

Extraction Oil & Gas

Weld County, CO (NAD83)

Sec 10-T01S-R68W Interchange Pad

Interchange B S22-30-14N

Wellbore #1

Design: Wellbore #1

Standard Survey Report

11 July, 2019

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B S22-30-14N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5235.20usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
Well:	Interchange B S22-30-14N	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 S22-30-14N				
Well Position	+N/-S	0.00 usft	Northing:	1,235,297.21 usft	Latitude:	39.978152
	+E/-W	0.00 usft	Easting:	3,142,581.43 usft	Longitude:	-104.991220
Position Uncertainty		0.00 usft	Wellhead Elevation:	usft	Ground Level:	5,206.20 usft

Wellbore	Wellbore #1				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	6/8/2019	8.08	66.43	51,880.66590080

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	170.11	

Survey Program	Date	7/11/2019			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
217.00	1,548.00	Surface Surveys (Wellbore #1)	MWD	MWD - Standard	
1,667.00	24,392.00	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	
217.00	0.49	161.04	217.00	-0.88	0.30	0.92	0.23	0.23	0.00	
308.00	0.53	171.79	307.99	-1.66	0.49	1.72	0.11	0.04	11.81	
403.00	0.49	192.77	402.99	-2.49	0.46	2.54	0.20	-0.04	22.08	
499.00	0.40	198.27	498.99	-3.21	0.27	3.21	0.10	-0.09	5.73	
594.00	0.09	172.32	593.99	-3.60	0.17	3.58	0.34	-0.33	-27.32	
690.00	0.22	257.19	689.99	-3.72	0.00	3.66	0.24	0.14	88.41	
785.00	1.59	4.72	784.97	-2.44	-0.07	2.40	1.76	1.44	113.19	
881.00	3.71	15.66	880.87	1.88	0.88	-1.70	2.26	2.21	11.40	
976.00	6.23	30.51	975.51	9.28	4.33	-8.40	2.96	2.65	15.63	

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Well:	Interchange B S22-30-14N	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)
1,072.00	8.26	33.99	1,070.73	19.48	10.83	-17.34	2.16	2.11	3.63
1,167.00	9.59	27.91	1,164.58	32.14	18.35	-28.51	1.71	1.40	-6.40
1,263.00	10.83	25.80	1,259.06	47.32	26.02	-42.15	1.35	1.29	-2.20
1,358.00	11.98	23.20	1,352.19	64.42	33.79	-57.66	1.33	1.21	-2.74
1,453.00	14.36	23.20	1,444.68	84.31	42.31	-75.80	2.51	2.51	0.00
1,548.00	16.17	26.24	1,536.33	107.01	52.80	-96.35	2.08	1.91	3.20
Tie into Surface Surveys									
1,667.00	19.05	24.43	1,649.74	139.56	68.16	-125.78	2.46	2.42	-1.52
First MWD Survey @ 1667' MD									
1,762.00	21.92	27.73	1,738.72	169.38	82.83	-152.64	3.26	3.02	3.47
1,858.00	25.41	29.54	1,826.64	203.17	101.33	-182.75	3.71	3.64	1.89
1,953.00	28.15	30.16	1,911.44	240.29	122.64	-215.66	2.90	2.88	0.65
2,049.00	30.71	29.98	1,995.05	281.11	146.27	-251.81	2.67	2.67	-0.19
2,144.00	34.11	30.16	2,075.24	325.16	171.78	-290.83	3.58	3.58	0.19
2,239.00	36.28	29.85	2,152.87	372.58	199.16	-332.84	2.29	2.28	-0.33
2,335.00	34.29	28.44	2,231.23	421.00	226.18	-375.90	2.24	-2.07	-1.47
2,430.00	35.84	29.41	2,308.98	468.76	252.58	-418.42	1.73	1.63	1.02
2,525.00	34.25	28.04	2,386.76	516.59	278.81	-461.03	1.87	-1.67	-1.44
2,621.00	35.97	33.02	2,465.31	564.08	306.88	-503.00	3.48	1.79	5.19
2,716.00	33.89	32.41	2,543.19	609.84	336.28	-543.03	2.22	-2.19	-0.64
2,812.00	36.72	31.17	2,621.52	657.00	365.49	-584.48	3.04	2.95	-1.29
2,907.00	35.09	31.22	2,698.47	704.66	394.34	-626.47	1.72	-1.72	0.05
3,003.00	35.84	34.65	2,776.67	751.38	424.63	-667.30	2.22	0.78	3.57
3,098.00	35.40	34.30	2,853.89	796.99	455.95	-706.85	0.51	-0.46	-0.37
3,193.00	37.91	28.17	2,930.13	845.48	485.25	-749.59	4.67	2.64	-6.45
3,289.00	35.44	26.28	3,007.12	896.44	511.50	-795.29	2.83	-2.57	-1.97
3,384.00	32.74	25.18	3,085.79	944.40	534.63	-838.55	2.92	-2.84	-1.16
3,480.00	36.41	25.44	3,164.82	993.63	557.92	-883.06	3.83	3.82	0.27
3,575.00	34.38	24.91	3,242.26	1,043.43	581.33	-928.09	2.16	-2.14	-0.56
3,671.00	35.66	29.89	3,320.89	1,092.28	606.70	-971.87	3.26	1.33	5.19
3,766.00	32.88	28.97	3,399.39	1,138.86	632.99	-1,013.24	2.98	-2.93	-0.97
3,861.00	35.53	26.72	3,477.95	1,186.09	657.90	-1,055.48	3.09	2.79	-2.37
3,956.00	38.75	26.54	3,553.67	1,237.35	683.60	-1,101.58	3.39	3.39	-0.19
4,051.00	36.77	25.44	3,628.78	1,289.63	709.10	-1,148.70	2.20	-2.08	-1.16
4,147.00	33.76	24.38	3,707.15	1,339.89	732.46	-1,194.20	3.20	-3.14	-1.10
4,242.00	34.60	28.13	3,785.75	1,387.72	756.08	-1,237.27	2.39	0.88	3.95
4,338.00	37.30	27.29	3,863.46	1,437.62	782.27	-1,281.93	2.86	2.81	-0.88
4,433.00	34.64	26.19	3,940.34	1,487.44	807.39	-1,326.69	2.88	-2.80	-1.16
4,529.00	36.54	26.85	4,018.40	1,537.42	832.34	-1,371.65	2.02	1.98	0.69
4,624.00	34.38	26.68	4,095.78	1,586.63	857.16	-1,415.86	2.28	-2.27	-0.18
4,720.00	35.44	27.47	4,174.50	1,635.54	882.17	-1,459.75	1.20	1.10	0.82
4,814.00	33.94	27.38	4,251.79	1,683.03	906.81	-1,502.30	1.60	-1.60	-0.10
4,910.00	30.45	29.81	4,333.02	1,727.95	931.24	-1,542.36	3.88	-3.64	2.53

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Survey										
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5,005.00	35.04	27.73	4,412.91	1,773.00	955.91	-1,582.50	4.97	4.83	-2.19	
5,101.00	37.61	23.24	4,490.26	1,824.33	980.30	-1,628.88	3.85	2.68	-4.68	
5,196.00	40.65	21.96	4,563.94	1,879.68	1,003.31	-1,679.45	3.31	3.20	-1.35	
5,292.00	38.40	20.77	4,637.99	1,936.56	1,025.58	-1,731.67	2.47	-2.34	-1.24	
5,387.00	37.96	26.19	4,712.69	1,990.38	1,048.95	-1,780.68	3.56	-0.46	5.71	
5,505.00	33.80	24.03	4,808.28	2,052.96	1,078.34	-1,837.27	3.68	-3.53	-1.83	
5,601.00	31.68	25.53	4,889.02	2,100.10	1,100.08	-1,879.98	2.36	-2.21	1.56	
5,695.00	36.81	30.82	4,966.72	2,146.60	1,125.17	-1,921.48	6.31	5.46	5.63	
5,791.00	38.27	28.70	5,042.84	2,197.38	1,154.19	-1,966.52	2.03	1.52	-2.21	
5,886.00	40.21	28.97	5,116.42	2,250.02	1,183.17	-2,013.40	2.05	2.04	0.28	
5,982.00	38.40	28.00	5,190.70	2,303.46	1,212.18	-2,061.07	1.99	-1.89	-1.01	
6,077.00	39.24	26.28	5,264.71	2,356.45	1,239.34	-2,108.61	1.44	0.88	-1.81	
6,172.00	36.41	23.42	5,339.75	2,409.28	1,263.85	-2,156.45	3.50	-2.98	-3.01	
6,268.00	38.93	23.37	5,415.73	2,463.12	1,287.15	-2,205.49	2.63	2.63	-0.05	
6,364.00	36.41	29.14	5,491.74	2,515.72	1,313.00	-2,252.86	4.51	-2.63	6.01	
6,459.00	33.80	26.24	5,569.46	2,564.06	1,338.41	-2,296.12	3.26	-2.75	-3.05	
6,554.00	35.66	25.49	5,647.53	2,612.76	1,362.02	-2,340.04	2.01	1.96	-0.79	
6,649.00	36.90	28.84	5,724.12	2,662.74	1,387.69	-2,384.88	2.46	1.31	3.53	
6,744.00	33.76	27.78	5,801.62	2,711.09	1,413.76	-2,428.03	3.37	-3.31	-1.12	
6,840.00	35.57	31.04	5,880.58	2,758.62	1,440.59	-2,470.25	2.70	1.89	3.40	
6,935.00	37.03	31.96	5,957.14	2,806.57	1,469.99	-2,512.44	1.64	1.54	0.97	
7,031.00	34.47	31.61	6,035.04	2,854.24	1,499.53	-2,554.32	2.68	-2.67	-0.36	
7,126.00	33.98	29.28	6,113.60	2,900.29	1,526.61	-2,595.04	1.47	-0.52	-2.45	
7,221.00	35.17	24.03	6,191.83	2,948.45	1,550.74	-2,638.34	3.38	1.25	-5.53	
7,316.00	36.46	24.87	6,268.87	2,999.05	1,573.75	-2,684.24	1.45	1.36	0.88	
7,412.00	37.69	25.80	6,345.46	3,051.35	1,598.52	-2,731.51	1.41	1.28	0.97	
7,507.00	34.42	24.25	6,422.26	3,102.00	1,622.20	-2,777.33	3.57	-3.44	-1.63	
7,602.00	35.75	27.43	6,500.00	3,151.11	1,646.01	-2,821.63	2.38	1.40	3.35	
7,698.00	35.97	26.15	6,577.80	3,201.31	1,671.36	-2,866.73	0.81	0.23	-1.33	
7,793.00	38.62	27.38	6,653.37	3,252.69	1,697.29	-2,912.90	2.90	2.79	1.29	
7,888.00	35.62	27.56	6,729.12	3,303.56	1,723.73	-2,958.46	3.16	-3.16	0.19	
7,984.00	34.51	31.30	6,807.70	3,351.58	1,750.80	-3,001.13	2.52	-1.16	3.90	
8,079.00	28.90	37.30	6,888.51	3,392.88	1,778.72	-3,037.02	6.77	-5.91	6.32	
8,174.00	22.09	69.91	6,974.62	3,417.43	1,809.59	-3,055.90	16.17	-7.17	34.33	
8,270.00	17.76	96.13	7,065.03	3,422.07	1,841.18	-3,055.05	10.23	-4.51	27.31	
8,365.00	19.00	118.51	7,155.30	3,413.13	1,869.21	-3,041.43	7.50	1.31	23.56	
8,460.00	20.90	125.12	7,244.61	3,396.00	1,896.67	-3,019.84	3.10	2.00	6.96	
8,556.00	25.06	140.50	7,333.05	3,370.43	1,923.64	-2,990.01	7.58	4.33	16.02	
8,613.44	29.87	148.76	7,384.02	3,348.79	1,938.81	-2,966.09	10.66	8.37	14.38	
30° Inclination @ 8613.44' MD										
8,651.00	33.23	152.93	7,416.03	3,331.62	1,948.35	-2,947.54	10.66	8.95	11.10	
8,747.00	38.09	158.00	7,494.02	3,280.70	1,971.43	-2,893.41	5.92	5.06	5.28	
8,842.00	48.96	162.01	7,562.81	3,219.26	1,993.54	-2,829.09	11.80	11.44	4.22	
8,938.00	58.55	165.58	7,619.52	3,144.98	2,014.98	-2,752.23	10.43	9.99	3.72	

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Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
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9,023.53	63.99	167.93	7,660.61	3,072.00	2,032.11	-2,677.39	6.81	6.37	2.75	
Cross @ 9023.53' MD										
9,033.00	64.60	168.18	7,664.72	3,063.65	2,033.88	-2,668.86	6.81	6.39	2.60	
9,128.00	69.38	173.82	7,701.87	2,977.35	2,047.47	-2,581.50	7.43	5.03	5.94	
9,136.58	69.99	174.31	7,704.85	2,969.34	2,048.30	-2,573.48	8.91	7.16	5.66	
70° Inclination @ 9136.58' MD										
9,224.00	76.32	179.06	7,730.18	2,885.88	2,053.08	-2,490.43	8.91	7.24	5.44	
9,319.00	87.23	181.26	7,743.75	2,792.00	2,052.80	-2,398.00	11.71	11.48	2.32	
9,415.00	89.31	180.25	7,746.65	2,696.06	2,051.53	-2,303.70	2.41	2.17	-1.05	
9,510.00	89.75	180.12	7,747.43	2,601.07	2,051.22	-2,210.17	0.48	0.46	-0.14	
9,605.00	89.93	179.99	7,747.69	2,506.07	2,051.13	-2,116.60	0.23	0.19	-0.14	
9,701.00	89.44	179.99	7,748.22	2,410.07	2,051.15	-2,022.02	0.51	-0.51	0.00	
9,809.00	90.01	179.59	7,748.74	2,302.07	2,051.55	-1,915.56	0.64	0.53	-0.37	
9,904.00	89.93	182.37	7,748.79	2,207.10	2,049.92	-1,822.27	2.93	-0.08	2.93	
10,000.00	90.10	180.96	7,748.76	2,111.14	2,047.13	-1,728.22	1.48	0.18	-1.47	
10,095.00	90.15	179.90	7,748.56	2,016.14	2,046.42	-1,634.76	1.12	0.05	-1.12	
10,191.00	89.88	178.09	7,748.53	1,920.16	2,048.10	-1,539.92	1.91	-0.28	-1.89	
10,286.00	89.88	177.87	7,748.73	1,825.22	2,051.45	-1,445.81	0.23	0.00	-0.23	
10,381.00	90.10	176.51	7,748.75	1,730.34	2,056.11	-1,351.54	1.45	0.23	-1.43	
10,477.00	90.10	177.12	7,748.58	1,634.49	2,061.44	-1,256.19	0.64	0.00	0.64	
10,573.00	89.97	178.75	7,748.52	1,538.55	2,064.90	-1,161.09	1.70	-0.14	1.70	
10,668.00	89.93	177.83	7,748.60	1,443.60	2,067.74	-1,067.06	0.97	-0.04	-0.97	
10,763.00	89.97	178.44	7,748.69	1,348.65	2,070.83	-972.99	0.64	0.04	0.64	
10,859.00	90.10	179.37	7,748.63	1,252.66	2,072.66	-878.12	0.98	0.14	0.97	
10,954.00	90.06	179.68	7,748.50	1,157.67	2,073.45	-784.40	0.33	-0.04	0.33	
11,050.00	90.01	179.02	7,748.44	1,061.67	2,074.54	-689.64	0.69	-0.05	-0.69	
11,145.00	89.97	178.66	7,748.45	966.69	2,076.46	-595.74	0.38	-0.04	-0.38	
11,241.00	89.88	178.49	7,748.58	870.72	2,078.85	-500.79	0.20	-0.09	-0.18	
11,336.00	89.88	178.22	7,748.78	775.76	2,081.58	-406.77	0.28	0.00	-0.28	
11,432.00	90.06	178.05	7,748.83	679.81	2,084.70	-311.71	0.26	0.19	-0.18	
11,527.00	90.06	178.80	7,748.73	584.85	2,087.31	-217.71	0.79	0.00	0.79	
11,623.00	90.10	179.33	7,748.59	488.86	2,088.88	-122.88	0.55	0.04	0.55	
11,718.00	90.19	179.24	7,748.35	393.87	2,090.06	-29.09	0.13	0.09	-0.09	
11,813.00	90.10	178.71	7,748.11	298.89	2,091.76	64.77	0.57	-0.09	-0.56	
11,909.00	90.19	178.31	7,747.87	202.92	2,094.26	159.74	0.43	0.09	-0.42	
12,004.00	89.84	178.14	7,747.85	107.97	2,097.20	253.79	0.41	-0.37	-0.18	
12,100.00	89.57	179.99	7,748.34	11.99	2,098.77	348.61	1.95	-0.28	1.93	
12,195.00	89.53	181.09	7,749.09	-83.01	2,097.87	442.04	1.16	-0.04	1.16	
12,291.00	89.57	181.71	7,749.84	-178.97	2,095.53	536.18	0.65	0.04	0.65	
12,386.00	89.53	181.18	7,750.59	-273.94	2,093.13	629.32	0.56	-0.04	-0.56	
12,482.00	89.17	182.37	7,751.68	-369.89	2,090.16	723.33	1.29	-0.38	1.24	
12,577.00	89.22	181.13	7,753.01	-464.83	2,087.26	816.37	1.31	0.05	-1.31	
12,672.00	88.91	181.49	7,754.56	-559.79	2,085.09	909.55	0.50	-0.33	0.38	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B S22-30-14N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5235.20usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
Well:	Interchange B S22-30-14N	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)	
12,767.00	89.04	182.10	7,756.26	-654.73	2,082.11	1,002.56	0.66	0.14	0.64	
12,863.00	88.82	181.13	7,758.05	-750.67	2,079.41	1,096.62	1.04	-0.23	-1.01	
12,958.00	88.86	181.35	7,759.98	-845.63	2,077.35	1,189.81	0.24	0.04	0.23	
13,054.00	89.17	181.79	7,761.63	-941.58	2,074.72	1,283.89	0.56	0.32	0.46	
13,149.00	89.13	180.74	7,763.04	-1,036.55	2,072.62	1,377.08	1.11	-0.04	-1.11	
13,244.00	88.95	182.32	7,764.63	-1,131.50	2,070.09	1,470.18	1.67	-0.19	1.66	
13,339.00	89.26	180.16	7,766.11	-1,226.46	2,068.03	1,563.38	2.30	0.33	-2.27	
13,435.00	89.62	179.06	7,767.05	-1,322.45	2,068.69	1,658.06	1.21	0.38	-1.15	
13,531.00	89.40	178.27	7,767.87	-1,418.42	2,070.92	1,752.99	0.85	-0.23	-0.82	
13,626.00	89.53	179.19	7,768.76	-1,513.39	2,073.03	1,846.91	0.98	0.14	0.97	
13,721.00	89.66	179.81	7,769.43	-1,608.38	2,073.86	1,940.63	0.67	0.14	0.65	
13,817.00	89.44	178.53	7,770.18	-1,704.37	2,075.25	2,035.43	1.35	-0.23	-1.33	
13,913.00	89.48	178.97	7,771.09	-1,800.34	2,077.34	2,130.34	0.46	0.04	0.46	
14,008.00	89.40	177.70	7,772.02	-1,895.29	2,080.10	2,224.35	1.34	-0.08	-1.34	
14,104.00	89.53	177.83	7,772.91	-1,991.22	2,083.85	2,319.49	0.19	0.14	0.14	
14,200.00	89.40	177.65	7,773.81	-2,087.14	2,087.63	2,414.64	0.23	-0.14	-0.19	
14,295.00	89.66	178.66	7,774.59	-2,182.09	2,090.69	2,508.70	1.10	0.27	1.06	
14,325.93	89.59	178.51	7,774.79	-2,213.00	2,091.45	2,539.29	0.55	-0.23	-0.50	
Cross @ 14325.93' MD										
14,391.00	89.44	178.18	7,775.34	-2,278.05	2,093.34	2,603.69	0.55	-0.23	-0.50	
14,486.00	89.66	179.68	7,776.09	-2,373.02	2,095.11	2,697.56	1.60	0.23	1.58	
14,582.00	89.44	179.77	7,776.84	-2,469.02	2,095.57	2,792.21	0.25	-0.23	0.09	
14,677.00	89.44	180.38	7,777.77	-2,564.01	2,095.45	2,885.77	0.64	0.00	0.64	
14,773.00	89.57	179.85	7,778.60	-2,660.01	2,095.25	2,980.31	0.57	0.14	-0.55	
14,868.00	89.57	179.72	7,779.31	-2,755.01	2,095.61	3,073.96	0.14	0.00	-0.14	
14,963.00	89.31	179.50	7,780.24	-2,850.00	2,096.26	3,167.65	0.36	-0.27	-0.23	
15,058.00	89.35	178.44	7,781.35	-2,944.98	2,097.96	3,261.51	1.12	0.04	-1.12	
15,154.00	89.48	178.14	7,782.33	-3,040.93	2,100.83	3,356.53	0.34	0.14	-0.31	
15,249.00	89.57	178.97	7,783.12	-3,135.89	2,103.22	3,450.49	0.88	0.09	0.87	
15,345.00	89.35	178.62	7,784.03	-3,231.87	2,105.24	3,545.39	0.43	-0.23	-0.36	
15,441.00	89.66	179.15	7,784.86	-3,327.85	2,107.11	3,640.26	0.64	0.32	0.55	
15,536.00	89.48	177.78	7,785.57	-3,422.81	2,109.66	3,734.25	1.45	-0.19	-1.44	
15,632.00	89.62	178.66	7,786.32	-3,518.76	2,112.64	3,829.29	0.93	0.15	0.92	
15,727.00	89.31	178.40	7,787.21	-3,613.72	2,115.08	3,923.26	0.43	-0.33	-0.27	
15,822.00	89.79	178.62	7,787.96	-3,708.69	2,117.55	4,017.24	0.56	0.51	0.23	
15,918.00	89.53	178.49	7,788.53	-3,804.65	2,119.97	4,112.19	0.30	-0.27	-0.14	
16,013.00	89.57	178.22	7,789.27	-3,899.61	2,122.69	4,206.21	0.29	0.04	-0.28	
16,107.00	89.57	178.49	7,789.98	-3,993.57	2,125.39	4,299.23	0.29	0.00	0.29	
16,201.00	89.57	178.27	7,790.68	-4,087.53	2,128.05	4,392.25	0.23	0.00	-0.23	
16,295.00	89.35	177.30	7,791.57	-4,181.45	2,131.68	4,485.41	1.06	-0.23	-1.03	
16,389.00	89.57	177.78	7,792.45	-4,275.36	2,135.72	4,578.61	0.56	0.23	0.51	
16,483.00	89.57	179.02	7,793.16	-4,369.32	2,138.34	4,671.63	1.32	0.00	1.32	
16,577.00	89.62	180.03	7,793.82	-4,463.31	2,139.12	4,764.36	1.08	0.05	1.07	
16,671.00	89.48	179.90	7,794.56	-4,557.31	2,139.18	4,856.97	0.20	-0.15	-0.14	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B S22-30-14N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5235.20usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
Well:	Interchange B S22-30-14N	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)	
16,765.00	89.57	180.52	7,795.34	-4,651.31	2,138.83	4,949.51	0.67	0.10	0.66	
16,859.00	90.01	179.99	7,795.69	-4,745.31	2,138.41	5,042.04	0.73	0.47	-0.56	
16,954.00	90.10	181.09	7,795.59	-4,840.30	2,137.52	5,135.47	1.16	0.09	1.16	
17,048.00	89.97	180.78	7,795.54	-4,934.29	2,135.99	5,227.80	0.36	-0.14	-0.33	
17,142.00	90.06	180.43	7,795.51	-5,028.28	2,134.99	5,320.22	0.38	0.10	-0.37	
17,237.00	89.93	179.63	7,795.52	-5,123.28	2,134.94	5,413.80	0.85	-0.14	-0.84	
17,331.00	90.10	181.26	7,795.50	-5,217.27	2,134.21	5,506.28	1.74	0.18	1.73	
17,425.00	89.88	180.60	7,795.51	-5,311.26	2,132.69	5,598.60	0.74	-0.23	-0.70	
17,519.00	89.88	180.21	7,795.71	-5,405.26	2,132.02	5,691.09	0.41	0.00	-0.41	
17,612.00	90.15	180.21	7,795.69	-5,498.26	2,131.68	5,782.65	0.29	0.29	0.00	
17,706.00	90.06	180.56	7,795.51	-5,592.26	2,131.05	5,875.14	0.38	-0.10	0.37	
17,800.00	90.15	179.99	7,795.34	-5,686.25	2,130.60	5,967.67	0.61	0.10	-0.61	
17,893.00	90.06	180.56	7,795.17	-5,779.25	2,130.15	6,059.21	0.62	-0.10	0.61	
17,989.00	89.93	179.90	7,795.18	-5,875.25	2,129.77	6,153.71	0.70	-0.14	-0.69	
18,084.00	89.93	181.09	7,795.29	-5,970.25	2,128.95	6,247.16	1.25	0.00	1.25	
18,179.00	90.15	180.78	7,795.23	-6,065.23	2,127.40	6,340.47	0.40	0.23	-0.33	
18,275.00	90.01	180.69	7,795.09	-6,161.23	2,126.16	6,434.82	0.17	-0.15	-0.09	
18,371.00	89.88	180.30	7,795.19	-6,257.22	2,125.34	6,529.25	0.43	-0.14	-0.41	
18,466.00	89.97	180.82	7,795.31	-6,352.22	2,124.41	6,622.67	0.56	0.09	0.55	
18,562.00	89.93	180.87	7,795.39	-6,448.21	2,122.99	6,716.99	0.07	-0.04	0.05	
18,658.00	90.23	180.38	7,795.26	-6,544.20	2,121.94	6,811.38	0.60	0.31	-0.51	
18,753.00	90.06	180.60	7,795.02	-6,639.20	2,121.13	6,904.83	0.29	-0.18	0.23	
18,849.00	90.19	180.69	7,794.81	-6,735.19	2,120.05	6,999.21	0.16	0.14	0.09	
18,944.00	90.59	181.57	7,794.16	-6,830.17	2,118.18	7,092.45	1.02	0.42	0.93	
19,039.00	90.63	181.31	7,793.15	-6,925.13	2,115.79	7,185.60	0.28	0.04	-0.27	
19,134.00	90.41	180.25	7,792.29	-7,020.12	2,114.50	7,278.95	1.14	-0.23	-1.12	
19,229.00	90.63	181.13	7,791.43	-7,115.11	2,113.35	7,372.33	0.95	0.23	0.93	
19,324.00	90.46	181.57	7,790.52	-7,210.08	2,111.12	7,465.50	0.50	-0.18	0.46	
19,420.00	90.72	182.15	7,789.54	-7,306.02	2,108.00	7,559.49	0.66	0.27	0.60	
19,515.00	90.77	180.87	7,788.30	-7,400.98	2,105.50	7,652.60	1.35	0.05	-1.35	
19,611.00	90.46	181.40	7,787.27	-7,496.95	2,103.59	7,746.83	0.64	-0.32	0.55	
19,614.05	90.46	181.39	7,787.25	-7,500.00	2,103.52	7,749.82	0.20	-0.05	-0.19	
Cross @ 19614.05' MD										
19,706.00	90.41	181.22	7,786.55	-7,591.92	2,101.42	7,840.02	0.20	-0.05	-0.19	
19,801.00	90.77	180.56	7,785.57	-7,686.91	2,099.95	7,933.33	0.79	0.38	-0.69	
19,897.00	90.77	179.68	7,784.28	-7,782.90	2,099.75	8,027.86	0.92	0.00	-0.92	
19,992.00	90.68	178.66	7,783.08	-7,877.88	2,101.12	8,121.67	1.08	-0.09	-1.07	
20,087.00	90.46	177.56	7,782.13	-7,972.82	2,104.26	8,215.74	1.18	-0.23	-1.16	
20,183.00	90.68	177.61	7,781.18	-8,068.73	2,108.30	8,310.92	0.24	0.23	0.05	
20,279.00	90.63	178.18	7,780.08	-8,164.66	2,111.83	8,406.03	0.60	-0.05	0.59	
20,374.00	90.59	177.17	7,779.07	-8,259.57	2,115.68	8,500.20	1.06	-0.04	-1.06	
20,469.00	90.46	176.81	7,778.20	-8,354.44	2,120.67	8,594.51	0.40	-0.14	-0.38	
20,564.00	90.63	177.25	7,777.30	-8,449.31	2,125.59	8,688.81	0.50	0.18	0.46	

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B S22-30-14N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5235.20usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
Well:	Interchange B S22-30-14N	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)	
20,660.00	90.46	176.86	7,776.38	-8,545.18	2,130.52	8,784.10	0.44	-0.18	-0.41	
20,754.00	90.68	177.56	7,775.45	-8,639.06	2,135.10	8,877.38	0.78	0.23	0.74	
20,848.00	90.37	177.21	7,774.59	-8,732.96	2,139.39	8,970.62	0.50	-0.33	-0.37	
20,942.00	90.54	176.90	7,773.84	-8,826.83	2,144.22	9,063.92	0.38	0.18	-0.33	
21,036.00	90.54	177.56	7,772.95	-8,920.71	2,148.76	9,157.19	0.70	0.00	0.70	
21,130.00	90.46	177.17	7,772.13	-9,014.61	2,153.08	9,250.44	0.42	-0.09	-0.41	
21,225.00	90.28	177.12	7,771.52	-9,109.49	2,157.81	9,344.72	0.20	-0.19	-0.05	
21,318.00	90.54	177.52	7,770.85	-9,202.39	2,162.16	9,436.98	0.51	0.28	0.43	
21,413.00	90.41	178.27	7,770.07	-9,297.32	2,165.65	9,531.11	0.80	-0.14	0.79	
21,507.00	90.54	179.37	7,769.29	-9,391.29	2,167.58	9,624.02	1.18	0.14	1.17	
21,601.00	90.37	179.24	7,768.54	-9,485.28	2,168.72	9,716.81	0.23	-0.18	-0.14	
21,695.00	90.63	180.21	7,767.72	-9,579.28	2,169.18	9,809.48	1.07	0.28	1.03	
21,789.00	90.68	180.69	7,766.65	-9,673.27	2,168.44	9,901.95	0.51	0.05	0.51	
21,883.00	90.68	180.16	7,765.53	-9,767.26	2,167.74	9,994.42	0.56	0.00	-0.56	
21,977.00	90.59	180.38	7,764.49	-9,861.25	2,167.30	10,086.94	0.25	-0.10	0.23	
22,071.00	90.54	181.13	7,763.56	-9,955.24	2,166.06	10,179.32	0.80	-0.05	0.80	
22,165.00	90.41	182.59	7,762.78	-10,049.18	2,163.01	10,271.35	1.56	-0.14	1.55	
22,260.00	90.10	181.49	7,762.36	-10,144.12	2,159.63	10,364.29	1.20	-0.33	-1.16	
22,353.00	90.01	179.99	7,762.27	-10,237.11	2,158.43	10,455.70	1.62	-0.10	-1.61	
22,447.00	90.10	179.81	7,762.18	-10,331.11	2,158.59	10,548.33	0.21	0.10	-0.19	
22,541.00	89.93	179.24	7,762.16	-10,425.11	2,159.37	10,641.06	0.63	-0.18	-0.61	
22,635.00	90.19	180.03	7,762.06	-10,519.10	2,159.97	10,733.76	0.88	0.28	0.84	
22,729.00	90.06	179.68	7,761.85	-10,613.10	2,160.21	10,826.41	0.40	-0.14	-0.37	
22,822.00	89.97	179.11	7,761.83	-10,706.10	2,161.19	10,918.19	0.62	-0.10	-0.61	
22,916.00	90.01	181.22	7,761.84	-10,800.09	2,160.92	11,010.74	2.25	0.04	2.24	
23,010.00	90.10	180.96	7,761.75	-10,894.08	2,159.13	11,103.02	0.29	0.10	-0.28	
23,104.00	90.06	180.52	7,761.62	-10,988.07	2,157.91	11,195.41	0.47	-0.04	-0.47	
23,198.00	89.97	180.87	7,761.60	-11,082.06	2,156.77	11,287.81	0.38	-0.10	0.37	
23,292.00	89.93	181.18	7,761.68	-11,176.04	2,155.09	11,380.11	0.33	-0.04	0.33	
23,386.00	90.19	181.88	7,761.58	-11,270.01	2,152.58	11,472.25	0.79	0.28	0.74	
23,480.00	90.59	181.13	7,760.94	-11,363.98	2,150.11	11,564.39	0.90	0.43	-0.80	
23,574.00	90.63	180.87	7,759.94	-11,457.96	2,148.47	11,656.69	0.28	0.04	-0.28	
23,668.00	90.50	181.35	7,759.01	-11,551.93	2,146.65	11,748.96	0.53	-0.14	0.51	
23,762.00	90.28	181.22	7,758.37	-11,645.91	2,144.54	11,841.18	0.27	-0.23	-0.14	
23,856.00	90.68	182.10	7,757.59	-11,739.86	2,141.82	11,933.27	1.03	0.43	0.94	
23,952.00	90.68	182.10	7,756.45	-11,835.79	2,138.30	12,027.17	0.00	0.00	0.00	
24,047.00	90.68	181.93	7,755.32	-11,930.73	2,134.96	12,120.12	0.18	0.00	-0.18	
24,143.00	90.63	179.72	7,754.22	-12,026.70	2,133.58	12,214.44	2.30	-0.05	-2.30	
24,238.00	90.72	178.53	7,753.10	-12,121.68	2,135.03	12,308.25	1.26	0.09	-1.25	
24,333.00	90.68	178.05	7,751.94	-12,216.64	2,137.87	12,402.28	0.51	-0.04	-0.51	
Last MWD Survey @ 24333' MD										
24,392.00	90.68	178.05	7,751.24	-12,275.60	2,139.87	12,460.71	0.00	0.00	0.00	
Projection to TD @ 24392' MD 511' FSL/ 1508' FEL										

Survey Report

Company:	Extraction Oil & Gas	Local Co-ordinate Reference:	Well Interchange B S22-30-14N
Project:	Weld County, CO (NAD83)	TVD Reference:	KB @ 5235.20usft (Patterson 901)
Site:	Sec 10-T01S-R68W Interchange Pad	MD Reference:	KB @ 5235.20usft (Patterson 901)
Well:	Interchange B S22-30-14N	North Reference:	True
Wellbore:	Wellbore #1	Survey Calculation Method:	Minimum Curvature
Design:	Wellbore #1	Database:	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 @ 8613.4 - actual wellpath misses target center by 0.20usft at 8613.44usft MD (7384.02 TVD, 3348.79 N, 1938.81 E) - Point	0.00	0.00	7,383.99	3,348.84	1,939.00	1,238,657.12	3,144,501.18	39.987345	-104.984300
Cross @ 9023.53' MD - actual wellpath hits target center - Point	0.00	0.00	7,660.61	3,072.00	2,032.11	1,238,380.82	3,144,595.88	39.986585	-104.983968
70° Inclination @ 9136.5 - actual wellpath hits target center - Point	0.00	0.00	7,704.85	2,969.35	2,048.30	1,238,278.26	3,144,612.66	39.986303	-104.983910
Cross @ 14325.93' MD - actual wellpath hits target center - Point	0.00	0.00	7,774.79	-2,213.00	2,091.45	1,233,096.25	3,144,685.54	39.972077	-104.983758
Cross @ 19614.05' MD - actual wellpath hits target center - Point	0.00	0.00	7,787.25	-7,500.00	2,103.52	1,227,809.40	3,144,727.94	39.957563	-104.983716

Design Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
1,548.00	1,536.33	107.01	52.80	Tie into Surface Surveys
1,667.00	1,649.74	139.56	68.16	First MWD Survey @ 1667' MD
8,613.44	7,384.02	3,348.79	1,938.81	30° Inclination @ 8613.44' MD
9,023.53	7,660.61	3,072.00	2,032.11	Cross @ 9023.53' MD
9,136.58	7,704.85	2,969.34	2,048.30	70° Inclination @ 9136.58' MD
14,325.93	7,774.79	-2,213.00	2,091.45	Cross @ 14325.93' MD
19,614.05	7,787.25	-7,500.00	2,103.52	Cross @ 19614.05' MD
24,333.00	7,751.94	-12,216.64	2,137.87	Last MWD Survey @ 24333' MD
24,392.00	7,751.24	-12,275.60	2,139.87	Projection to TD @ 24392' MD 511' FSL/ 1508' FEL

Checked By: _____ Approved By: _____ Date: _____