



Project: Weld County, CO NAD 83  
Site: Johnson Trust  
Well: Johnson Trust 2  
Wellbore: OH  
Design: Plan 3



**T** **M**  
Azimuths to True North  
Magnetic North: 8.60°  
  
Magnetic Field  
Strength: 52403.2snT  
Dip Angle: 66.70°  
Date: 12/29/2015  
Model: BGGM2015

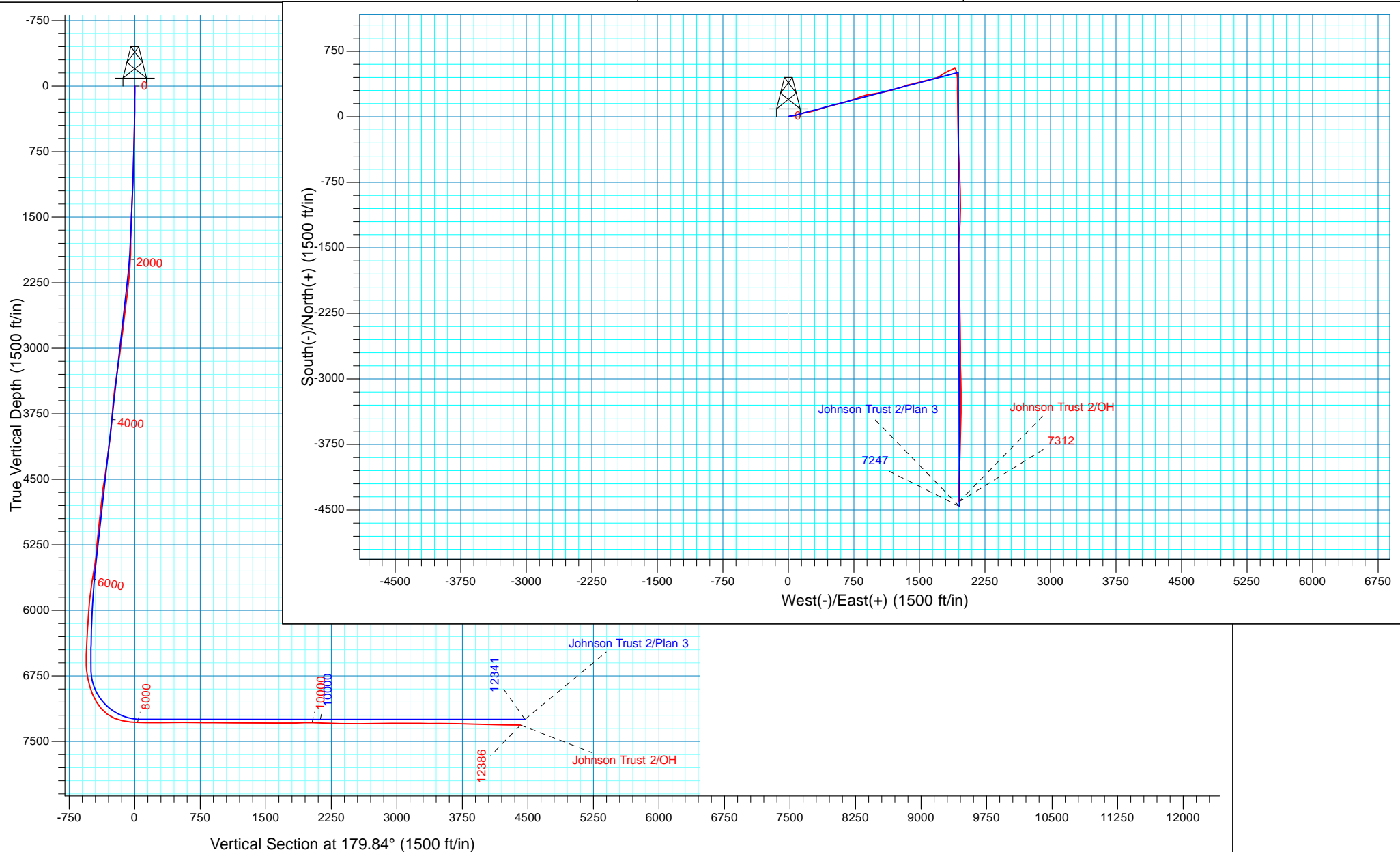
Plan: Plan 3 (Johnson Trust 2/OH)  
Created By: Seth Burstad Date: 1-19-2016

WELL DETAILS: Johnson Trust 2

GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346) 4928.00  
Northing Easting Latitude Longitude  
1293420.71 3151083.35 40° 8' 15.252 N 104° 57' 34.628 W

PROJECT DETAILS: Weld County, CO NAD 83

Geodetic System: US State Plane 1983  
Datum: North American Datum 1983  
Ellipsoid: GRS 1980  
Zone: Colorado Northern Zone  
  
System Datum: Mean Sea Level  
Local North: True





## **Extraction Oil & Gas**

**Weld County, CO NAD 83**

**Johnson Trust**

**Johnson Trust 2**

**OH**

**Design: OH**

## **Standard Survey Report**

**19 January, 2016**



<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Johnson Trust 2
<b>Project:</b>	Weld County, CO NAD 83	<b>TVD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Site:</b>	Johnson Trust	<b>MD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Well:</b>	Johnson Trust 2	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

<b>Project</b>	Weld County, CO NAD 83		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

Site	Johnson Trust, Site Center : Johnson Trust 1				
Site Position:		Northing:	1,293,448.40 usft	Latitude:	40° 8' 15.526 N
From:	Lat/Long	Easting:	3,151,083.18 usft	Longitude:	104° 57' 34.628 W
Position Uncertainty:	0.00 ft	Slot Radius:	13.200 in	Grid Convergence:	0.35 °

Well	Johnson Trust 2, 2237' FSL 389' FWL Sec 13 T2N R68W					
Well Position	+N/-S	0.00 ft	Northing:	1,293,420.71 usft	Latitude:	40° 8' 15.252 N
	+E/-W	0.00 ft	Easting:	3,151,083.35 usft	Longitude:	104° 57' 34.628 W
Position Uncertainty		0.00 ft	Wellhead Elevation:	0.00 ft	Ground Level:	4,928.00 ft

<b>Wellbore</b>	OH				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	BGGM2015	12/29/2015	8.60	66.70	52,403

<b>Design</b>	OH				
<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) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Direction (°)</b>	
	0.00	0.00	0.00	76.35	

<b>Survey Program</b>	<b>Date</b>	1/19/2016			
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
142.00	1,476.00	Survey #1 - Surface (OH)	NS-GYRO-MS	North sensing gyrocompassing m/s	
1,664.00	12,386.00	Survey #2 - Vertical / Curve / Lateral (OH)	SDI MWD	SDI MWD - Standard ver 1.0.1	

<b>Survey</b>										
<b>Measured Depth (ft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>	<b>Vertical Section (ft)</b>	<b>Dogleg Rate (°/100ft)</b>	<b>Build Rate (°/100ft)</b>	<b>Turn Rate (°/100ft)</b>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
142.00	1.10	63.40	141.99	0.61	1.22	1.33	0.77	0.77	0.00	
237.00	0.80	67.50	236.98	1.27	2.65	2.87	0.32	-0.32	4.32	
333.00	2.40	83.60	332.94	1.75	5.26	5.53	1.71	1.67	16.77	
428.00	5.20	75.60	427.72	3.05	11.41	11.81	2.99	2.95	-8.42	
523.00	4.80	72.40	522.36	5.32	19.37	20.08	0.51	-0.42	-3.37	
618.00	7.00	82.00	616.85	7.33	28.89	29.81	2.53	2.32	10.11	
714.00	8.10	79.00	712.02	9.43	41.32	42.38	1.22	1.15	-3.13	

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Johnson Trust 2
<b>Project:</b>	Weld County, CO NAD 83	<b>TVD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Site:</b>	Johnson Trust	<b>MD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Well:</b>	Johnson Trust 2	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
809.00	9.70	81.30	805.87	11.92	55.81	57.04	1.73	1.68	2.42
904.00	9.50	80.60	899.54	14.41	71.45	72.83	0.24	-0.21	-0.74
1,000.00	8.40	77.80	994.37	17.19	86.12	87.75	1.23	-1.15	-2.92
1,095.00	9.50	74.50	1,088.21	20.75	100.46	102.52	1.28	1.16	-3.47
1,190.00	8.70	72.80	1,182.02	24.97	114.88	117.53	0.89	-0.84	-1.79
1,285.00	8.70	73.90	1,275.93	29.08	128.64	131.87	0.18	0.00	1.16
1,381.00	9.00	76.30	1,370.78	32.88	142.92	146.64	0.50	0.31	2.50
1,476.00	7.70	71.60	1,464.77	36.64	156.17	160.41	1.54	-1.37	-4.95
1,664.00	6.60	70.09	1,651.31	44.30	178.28	183.70	0.59	-0.59	-0.80
First SDI MWD Survey									
1,758.00	7.09	84.15	1,744.65	46.73	189.14	194.82	1.85	0.52	14.96
1,853.00	10.43	90.21	1,838.53	47.30	203.57	208.98	3.64	3.52	6.38
1,947.00	13.19	80.49	1,930.54	49.04	222.66	227.95	3.61	2.94	-10.34
2,042.00	14.46	74.80	2,022.79	53.94	244.80	250.61	1.96	1.34	-5.99
2,136.00	16.45	75.88	2,113.38	60.26	269.04	275.66	2.14	2.12	1.15
2,231.00	18.37	73.56	2,204.03	67.78	296.44	304.06	2.15	2.02	-2.44
2,326.00	19.68	70.47	2,293.84	77.37	325.88	334.93	1.74	1.38	-3.25
2,421.00	21.47	72.76	2,382.78	87.87	357.56	368.20	2.07	1.88	2.41
2,516.00	25.77	75.19	2,469.80	98.31	394.15	406.21	4.64	4.53	2.56
2,611.00	26.75	74.82	2,555.00	109.18	434.75	448.23	1.05	1.03	-0.39
2,706.00	26.55	75.43	2,639.90	120.12	475.93	490.84	0.36	-0.21	0.64
2,800.00	25.56	75.16	2,724.35	130.60	515.87	532.12	1.06	-1.05	-0.29
2,895.00	25.33	74.50	2,810.13	141.28	555.26	572.92	0.38	-0.24	-0.69
2,989.00	25.41	72.56	2,895.07	152.70	593.88	613.14	0.89	0.09	-2.06
3,084.00	26.22	75.57	2,980.59	164.04	633.65	654.46	1.62	0.85	3.17
3,179.00	25.28	76.51	3,066.16	174.00	673.70	695.73	1.08	-0.99	0.99
3,274.00	24.05	72.03	3,152.50	184.71	711.84	735.33	2.35	-1.29	-4.72
3,369.00	23.55	66.11	3,239.43	198.37	747.61	773.31	2.57	-0.53	-6.23
3,464.00	22.19	70.69	3,326.97	211.99	781.90	809.84	2.36	-1.43	4.82
3,559.00	22.41	68.50	3,414.86	224.55	815.68	845.64	0.90	0.23	-2.31
3,653.00	22.48	74.30	3,501.75	235.99	849.66	881.35	2.36	0.07	6.17
3,748.00	23.18	74.39	3,589.31	245.93	885.15	918.19	0.74	0.74	0.09
3,843.00	25.55	82.60	3,675.87	253.61	923.49	957.26	4.35	2.49	8.64
3,938.00	26.83	80.42	3,761.12	259.81	964.95	999.01	1.69	1.35	-2.29
4,032.00	28.30	80.35	3,844.44	267.08	1,007.83	1,042.40	1.56	1.56	-0.07
4,127.00	28.52	80.42	3,928.00	274.63	1,052.40	1,087.48	0.23	0.23	0.07
4,222.00	28.97	76.86	4,011.30	283.63	1,097.17	1,133.12	1.86	0.47	-3.75
4,317.00	28.61	75.16	4,094.56	294.69	1,141.56	1,178.86	0.94	-0.38	-1.79
4,411.00	26.46	75.98	4,177.91	305.53	1,183.64	1,222.31	2.32	-2.29	0.87
4,507.00	24.45	78.40	4,264.59	314.70	1,223.86	1,263.56	2.36	-2.09	2.52
4,601.00	23.80	69.79	4,350.40	325.17	1,260.72	1,301.85	3.80	-0.69	-9.16
4,696.00	26.22	68.47	4,436.49	339.50	1,298.24	1,341.69	2.61	2.55	-1.39

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<b>Site:</b>	Johnson Trust	<b>MD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Well:</b>	Johnson Trust 2	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	
4,791.00	28.42	72.63	4,520.89	353.95	1,339.35	1,385.05	3.07	2.32	4.38	
4,885.00	26.44	74.88	4,604.32	366.09	1,380.90	1,428.29	2.38	-2.11	2.39	
4,980.00	24.18	78.55	4,690.20	375.47	1,420.40	1,468.89	2.90	-2.38	3.86	
5,074.00	24.81	75.04	4,775.75	384.38	1,458.32	1,507.84	1.69	0.67	-3.73	
5,169.00	25.51	74.32	4,861.74	395.06	1,497.27	1,548.21	0.80	0.74	-0.76	
5,263.00	26.96	78.02	4,946.06	404.95	1,537.61	1,589.75	2.32	1.54	3.94	
5,358.00	25.51	75.93	5,031.27	414.40	1,578.52	1,631.73	1.81	-1.53	-2.20	
5,452.00	22.63	74.40	5,117.09	424.18	1,615.58	1,670.06	3.13	-3.06	-1.63	
5,547.00	20.40	76.26	5,205.46	433.03	1,649.27	1,704.88	2.45	-2.35	1.96	
5,642.00	17.16	74.80	5,295.39	440.64	1,678.89	1,735.46	3.45	-3.41	-1.54	
5,736.00	17.59	69.86	5,385.11	449.17	1,705.61	1,763.44	1.63	0.46	-5.26	
5,831.00	16.69	58.36	5,475.92	461.27	1,730.71	1,790.68	3.68	-0.95	-12.11	
5,926.00	16.33	54.95	5,567.00	476.10	1,753.26	1,816.09	1.09	-0.38	-3.59	
6,021.00	18.56	59.90	5,657.63	491.35	1,777.27	1,843.03	2.82	2.35	5.21	
6,116.00	15.28	61.09	5,748.51	504.99	1,801.32	1,869.62	3.47	-3.45	1.25	
6,211.00	13.99	60.95	5,840.42	516.62	1,822.32	1,892.77	1.36	-1.36	-0.15	
6,306.00	9.06	62.12	5,933.48	525.70	1,838.98	1,911.10	5.20	-5.19	1.23	
6,400.00	13.28	70.69	6,025.68	532.73	1,855.72	1,929.03	4.81	4.49	9.12	
6,495.00	9.91	68.03	6,118.73	539.40	1,873.60	1,947.98	3.59	-3.55	-2.80	
6,589.00	6.76	59.11	6,211.73	545.27	1,885.85	1,961.27	3.61	-3.35	-9.49	
6,684.00	5.14	51.80	6,306.22	550.77	1,894.00	1,970.48	1.88	-1.71	-7.69	
6,778.00	3.34	47.12	6,399.96	555.24	1,899.31	1,976.70	1.95	-1.91	-4.98	
6,874.00	2.44	36.46	6,495.83	558.79	1,902.58	1,980.71	1.09	-0.94	-11.10	
6,968.00	2.23	41.20	6,589.76	561.77	1,904.97	1,983.74	0.30	-0.22	5.04	
7,064.00	6.99	163.61	6,685.53	557.56	1,907.85	1,985.55	8.75	4.96	127.51	
7,159.00	12.36	157.13	6,779.15	542.64	1,913.44	1,987.46	5.76	5.65	-6.82	
7,255.00	17.10	161.33	6,871.97	519.79	1,921.96	1,990.34	5.06	4.94	4.38	
7,350.00	23.82	167.83	6,960.94	487.76	1,930.48	1,991.06	7.46	7.07	6.84	
7,446.00	31.19	176.10	7,046.06	443.94	1,936.27	1,986.34	8.63	7.68	8.61	
7,541.00	40.26	181.29	7,123.12	388.58	1,937.25	1,974.23	10.06	9.55	5.46	
7,636.00	52.84	181.17	7,188.33	319.76	1,935.78	1,956.56	13.24	13.24	-0.13	
7,731.00	68.36	177.92	7,234.83	237.27	1,936.62	1,937.90	16.60	16.34	-3.42	
7,826.00	77.93	178.75	7,262.34	146.50	1,939.24	1,919.03	10.11	10.07	0.87	
7,921.00	84.37	180.14	7,276.95	52.68	1,940.14	1,897.76	6.93	6.78	1.46	
8,015.00	88.46	178.75	7,282.83	-41.11	1,941.05	1,876.51	4.59	4.35	-1.48	
8,110.00	89.56	179.13	7,284.47	-136.07	1,942.81	1,855.80	1.23	1.16	0.40	
8,204.00	90.07	178.71	7,284.77	-230.06	1,944.58	1,835.34	0.70	0.54	-0.45	
8,298.00	90.40	178.81	7,284.39	-324.03	1,946.61	1,815.13	0.37	0.35	0.11	
8,393.00	91.34	178.23	7,282.94	-418.99	1,949.07	1,795.10	1.16	0.99	-0.61	
8,488.00	90.34	176.26	7,281.55	-513.86	1,953.63	1,777.15	2.33	-1.05	-2.07	
8,583.00	88.79	178.01	7,282.27	-608.74	1,958.38	1,759.37	2.46	-1.63	1.84	
8,678.00	89.26	177.83	7,283.89	-703.66	1,961.83	1,740.31	0.53	0.49	-0.19	

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<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
8,773.00	89.43	177.76	7,284.97	-798.58	1,965.48	1,721.46	0.19	0.18	-0.07
8,867.00	89.66	177.62	7,285.72	-892.50	1,969.27	1,702.97	0.29	0.24	-0.15
8,962.00	89.36	179.68	7,286.53	-987.47	1,971.51	1,682.73	2.19	-0.32	2.17
9,058.00	90.17	182.30	7,286.93	-1,083.44	1,969.85	1,658.47	2.86	0.84	2.73
9,152.00	89.77	182.94	7,286.98	-1,177.35	1,965.55	1,632.13	0.80	-0.43	0.68
9,248.00	89.87	183.25	7,287.28	-1,273.20	1,960.37	1,604.47	0.34	0.10	0.32
9,344.00	90.07	183.49	7,287.33	-1,369.04	1,954.73	1,576.36	0.33	0.21	0.25
9,439.00	89.43	180.79	7,287.74	-1,463.96	1,951.18	1,550.51	2.92	-0.67	-2.84
9,535.00	89.26	178.89	7,288.84	-1,559.95	1,951.45	1,528.11	1.99	-0.18	-1.98
9,630.00	89.77	178.88	7,289.64	-1,654.93	1,953.30	1,507.49	0.54	0.54	-0.01
9,725.00	90.54	179.39	7,289.39	-1,749.92	1,954.73	1,486.47	0.97	0.81	0.54
9,820.00	91.41	178.70	7,287.77	-1,844.89	1,956.32	1,465.59	1.17	0.92	-0.73
9,915.00	92.09	178.70	7,284.87	-1,939.82	1,958.47	1,445.28	0.72	0.72	0.00
10,009.00	88.12	179.30	7,284.70	-2,033.79	1,960.11	1,424.69	4.27	-4.22	0.64
10,104.00	87.92	179.09	7,287.98	-2,128.72	1,961.44	1,403.58	0.31	-0.21	-0.22
10,199.00	88.22	179.04	7,291.18	-2,223.65	1,962.99	1,382.68	0.32	0.32	-0.05
10,293.00	88.42	178.56	7,293.94	-2,317.59	1,964.96	1,362.42	0.55	0.21	-0.51
10,388.00	89.13	179.16	7,295.97	-2,412.55	1,966.85	1,341.84	0.98	0.75	0.63
10,483.00	90.50	178.50	7,296.27	-2,507.53	1,968.79	1,321.31	1.60	1.44	-0.69
10,578.00	90.37	179.65	7,295.55	-2,602.51	1,970.32	1,300.38	1.22	-0.14	1.21
10,672.00	90.20	179.84	7,295.08	-2,696.51	1,970.74	1,278.60	0.27	-0.18	0.20
10,768.00	90.80	180.24	7,294.25	-2,792.50	1,970.67	1,255.88	0.75	0.63	0.42
10,863.00	90.40	179.02	7,293.25	-2,887.49	1,971.29	1,234.05	1.35	-0.42	-1.28
10,957.00	90.60	178.16	7,292.43	-2,981.46	1,973.60	1,214.12	0.94	0.21	-0.91
11,053.00	90.10	179.05	7,291.85	-3,077.43	1,975.94	1,193.74	1.06	-0.52	0.93
11,147.00	89.66	178.86	7,292.04	-3,171.41	1,977.65	1,173.22	0.51	-0.47	-0.20
11,242.00	89.46	180.49	7,292.77	-3,266.41	1,978.19	1,151.32	1.73	-0.21	1.72
11,337.00	89.50	180.95	7,293.63	-3,361.39	1,977.00	1,127.74	0.49	0.04	0.48
11,433.00	89.90	181.03	7,294.14	-3,457.38	1,975.34	1,103.48	0.42	0.42	0.08
11,528.00	90.37	180.55	7,293.91	-3,552.37	1,974.03	1,079.78	0.71	0.49	-0.51
11,623.00	88.52	181.54	7,294.83	-3,647.34	1,972.30	1,055.68	2.21	-1.95	1.04
11,718.00	88.06	182.06	7,297.67	-3,742.25	1,969.31	1,030.38	0.73	-0.48	0.55
11,812.00	88.42	181.95	7,300.55	-3,836.15	1,966.03	1,005.03	0.40	0.38	-0.12
11,908.00	88.56	181.69	7,303.08	-3,932.07	1,962.98	979.42	0.31	0.15	-0.27
12,003.00	88.93	182.03	7,305.17	-4,027.00	1,959.90	954.02	0.53	0.39	0.36
12,098.00	88.52	181.83	7,307.28	-4,121.92	1,956.70	928.51	0.48	-0.43	-0.21
12,192.00	88.86	181.93	7,309.43	-4,215.84	1,953.61	903.34	0.38	0.36	0.11
12,287.00	89.23	181.24	7,311.01	-4,310.79	1,950.99	878.38	0.82	0.39	-0.73
12,327.00	89.56	181.47	7,311.43	-4,350.78	1,950.04	868.02	1.01	0.83	0.58
Last SDI MWD Survey									
12,386.00	89.56	181.47	7,311.89	-4,409.76	1,948.53	852.63	0.00	0.00	0.00
Projection to TD									

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Johnson Trust 2
<b>Project:</b>	Weld County, CO NAD 83	<b>TVD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Site:</b>	Johnson Trust	<b>MD Reference:</b>	GL 4928' & KB 24.5' @ 4952.50ft (Patterson 346)
<b>Well:</b>	Johnson Trust 2	<b>North Reference:</b>	True
<b>Wellbore:</b>	OH	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	OH	<b>Database:</b>	Casper District

Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)

Design Annotations				
Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
1,664.00	1,651.31	44.30	178.28	First SDI MWD Survey
12,327.00	7,311.43	-4,350.78	1,950.04	Last SDI MWD Survey
12,386.00	7,311.89	-4,409.76	1,948.53	Projection to TD

Checked By: _____	Approved By: _____	Date: _____
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