

# Extraction Oil & Gas

Well Name: **Thornton 11**

Surface Location: Thornton 8-P Pad Sec.8-T7N-R66W

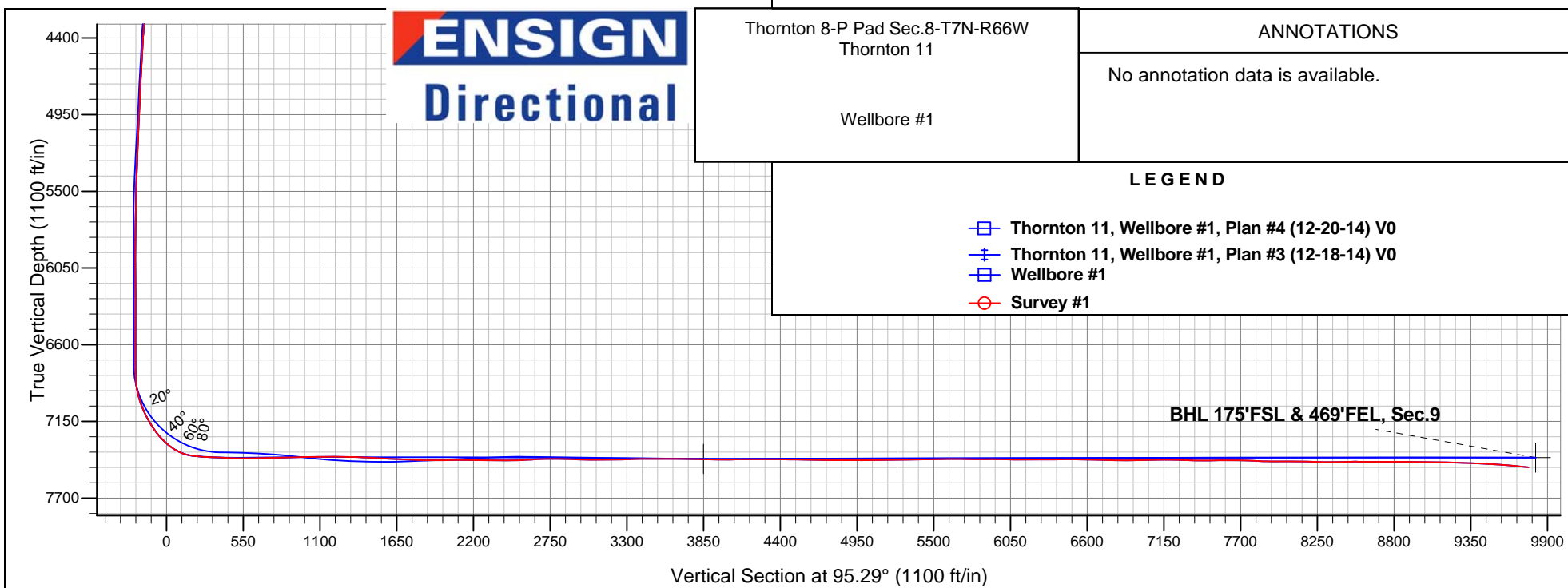
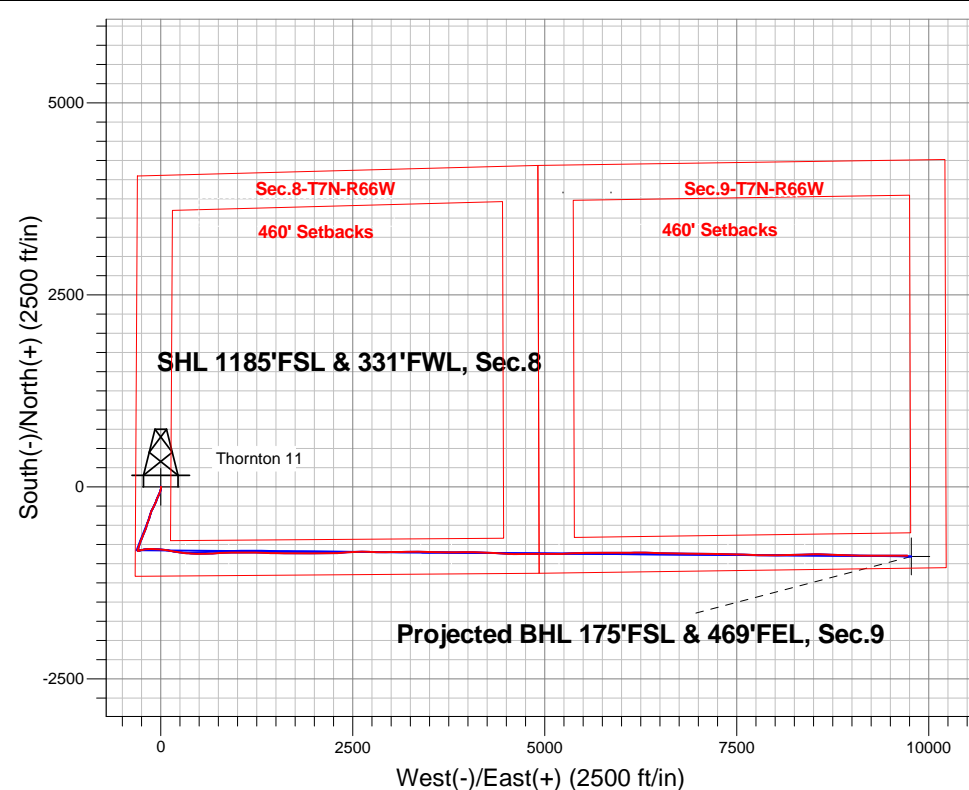
North American Datum 1983 , US State Plane 1983 , Colorado Northern Zone

Ground Elevation: 5038.0

+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
0.0	0.0	1456850.97	3191541.30	40.585410	-104.810372	
RKB - 24' WELL @ 5062.0ft (RKB - 24')						

## FINAL SURVEY

Projected Bottom Hole Location  
17279'MD 7478'TVD 894'S & 9723'E of SHL  
84.2 degree Incl @ 89.6 degree AZM



Thornton 8-P Pad Sec.8-T7N-R66W  
Thornton 11

Wellbore #1

### ANNOTATIONS

No annotation data is available.

### LEGEND

- Thornton 11, Wellbore #1, Plan #4 (12-20-14) V0
- Thornton 11, Wellbore #1, Plan #3 (12-18-14) V0
- Wellbore #1
- Survey #1

BHL 175'FSL & 469'FEL, Sec.9



## **Extraction Oil & Gas**

**SEC.8-T7N-T66W**

**Thornton 8-P Pad Sec.8-T7N-R66W**

**Thornton 11**

**Wellbore #1**

**Survey: Survey #1**

## **Standard Survey Report**

**30 December, 2014**



<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Thornton 11
<b>Project:</b>	SEC.8-T7N-T66W	<b>TVD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Site:</b>	Thornton 8-P Pad Sec.8-T7N-R66W	<b>MD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Well:</b>	Thornton 11	<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>	Landmark

<b>Project</b>	SEC.8-T7N-T66W, Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		Using Well Reference Point
<b>Map Zone:</b>	Colorado Northern Zone		Using geodetic scale factor

<b>Site</b>	Thornton 8-P Pad Sec.8-T7N-R66W		
<b>Site Position:</b>		<b>Northing:</b>	1,456,822.93ft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,191,541.24ft
<b>Position Uncertainty:</b>	0.0 ft	<b>Slot Radius:</b>	"
		<b>Latitude:</b>	40.585333
		<b>Longitude:</b>	-104.810373
		<b>Grid Convergence:</b>	0.45 °

<b>Well</b>	Thornton 11		
<b>Well Position</b>	<b>+N/-S</b>	0.0 ft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 ft	<b>Easting:</b>
<b>Position Uncertainty</b>		0.0 ft	<b>Wellhead Elevation:</b>
			<b>Latitude:</b>
			<b>Longitude:</b>
			<b>Ground Level:</b>

<b>Wellbore</b>	Wellbore #1		
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>
	IGRF2010	12/8/2014	8.43
			<b>Dip Angle (°)</b>
			67.07
			<b>Field Strength (nT)</b>
			52,855

<b>Design</b>	Wellbore #1		
<b>Audit Notes:</b>			
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL
		<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (ft)</b>	<b>+N/-S (ft)</b>	<b>+E/-W (ft)</b>
	0.0	0.0	0.0
			<b>Direction (°)</b>
			95.29

<b>Survey Program</b>	<b>Date</b>	12/30/2014		
<b>From (ft)</b>	<b>To (ft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
169.0	17,279.0	Survey #1 (Wellbore #1)	MWD	MWD - Standard

<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>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
1.0	0.01	32.70	1.0	0.0	0.0	0.0	0.53	0.53	0.00	
<b>SHL 1185'FSL &amp; 331'FWL, Sec.8</b>										
169.0	0.90	32.70	169.0	1.1	0.7	0.6	0.53	0.53	0.00	
260.0	0.80	44.30	260.0	2.2	1.5	1.3	0.22	-0.11	12.75	
353.0	1.10	43.90	353.0	3.3	2.6	2.3	0.32	0.32	-0.43	
443.0	1.20	144.30	443.0	3.1	3.8	3.5	1.96	0.11	111.56	
536.0	4.00	168.20	535.9	-0.8	5.0	5.1	3.16	3.01	25.70	
627.0	6.80	187.20	626.5	-9.3	5.0	5.8	3.61	3.08	20.88	
718.0	7.40	190.40	716.8	-20.4	3.2	5.1	0.79	0.66	3.52	
809.0	7.20	193.90	807.0	-31.7	0.8	3.7	0.54	-0.22	3.85	
905.0	7.70	195.60	902.2	-43.7	-2.4	1.7	0.57	0.52	1.77	
997.0	8.00	196.20	993.3	-55.8	-5.8	-0.6	0.34	0.33	0.65	

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Thornton 11
<b>Project:</b>	SEC.8-T7N-T66W	<b>TVD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Site:</b>	Thornton 8-P Pad Sec.8-T7N-R66W	<b>MD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Well:</b>	Thornton 11	<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>	Landmark

#### 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)
1,089.0	8.40	199.20	1,084.4	-68.3	-9.8	-3.5	0.64	0.43	3.26
1,182.0	8.10	200.20	1,176.4	-80.9	-14.3	-6.8	0.36	-0.32	1.08
1,274.0	9.10	208.30	1,267.4	-93.4	-20.0	-11.3	1.70	1.09	8.80
1,366.0	9.00	209.30	1,358.3	-106.0	-27.0	-17.1	0.20	-0.11	1.09
1,458.0	10.00	205.80	1,449.0	-119.5	-34.0	-22.8	1.25	1.09	-3.80
1,551.0	9.60	204.30	1,540.6	-133.8	-40.7	-28.2	0.51	-0.43	-1.61
1,643.0	10.80	198.40	1,631.2	-149.0	-46.5	-32.6	1.73	1.30	-6.41
1,735.0	10.40	198.80	1,721.6	-165.1	-51.9	-36.5	0.44	-0.43	0.43
1,827.0	10.60	197.20	1,812.1	-181.0	-57.1	-40.2	0.38	0.22	-1.74
1,919.0	9.30	204.40	1,902.7	-195.9	-62.7	-44.4	1.95	-1.41	7.83
2,012.0	8.90	207.40	1,994.5	-209.1	-69.1	-49.5	0.67	-0.43	3.23
2,104.0	10.30	200.60	2,085.2	-223.1	-75.3	-54.4	1.96	1.52	-7.39
2,196.0	10.60	208.60	2,175.7	-238.2	-82.2	-59.9	1.61	0.33	8.70
2,288.0	9.70	207.20	2,266.3	-252.6	-89.8	-66.2	1.01	-0.98	-1.52
2,381.0	10.40	203.70	2,357.9	-267.2	-96.8	-71.7	1.00	0.75	-3.76
2,473.0	9.90	203.20	2,448.4	-282.1	-103.2	-76.8	0.55	-0.54	-0.54
2,565.0	9.80	212.50	2,539.1	-296.0	-110.5	-82.8	1.73	-0.11	10.11
2,661.0	10.10	205.50	2,633.6	-310.4	-118.6	-89.5	1.30	0.31	-7.29
2,756.0	9.60	203.00	2,727.2	-325.3	-125.2	-94.7	0.69	-0.53	-2.63
2,850.0	9.70	196.70	2,819.9	-340.1	-130.6	-98.7	1.13	0.11	-6.70
2,943.0	10.20	197.60	2,911.5	-355.4	-135.3	-102.0	0.56	0.54	0.97
3,037.0	11.30	194.10	3,003.8	-372.3	-140.1	-105.2	1.36	1.17	-3.72
3,132.0	11.40	194.40	3,097.0	-390.4	-144.7	-108.1	0.12	0.11	0.32
3,227.0	10.50	195.80	3,190.3	-407.8	-149.4	-111.2	0.99	-0.95	1.47
3,322.0	9.90	203.20	3,283.8	-423.7	-154.9	-115.3	1.52	-0.63	7.79
3,416.0	10.70	202.80	3,376.2	-439.1	-161.5	-120.4	0.85	0.85	-0.43
3,510.0	10.80	197.70	3,468.6	-455.6	-167.6	-124.9	1.02	0.11	-5.43
3,604.0	9.90	202.00	3,561.1	-471.4	-173.3	-129.1	1.26	-0.96	4.57
3,698.0	10.60	196.00	3,653.6	-487.2	-178.7	-133.0	1.36	0.74	-6.38
3,793.0	10.90	196.50	3,746.9	-504.3	-183.6	-136.4	0.33	0.32	0.53
3,888.0	11.00	197.70	3,840.2	-521.5	-189.0	-140.1	0.26	0.11	1.26
3,982.0	9.70	196.00	3,932.6	-537.7	-193.9	-143.5	1.42	-1.38	-1.81
4,076.0	9.70	192.30	4,025.3	-553.0	-197.7	-145.9	0.66	0.00	-3.94
4,170.0	9.70	205.10	4,118.0	-567.9	-202.8	-149.6	2.29	0.00	13.62
4,264.0	12.30	204.60	4,210.2	-584.2	-210.3	-155.6	2.77	2.77	-0.53
4,360.0	12.50	203.90	4,304.0	-603.0	-218.8	-162.3	0.26	0.21	-0.73
4,454.0	10.40	202.80	4,396.1	-620.1	-226.2	-168.1	2.25	-2.23	-1.17
4,547.0	10.30	200.20	4,487.6	-635.7	-232.3	-172.8	0.51	-0.11	-2.80
4,641.0	10.60	207.60	4,580.0	-651.2	-239.2	-178.2	1.46	0.32	7.87
4,735.0	11.10	200.60	4,672.4	-667.3	-246.4	-183.9	1.50	0.53	-7.45
4,830.0	8.90	200.60	4,765.9	-682.8	-252.2	-188.2	2.32	-2.32	0.00
4,924.0	9.80	206.20	4,858.7	-696.8	-258.3	-193.0	1.36	0.96	5.96
5,018.0	10.30	199.20	4,951.2	-711.9	-264.6	-197.9	1.40	0.53	-7.45
5,112.0	9.60	194.10	5,043.8	-727.4	-269.3	-201.1	1.20	-0.74	-5.43
5,207.0	10.70	198.10	5,137.3	-743.5	-273.9	-204.3	1.37	1.16	4.21
5,302.0	10.00	201.30	5,230.8	-759.6	-279.7	-208.5	0.95	-0.74	3.37
5,396.0	10.50	198.60	5,323.3	-775.3	-285.4	-212.7	0.74	0.53	-2.87
5,490.0	7.70	196.70	5,416.1	-789.4	-289.9	-216.0	3.00	-2.98	-2.02
5,584.0	5.60	195.60	5,509.5	-799.9	-293.0	-218.0	2.24	-2.23	-1.17
5,678.0	4.30	196.70	5,603.1	-807.7	-295.2	-219.5	1.39	-1.38	1.17
5,772.0	3.10	198.30	5,696.9	-813.5	-297.0	-220.8	1.28	-1.28	1.70
5,866.0	2.30	204.80	5,790.8	-817.6	-298.6	-222.0	0.91	-0.85	6.91
5,960.0	2.00	224.10	5,884.7	-820.5	-300.5	-223.7	0.83	-0.32	20.53
6,054.0	1.50	162.80	5,978.7	-822.8	-301.3	-224.2	1.95	-0.53	-65.21

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#### Survey

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6,148.0	1.00	166.50	6,072.7	-824.8	-300.8	-223.5	0.54	-0.53	3.94
6,430.0	0.40	155.60	6,354.7	-828.1	-299.8	-222.2	0.22	-0.21	-3.87
6,713.0	0.40	199.00	6,637.6	-829.9	-299.7	-222.0	0.10	0.00	15.34
6,807.0	0.20	250.10	6,731.6	-830.3	-299.9	-222.2	0.34	-0.21	54.36
6,902.0	1.70	114.40	6,826.6	-830.9	-298.8	-221.0	1.95	1.58	-142.84
6,996.0	10.20	84.20	6,920.1	-830.7	-289.3	-211.5	9.33	9.04	-32.13
7,090.0	20.30	74.70	7,010.6	-825.5	-265.2	-188.0	11.03	10.74	-10.11
7,184.0	26.40	79.60	7,096.9	-817.4	-228.9	-152.6	6.81	6.49	5.21
7,278.0	32.80	83.00	7,178.6	-810.5	-183.0	-107.5	7.04	6.81	3.62
7,373.0	40.90	90.70	7,254.6	-807.8	-126.2	-51.3	9.80	8.53	8.11
7,466.0	50.00	94.00	7,319.8	-810.6	-60.1	14.8	10.10	9.78	3.55
7,560.0	65.80	94.90	7,369.6	-816.9	19.0	94.2	16.83	16.81	0.96
7,654.0	81.50	100.40	7,396.0	-829.0	108.1	184.0	17.61	16.70	5.85
7,686.0	85.50	101.10	7,399.6	-834.9	139.3	215.6	12.69	12.50	2.19
7,748.0	86.60	98.80	7,403.9	-845.6	200.2	277.3	4.10	1.77	-3.71
7,842.0	87.40	97.00	7,408.8	-858.5	293.2	371.1	2.09	0.85	-1.91
7,937.0	88.10	94.00	7,412.5	-867.6	387.7	466.0	3.24	0.74	-3.16
8,031.0	90.40	89.50	7,413.8	-870.5	481.6	559.7	5.38	2.45	-4.79
8,126.0	90.60	89.50	7,412.9	-869.6	576.6	654.3	0.21	0.21	0.00
8,220.0	92.20	86.30	7,410.6	-866.2	670.5	747.4	3.81	1.70	-3.40
8,314.0	91.30	87.20	7,407.8	-860.9	764.3	840.4	1.35	-0.96	0.96
8,409.0	91.50	88.20	7,405.4	-857.1	859.2	934.5	1.07	0.21	1.05
8,436.7	91.24	88.32	7,404.8	-856.2	886.8	961.9	1.05	-0.96	0.43
<b>WP1</b>									
8,503.0	90.60	88.60	7,403.7	-854.4	953.1	1,027.8	1.05	-0.96	0.43
8,597.0	89.60	89.60	7,403.5	-853.0	1,047.1	1,121.2	1.50	-1.06	1.06
8,691.0	89.90	90.50	7,404.0	-853.0	1,141.1	1,214.9	1.01	0.32	0.96
8,785.0	89.50	92.10	7,404.4	-855.2	1,235.1	1,308.6	1.75	-0.43	1.70
8,879.0	87.70	92.50	7,406.7	-859.0	1,329.0	1,402.5	1.96	-1.91	0.43
8,973.0	86.30	90.30	7,411.7	-861.2	1,422.8	1,496.1	2.77	-1.49	-2.34
9,068.0	87.30	91.20	7,417.0	-862.5	1,517.7	1,590.7	1.42	1.05	0.95
9,162.0	87.20	91.20	7,421.5	-864.5	1,611.5	1,684.3	0.11	-0.11	0.00
9,256.0	87.50	89.10	7,425.8	-864.7	1,705.4	1,777.8	2.25	0.32	-2.23
9,351.0	90.00	89.60	7,427.9	-863.6	1,800.4	1,872.3	2.68	2.63	0.53
9,445.0	90.50	90.90	7,427.5	-864.0	1,894.4	1,965.9	1.48	0.53	1.38
9,539.0	90.70	90.30	7,426.5	-865.0	1,988.4	2,059.6	0.67	0.21	-0.64
9,634.0	89.10	89.60	7,426.7	-864.9	2,083.4	2,154.2	1.84	-1.68	-0.74
9,728.0	89.90	90.00	7,427.5	-864.6	2,177.4	2,247.8	0.95	0.85	0.43
9,822.0	89.30	87.50	7,428.1	-862.6	2,271.3	2,341.1	2.74	-0.64	-2.66
9,837.7	89.35	87.15	7,428.3	-861.8	2,287.1	2,356.7	2.26	0.32	-2.23
<b>WP2</b>									
9,916.0	89.60	85.40	7,429.0	-856.7	2,365.1	2,434.0	2.26	0.32	-2.23
10,010.0	92.10	85.90	7,427.7	-849.6	2,458.9	2,526.7	2.71	2.66	0.53
10,104.0	93.50	87.90	7,423.1	-844.5	2,552.6	2,619.5	2.60	1.49	2.13
10,199.0	91.80	90.70	7,418.7	-843.4	2,647.5	2,713.9	3.45	-1.79	2.95
10,293.0	88.90	93.00	7,418.1	-846.4	2,741.4	2,807.7	3.94	-3.09	2.45
10,388.0	88.10	90.20	7,420.6	-849.1	2,836.3	2,902.5	3.06	-0.84	-2.95
10,480.0	88.10	89.60	7,423.6	-848.9	2,928.3	2,994.0	0.65	0.00	-0.65
10,572.0	90.40	89.10	7,424.8	-847.9	3,020.3	3,085.5	2.56	2.50	-0.54
10,664.0	90.80	88.90	7,423.9	-846.2	3,112.2	3,177.0	0.49	0.43	-0.22
10,757.0	91.60	88.20	7,421.9	-843.9	3,205.2	3,269.3	1.14	0.86	-0.75
10,849.0	91.70	91.60	7,419.3	-843.7	3,297.1	3,360.8	3.70	0.11	3.70
10,938.3	90.05	91.02	7,417.9	-845.8	3,386.4	3,449.9	1.96	-1.85	-0.65
<b>WP3</b>									

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Thornton 11
<b>Project:</b>	SEC.8-T7N-T66W	<b>TVD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Site:</b>	Thornton 8-P Pad Sec.8-T7N-R66W	<b>MD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Well:</b>	Thornton 11	<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>	Landmark

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)	
10,941.0	90.00	91.00	7,417.9	-845.8	3,389.1	3,452.6	1.96	-1.85	-0.65	
11,033.0	89.80	90.70	7,418.1	-847.2	3,481.1	3,544.3	0.39	-0.22	-0.33	
11,126.0	90.40	90.90	7,417.9	-848.5	3,574.1	3,637.0	0.68	0.65	0.22	
11,218.0	88.80	91.80	7,418.5	-850.7	3,666.0	3,728.8	2.00	-1.74	0.98	
11,310.0	88.60	90.20	7,420.6	-852.3	3,758.0	3,820.5	1.75	-0.22	-1.74	
11,338.1	88.78	89.80	7,421.3	-852.3	3,786.1	3,848.5	1.56	0.65	-1.41	
WP4										
11,402.0	89.20	88.90	7,422.4	-851.5	3,850.0	3,912.1	1.56	0.65	-1.41	
11,494.0	90.00	89.10	7,423.0	-849.9	3,942.0	4,003.5	0.90	0.87	0.22	
11,587.0	91.60	90.90	7,421.7	-849.9	4,035.0	4,096.1	2.59	1.72	1.94	
11,679.0	89.70	92.10	7,420.7	-852.3	4,126.9	4,187.9	2.44	-2.07	1.30	
11,771.0	89.80	91.60	7,421.1	-855.3	4,218.9	4,279.7	0.55	0.11	-0.54	
11,864.0	89.70	92.30	7,421.5	-858.5	4,311.8	4,372.6	0.76	-0.11	0.75	
11,956.0	89.80	94.20	7,421.9	-863.7	4,403.7	4,464.5	2.07	0.11	2.07	
12,048.0	88.60	93.30	7,423.2	-869.7	4,495.4	4,556.4	1.63	-1.30	-0.98	
12,140.0	87.90	91.40	7,426.0	-873.5	4,587.3	4,648.3	2.20	-0.76	-2.07	
12,236.0	89.40	88.90	7,428.3	-873.7	4,683.3	4,743.9	3.04	1.56	-2.60	
12,331.0	90.80	89.60	7,428.1	-872.5	4,778.3	4,838.3	1.65	1.47	0.74	
12,428.0	90.20	90.70	7,427.3	-872.7	4,875.3	4,934.9	1.29	-0.62	1.13	
12,524.0	90.70	89.50	7,426.5	-872.9	4,971.3	5,030.5	1.35	0.52	-1.25	
12,619.0	90.40	89.60	7,425.6	-872.2	5,066.3	5,125.1	0.33	-0.32	0.11	
12,715.0	90.00	90.30	7,425.3	-872.1	5,162.2	5,220.6	0.84	-0.42	0.73	
12,739.1	90.28	89.52	7,425.2	-872.0	5,186.4	5,244.7	3.43	1.15	-3.23	
WP5										
12,811.0	91.10	87.20	7,424.3	-870.0	5,258.2	5,316.0	3.43	1.15	-3.23	
12,907.0	91.10	86.70	7,422.5	-864.9	5,354.1	5,411.0	0.52	0.00	-0.52	
13,002.0	91.30	88.10	7,420.5	-860.6	5,448.9	5,505.0	1.49	0.21	1.47	
13,098.0	90.30	89.50	7,419.2	-858.6	5,544.9	5,600.4	1.79	-1.04	1.46	
13,194.0	89.30	89.50	7,419.5	-857.7	5,640.9	5,695.9	1.04	-1.04	0.00	
13,290.0	88.90	89.30	7,421.0	-856.7	5,736.9	5,791.4	0.47	-0.42	-0.21	
13,386.0	91.10	90.00	7,421.0	-856.1	5,832.9	5,886.9	2.40	2.29	0.73	
13,481.0	88.60	91.00	7,421.3	-857.0	5,927.9	5,981.6	2.83	-2.63	1.05	
13,577.0	89.60	89.80	7,422.8	-857.6	6,023.8	6,077.2	1.63	1.04	-1.25	
13,673.0	89.90	88.90	7,423.2	-856.5	6,119.8	6,172.7	0.99	0.31	-0.94	
13,768.0	90.50	90.20	7,422.8	-855.8	6,214.8	6,267.2	1.51	0.63	1.37	
13,864.0	90.40	90.00	7,422.1	-856.0	6,310.8	6,362.8	0.23	-0.10	-0.21	
13,960.0	90.00	91.40	7,421.8	-857.1	6,406.8	6,458.5	1.52	-0.42	1.46	
14,056.0	89.40	93.00	7,422.3	-860.8	6,502.7	6,554.4	1.78	-0.63	1.67	
14,152.0	88.20	92.30	7,424.3	-865.3	6,598.6	6,650.3	1.45	-1.25	-0.73	
14,247.0	88.70	90.50	7,426.8	-867.6	6,693.5	6,745.0	1.97	0.53	-1.89	
14,342.0	89.30	90.20	7,428.5	-868.2	6,788.5	6,839.6	0.71	0.63	-0.32	
14,438.0	91.00	90.70	7,428.2	-868.9	6,884.5	6,935.3	1.85	1.77	0.52	
14,534.0	90.90	90.30	7,426.7	-869.7	6,980.5	7,030.9	0.43	-0.10	-0.42	
14,629.0	91.20	90.50	7,424.9	-870.4	7,075.5	7,125.6	0.38	0.32	0.21	
14,725.0	88.70	91.90	7,425.0	-872.4	7,171.5	7,221.3	2.98	-2.60	1.46	
14,821.0	88.20	91.20	7,427.6	-875.0	7,267.4	7,317.1	0.90	-0.52	-0.73	
14,917.0	89.40	89.30	7,429.6	-875.4	7,363.4	7,412.7	2.34	1.25	-1.98	
14,939.8	89.74	90.07	7,429.8	-875.3	7,386.2	7,435.4	3.68	1.47	3.37	
WP6										
15,012.0	90.80	92.50	7,429.4	-876.9	7,458.3	7,507.4	3.68	1.47	3.37	
15,108.0	90.80	92.60	7,428.1	-881.2	7,554.2	7,603.3	0.10	0.00	0.10	
15,204.0	88.60	92.30	7,428.6	-885.3	7,650.1	7,699.2	2.31	-2.29	-0.31	
15,300.0	87.10	91.20	7,432.2	-888.2	7,746.0	7,794.9	1.94	-1.56	-1.15	
15,395.0	88.20	89.50	7,436.1	-888.8	7,840.9	7,889.5	2.13	1.16	-1.79	

<b>Company:</b>	Extraction Oil & Gas	<b>Local Co-ordinate Reference:</b>	Well Thornton 11
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<b>Site:</b>	Thornton 8-P Pad Sec.8-T7N-R66W	<b>MD Reference:</b>	WELL @ 5062.0ft (RKB - 24')
<b>Well:</b>	Thornton 11	<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>	Landmark

## 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)
15,491.0	91.10	91.00	7,436.7	-889.2	7,936.9	7,985.1	3.40	3.02	1.56
15,586.0	89.10	90.30	7,436.5	-890.3	8,031.9	8,079.8	2.23	-2.11	-0.74
15,681.0	89.00	88.20	7,438.1	-889.1	8,126.9	8,174.2	2.21	-0.11	-2.21
15,777.0	88.20	87.40	7,440.4	-885.4	8,222.8	8,269.4	1.18	-0.83	-0.83
15,873.0	90.80	88.10	7,441.3	-881.6	8,318.7	8,364.5	2.80	2.71	0.73
15,940.7	91.50	88.45	7,439.9	-879.6	8,386.3	8,431.7	1.16	1.04	0.52
<b>WP7</b>									
15,969.0	91.80	88.60	7,439.1	-878.8	8,414.6	8,459.8	1.16	1.04	0.52
16,065.0	88.90	89.10	7,438.5	-876.9	8,510.6	8,555.2	3.07	-3.02	0.52
16,160.0	90.60	91.00	7,438.9	-877.0	8,605.6	8,649.8	2.68	1.79	2.00
16,257.0	89.30	93.20	7,439.0	-880.6	8,702.5	8,746.6	2.63	-1.34	2.27
16,352.0	90.80	93.50	7,438.9	-886.1	8,797.3	8,841.6	1.61	1.58	0.32
16,448.0	89.80	91.00	7,438.4	-889.9	8,893.3	8,937.4	2.80	-1.04	-2.60
16,544.0	88.40	90.70	7,439.9	-891.3	8,989.2	9,033.1	1.49	-1.46	-0.31
16,639.0	88.70	90.70	7,442.3	-892.5	9,084.2	9,127.8	0.32	0.32	0.00
16,735.0	88.50	90.00	7,444.7	-893.0	9,180.2	9,223.4	0.76	-0.21	-0.73
16,831.0	87.80	90.70	7,447.8	-893.6	9,276.1	9,319.0	1.03	-0.73	0.73
16,927.0	87.40	90.00	7,451.8	-894.2	9,372.0	9,414.5	0.84	-0.42	-0.73
17,022.0	86.60	90.20	7,456.8	-894.4	9,466.9	9,509.0	0.87	-0.84	0.21
17,118.0	85.50	90.20	7,463.4	-894.7	9,562.7	9,604.4	1.15	-1.15	0.00
17,224.0	84.20	89.60	7,472.9	-894.5	9,668.2	9,709.5	1.35	-1.23	-0.57
17,279.0	84.20	89.60	7,478.5	-894.2	9,722.9	9,764.0	0.00	0.00	0.00
<b>BHL 165°FSL &amp; 460°FEL, Sec.9</b>									

Checked By: _____	Approved By: _____	Date: _____
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