,440.46	4.03	-1.84	-3.58
9,321.00	88.86	3.23	7,837.44	2,980.08	2,866.27	3,534.26	0.79	-0.38	-0.69
9,416.00	90.99	3.89	7,837.56	3,074.89	2,872.17	3,628.07	2.35	2.24	0.69
9,511.00	89.40	3.10	7,837.24	3,169.71	2,877.96	3,721.86	1.87	-1.67	-0.83
9,607.00	91.52	1.33	7,836.47	3,265.62	2,881.67	3,816.27	2.88	2.21	-1.84
9,702.00	91.25	1.51	7,834.17	3,360.56	2,884.02	3,909.43	0.34	-0.28	0.19
9,798.00	89.79	2.04	7,833.30	3,456.51	2,887.00	4,003.71	1.62	-1.52	0.55
9,893.00	91.56	0.14	7,832.18	3,551.48	2,888.80	4,096.78	2.73	1.86	-2.00
9,989.00	91.12	0.32	7,829.93	3,647.45	2,889.19	4,190.52	0.50	-0.46	0.19
10,084.00	89.84	358.82	7,829.14	3,742.44	2,888.48	4,283.06	2.08	-1.35	-1.58
10,180.00	89.44	358.38	7,829.74	3,838.41	2,886.13	4,376.20	0.62	-0.42	-0.46
10,275.00	88.25	356.97	7,831.66	3,933.31	2,882.28	4,467.96	1.94	-1.25	-1.48
10,370.00	91.07	357.41	7,832.22	4,028.18	2,877.62	4,559.53	3.00	2.97	0.46
10,466.00	90.63	356.53	7,830.80	4,124.04	2,872.55	4,651.96	1.02	-0.46	-0.92
10,561.00	89.53	355.21	7,830.66	4,218.79	2,865.71	4,742.93	1.81	-1.16	-1.39
10,657.00	91.03	358.03	7,830.19	4,314.61	2,860.05	4,835.19	3.33	1.56	2.94
10,752.00	90.68	357.59	7,828.78	4,409.53	2,856.42	4,927.03	0.59	-0.37	-0.46
10,848.00	89.97	357.15	7,828.23	4,505.42	2,852.01	5,019.65	0.87	-0.74	-0.46
10,943.00	91.96	359.00	7,826.63	4,600.35	2,848.82	5,111.58	2.86	2.09	1.95
11,039.00	91.47	358.25	7,823.76	4,696.28	2,846.52	5,204.69	0.93	-0.51	-0.78
11,134.00	90.81	357.76	7,821.87	4,791.20	2,843.21	5,296.60	0.87	-0.69	-0.52
11,230.00	90.28	358.16	7,820.96	4,887.13	2,839.79	5,389.47	0.69	-0.55	0.42
11,325.00	90.01	358.60	7,820.71	4,982.09	2,837.11	5,481.55	0.54	-0.28	0.46
11,421.00	90.77	1.33	7,820.06	5,078.08	2,837.05	5,575.20	2.95	0.79	2.84
11,516.00	90.37	0.58	7,819.12	5,173.06	2,838.63	5,668.24	0.89	-0.42	-0.79
11,611.00	89.66	0.14	7,819.09	5,268.06	2,839.23	5,761.07	0.88	-0.75	-0.46
11,707.00	89.53	359.62	7,819.77	5,364.06	2,839.03	5,854.71	0.56	-0.14	-0.54
11,802.00	90.32	358.91	7,819.89	5,459.05	2,837.81	5,947.14	1.12	0.83	-0.75
11,898.00	91.07	358.73	7,818.73	5,555.02	2,835.83	6,040.36	0.80	0.78	-0.19
11,993.00	90.90	357.37	7,817.10	5,649.95	2,832.60	6,132.29	1.44	-0.18	-1.43
12,089.00	89.88	357.63	7,816.44	5,745.85	2,828.41	6,224.96	1.10	-1.06	0.27
12,184.00	90.50	0.01	7,816.13	5,840.83	2,826.46	6,317.21	2.59	0.65	2.51
12,279.00	89.53	0.58	7,816.10	5,935.82	2,826.95	6,410.02	1.18	-1.02	0.60
12,375.00	92.05	359.22	7,814.78	6,031.80	2,826.78	6,503.65	2.98	2.63	-1.42

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Interchange B N35-20-10N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB @ 5241.00usft (Patterson 901)
<b>Site:</b>	Sec 10-T01S-R68W Interchange Pad	<b>MD Reference:</b>	KB @ 5241.00usft (Patterson 901)
<b>Well:</b>	Interchange B N35-20-10N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
12,470.00	91.56	358.47	7,811.79	6,126.74	2,824.87	6,595.87	0.94	-0.52	-0.79	
12,565.00	90.63	358.03	7,809.97	6,221.67	2,821.97	6,687.88	1.08	-0.98	-0.46	
12,661.00	91.56	357.68	7,808.14	6,317.59	2,818.37	6,780.69	1.04	0.97	-0.36	
12,756.00	91.78	0.89	7,805.37	6,412.53	2,817.19	6,873.08	3.39	0.23	3.38	
12,851.00	90.72	1.25	7,803.30	6,507.49	2,818.96	6,966.13	1.18	-1.12	0.38	
12,947.00	90.85	0.41	7,801.98	6,603.47	2,820.35	7,060.10	0.89	0.14	-0.88	
13,043.00	90.46	0.54	7,800.88	6,699.46	2,821.15	7,153.94	0.43	-0.41	0.14	
13,137.00	90.19	0.32	7,800.35	6,793.45	2,821.85	7,245.82	0.37	-0.29	-0.23	
13,233.00	89.44	359.40	7,800.66	6,889.45	2,821.62	7,339.45	1.24	-0.78	-0.96	
13,328.00	89.66	358.82	7,801.41	6,984.43	2,820.14	7,431.82	0.65	0.23	-0.61	
13,424.00	89.17	358.43	7,802.39	7,080.40	2,817.84	7,524.96	0.65	-0.51	-0.41	
13,519.00	90.32	0.10	7,802.81	7,175.39	2,816.62	7,617.39	2.13	1.21	1.76	
13,615.00	90.19	359.75	7,802.38	7,271.39	2,816.50	7,711.04	0.39	-0.14	-0.36	
13,710.00	89.70	359.57	7,802.47	7,366.38	2,815.93	7,803.62	0.55	-0.52	-0.19	
13,806.00	89.26	359.26	7,803.34	7,462.38	2,814.95	7,897.08	0.56	-0.46	-0.32	
13,902.00	89.00	358.82	7,804.80	7,558.35	2,813.34	7,990.39	0.53	-0.27	-0.46	
13,997.00	90.15	0.81	7,805.51	7,653.34	2,813.04	8,083.02	2.42	1.21	2.09	
14,093.00	89.22	359.97	7,806.03	7,749.34	2,813.69	8,176.83	1.31	-0.97	-0.88	
14,100.67	89.26	0.07	7,806.14	7,757.00	2,813.69	8,184.32	1.41	0.56	1.29	
<b>Cross @ 14100.67' MD</b>										
14,188.00	89.75	1.20	7,806.89	7,844.32	2,814.66	8,269.74	1.41	0.56	1.29	
14,284.00	88.91	0.89	7,808.01	7,940.30	2,816.41	8,363.78	0.93	-0.88	-0.32	
14,379.00	90.72	0.94	7,808.32	8,035.28	2,817.93	8,456.80	1.91	1.91	0.05	
14,475.00	89.93	0.06	7,807.77	8,131.28	2,818.77	8,550.66	1.23	-0.82	-0.92	
14,571.00	89.84	0.01	7,807.97	8,227.28	2,818.82	8,644.35	0.11	-0.09	-0.05	
14,666.00	89.53	359.79	7,808.49	8,322.28	2,818.66	8,737.02	0.40	-0.33	-0.23	
14,761.00	88.16	0.10	7,810.40	8,417.25	2,818.57	8,829.69	1.48	-1.44	0.33	
14,857.00	90.94	1.25	7,811.16	8,513.23	2,819.70	8,923.59	3.13	2.90	1.20	
14,952.00	91.87	0.76	7,808.83	8,608.19	2,821.36	9,016.62	1.11	0.98	-0.52	
15,047.00	94.34	0.19	7,803.68	8,703.04	2,822.15	9,109.35	2.67	2.60	-0.60	
15,143.00	90.85	2.48	7,799.34	8,798.89	2,824.39	9,203.38	4.35	-3.64	2.39	
15,238.00	90.54	1.64	7,798.18	8,893.82	2,827.80	9,296.76	0.94	-0.33	-0.88	
15,334.00	87.36	1.51	7,799.94	8,989.76	2,830.44	9,390.96	3.32	-3.31	-0.14	
15,430.00	87.98	1.91	7,803.84	9,085.64	2,833.30	9,485.14	0.77	0.65	0.42	
15,525.00	87.50	2.35	7,807.59	9,180.50	2,836.83	9,578.48	0.69	-0.51	0.46	
15,620.00	90.15	359.26	7,809.54	9,275.45	2,838.16	9,671.43	4.28	2.79	-3.25	
15,716.00	89.79	358.56	7,809.59	9,371.43	2,836.34	9,764.70	0.82	-0.38	-0.73	
15,811.00	90.37	358.47	7,809.46	9,466.40	2,833.88	9,856.83	0.62	0.61	-0.09	
15,905.00	89.93	357.85	7,809.21	9,560.35	2,830.86	9,947.85	0.81	-0.47	-0.66	
16,001.00	89.70	357.06	7,809.52	9,656.25	2,826.59	10,040.51	0.86	-0.24	-0.82	
16,095.00	90.81	0.32	7,809.10	9,750.21	2,824.45	10,131.73	3.66	1.18	3.47	
16,189.00	90.50	0.85	7,808.03	9,844.20	2,825.41	10,223.66	0.65	-0.33	0.56	
16,282.00	90.63	359.48	7,807.11	9,937.19	2,825.67	10,314.46	1.48	0.14	-1.47	
16,377.00	90.01	358.51	7,806.58	10,032.17	2,824.01	10,406.79	1.21	-0.65	-1.02	

# Survey Report

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Interchange B N35-20-10N
<b>Project:</b>	Weld County, CO (NAD83)	<b>TVD Reference:</b>	KB @ 5241.00usft (Patterson 901)
<b>Site:</b>	Sec 10-T01S-R68W Interchange Pad	<b>MD Reference:</b>	KB @ 5241.00usft (Patterson 901)
<b>Well:</b>	Interchange B N35-20-10N	<b>North Reference:</b>	True
<b>Wellbore:</b>	Wellbore #1	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Wellbore #1	<b>Database:</b>	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)	
16,471.00	90.06	358.95	7,806.52	10,126.15	2,821.92	10,498.04	0.47	0.05	0.47	
16,565.00	90.15	358.43	7,806.35	10,220.13	2,819.77	10,589.28	0.56	0.10	-0.55	
16,659.00	90.59	0.01	7,805.74	10,314.11	2,818.50	10,680.71	1.74	0.47	1.68	
16,752.00	90.59	359.26	7,804.79	10,407.10	2,817.90	10,771.33	0.81	0.00	-0.81	
16,847.00	90.28	359.04	7,804.06	10,502.09	2,816.49	10,863.71	0.40	-0.33	-0.23	
16,941.00	90.06	0.98	7,803.79	10,596.09	2,816.51	10,955.44	2.08	-0.23	2.06	
17,035.00	89.97	0.81	7,803.76	10,690.07	2,817.98	11,047.48	0.20	-0.10	-0.18	
17,130.00	92.14	1.47	7,802.01	10,785.03	2,819.87	11,140.56	2.39	2.28	0.69	
17,224.00	91.78	1.11	7,798.80	10,878.95	2,821.98	11,232.67	0.54	-0.38	-0.38	
17,319.00	91.56	0.63	7,796.03	10,973.90	2,823.42	11,325.64	0.56	-0.23	-0.51	
17,413.00	91.38	0.23	7,793.62	11,067.87	2,824.13	11,417.49	0.47	-0.19	-0.43	
17,506.00	90.81	0.28	7,791.84	11,160.85	2,824.54	11,508.32	0.62	-0.61	0.05	
17,600.00	90.72	359.84	7,790.58	11,254.84	2,824.64	11,600.06	0.48	-0.10	-0.47	
17,693.00	89.66	358.43	7,790.28	11,347.83	2,823.24	11,690.50	1.90	-1.14	-1.52	
17,787.00	89.62	357.90	7,790.87	11,441.78	2,820.23	11,781.52	0.57	-0.04	-0.56	
17,881.00	89.31	356.71	7,791.74	11,535.67	2,815.81	11,872.17	1.31	-0.33	-1.27	
17,976.00	90.01	0.19	7,792.31	11,630.62	2,813.24	11,964.27	3.74	0.74	3.66	
18,072.00	89.48	0.63	7,792.74	11,726.61	2,813.93	12,058.10	0.72	-0.55	0.46	
18,167.00	89.13	359.66	7,793.89	11,821.60	2,814.17	12,150.85	1.09	-0.37	-1.02	
18,263.00	90.94	1.11	7,793.83	11,917.59	2,814.81	12,244.66	2.42	1.89	1.51	
18,358.00	90.10	359.92	7,792.97	12,012.58	2,815.67	12,337.54	1.53	-0.88	-1.25	
18,454.00	91.47	1.86	7,791.65	12,108.56	2,817.16	12,431.52	2.47	1.43	2.02	
18,550.00	91.03	1.03	7,789.56	12,204.50	2,819.58	12,525.68	0.98	-0.46	-0.86	
18,645.00	90.81	0.06	7,788.03	12,299.48	2,820.48	12,618.56	1.05	-0.23	-1.02	
18,741.00	90.50	358.82	7,786.93	12,395.47	2,819.54	12,712.03	1.33	-0.32	-1.29	
18,836.00	90.32	357.50	7,786.26	12,490.42	2,816.49	12,804.01	1.40	-0.19	-1.39	
Last MWD Survey @ 18836' MD										
18,912.00	90.32	357.50	7,785.83	12,566.34	2,813.18	12,877.38	0.00	0.00	0.00	
Projection to TD @ 18912' MD 501' FNL/ 243.5' FEL										

## Survey Report

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

Design Targets									
Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
30° Inclination @ 8689.9 - actual wellpath misses target center by 0.02usft at 8689.97usft MD (7599.39 TVD, 2446.53 N, 2859.29 E) - Point	0.00	0.00	7,599.38	2,446.53	2,859.26	1,238,077.22	3,145,460.10	39.985738	-104.980890
Cross @ 14100.67' MD - actual wellpath hits target center - Point	0.00	0.00	7,806.14	7,757.00	2,813.69	1,243,387.35	3,145,384.05	40.000316	-104.981051
70° Inclination @ 9013.7 - actual wellpath misses target center by 0.06usft at 9013.74usft MD (7816.70 TVD, 2676.21 N, 2841.52 E) - Point	0.00	0.00	7,816.70	2,676.21	2,841.46	1,238,306.80	3,145,440.98	39.986368	-104.980954
Cross @ 9090.93' MD - actual wellpath hits target center - Point	0.00	0.00	7,834.26	2,751.00	2,846.59	1,238,381.62	3,145,445.68	39.986574	-104.980935

Design Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
1,607.30	1,540.24	240.49	297.52	Tie into Surface Surveys	
1,668.00	1,592.67	260.71	320.49	First MWD Survey @ 1668' MD	
8,689.97	7,599.39	2,446.53	2,859.29	30° Inclination @ 8689.97' MD	
9,013.74	7,816.70	2,676.21	2,841.52	70° Inclination @ 9013.74' MD	
9,090.93	7,834.26	2,751.00	2,846.59	Cross @ 9090.93' MD	
14,100.67	7,806.14	7,757.00	2,813.69	Cross @ 14100.67' MD	
18,836.00	7,786.26	12,490.42	2,816.49	Last MWD Survey @ 18836' MD	
18,912.00	7,785.83	12,566.34	2,813.18	Projection to TD @ 18912' MD 501' FNL/ 243.5' FEL	

Checked By: _____	Approved By: _____	Date: _____
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