



Company: Extraction Oil & Gas
Field: Weld Co., Co
Location: Sec.08-T07N-R66W
Well: Thornton 12
Borehole: Original Hole
Rig: Xtreme 7
Plan: Rev 0



SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	Vsect
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00
3	1149.61	10.99	208.10	1146.24	-46.37	-24.75	2.00	208.10	-20.08
4	6335.65	10.99	208.10	6237.14	-918.67	-490.48	0.00	0.00	-397.91
5	6885.26	0.00	0.00	6783.38	-965.04	-515.23	2.00	180.00	-417.99
6	6985.26	0.00	0.00	6883.38	-965.04	-515.23	0.00	0.00	-417.99
7	7985.26	90.00	90.00	7520.00	-965.04	121.39	9.00	90.00	215.56
8	17645.23	90.00	90.00	7520.00	-965.04	9781.37	0.00	0.00	9828.86

WELL DETAILS: Thornton 12

+N/-S	+E/-W	GL 5039.00	KB @ 5055.00usft (Xtreme 7 - 16')	Latitude	Longitude
0.00	0.00	1456822.92	3191541.24	40° 35' 7.199 N	104° 48' 37.343 W

WELLBORE TARGET DETAILS

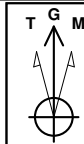
Name	TVD	+N/-S	+E/-W	Shape Point
KOP 12	6783.38	-965.04	-515.23	Point
LP 12	7520.00	-965.04	121.39	Point
PBHL Thornton 12	7520.00	-965.04	9781.37	Point

ANNOTATIONS

TVD	MD	Annotation
600.00	600.00	Begin Nudge
1146.24	1149.61	Hold Tangent
6237.14	6335.65	Begin Drop
6783.38	6885.26	Vertical Point
6883.38	6985.26	KOP, Build 9°/100' DLS
7520.00	7985.26	LP, Hold to TD
7520.00	17645.23	PBHL/TD

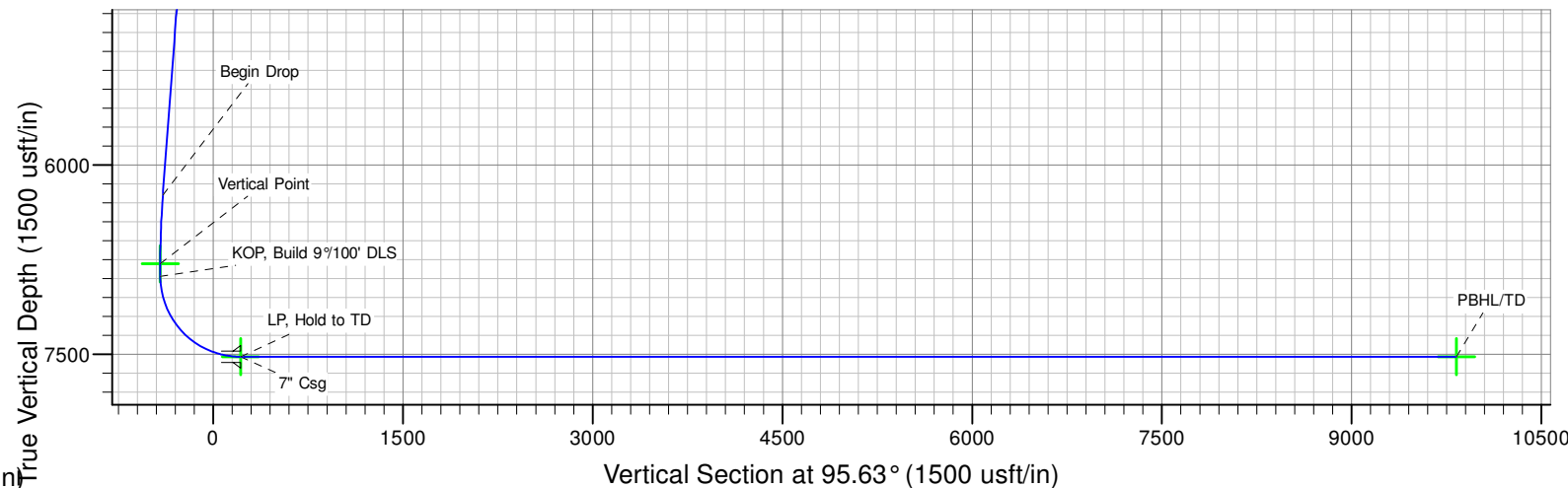
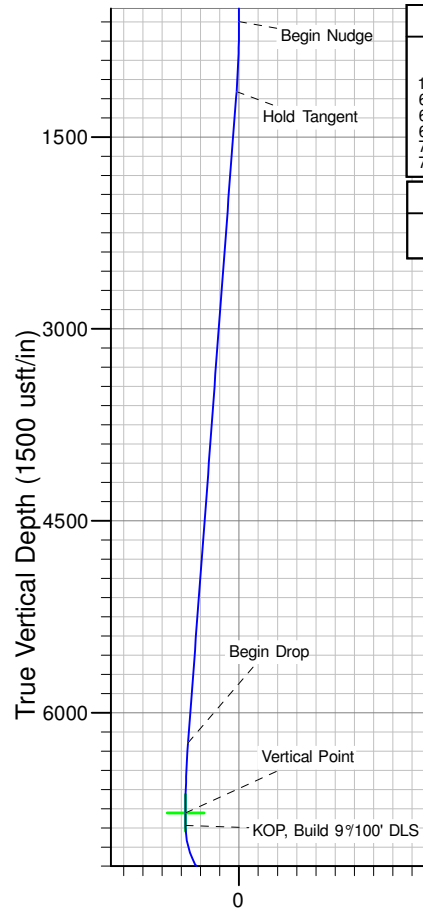
CASING DETAILS

TVD	MD	Name	Size
7520.00	7985.26	7" Csg	7



Azimuths to Grid North
True North: -0.45°
Magnetic North: 8.05°

Magnetic Field
Strength: 52903.9nT
Dip Angle: 67.09°
Date: 6/20/2014
Model: IGRF2010

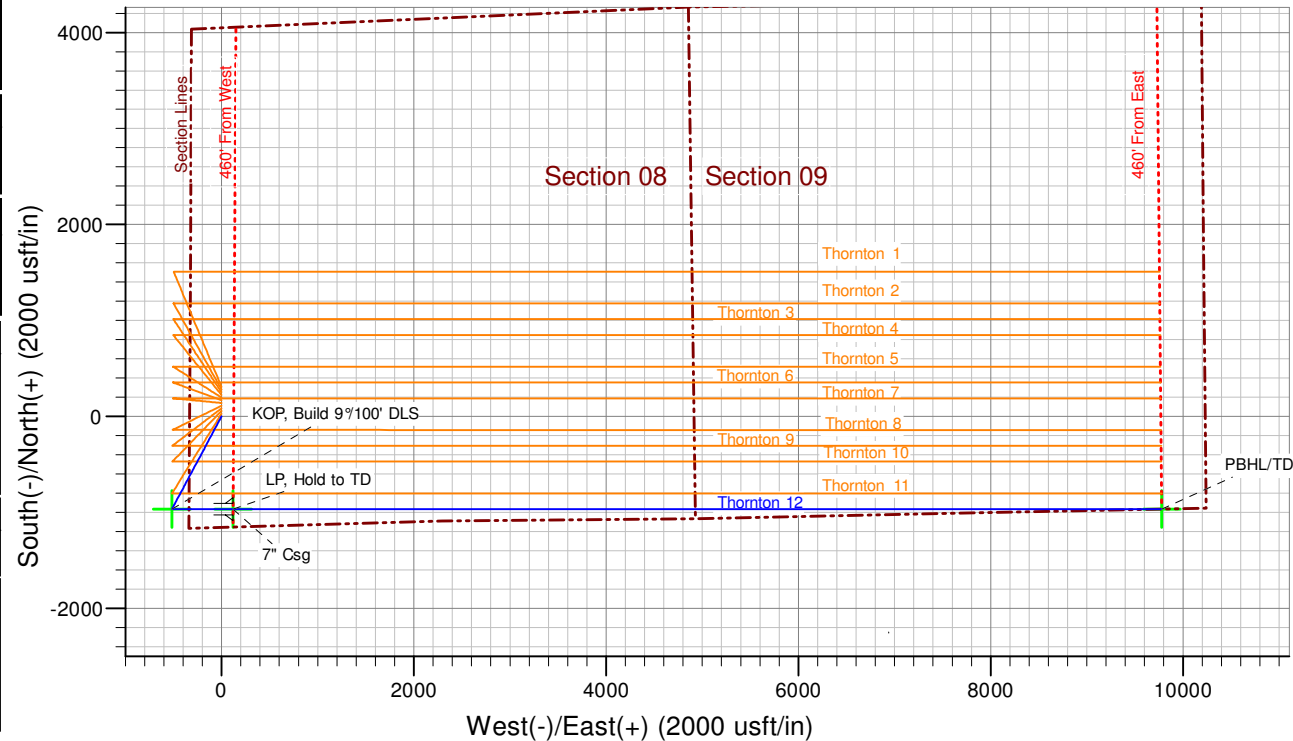


SHL: 1157' FSL & 332' FWL
(Sec.08-T07N-R66W)
PBHL: 0' FSL & 460' FEL
(Sec.09-T07N-R66W)

Notice:
Section Lines and Hardlines
are estimates only and are
subject to customer approval

Thornton 12 Rev 0

Created By: J Rieke Date: 13:26, June 21 2014





Extraction Oil & Gas

**Weld Co., Co
Sec.08-T07N-R66W
Thornton 12**

Original Hole

Plan: Rev 0

Standard Planning Report

21 June, 2014



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
Company:	Extraction Oil & Gas	TVD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Project:	Weld Co., Co	MD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Project	Weld Co., Co		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

Site	Sec.08-T07N-R66W			
Site Position:		Northing:	1,457,130.79 usft	Latitude: 40° 35' 10.241 N
From:	Lat/Long	Easting:	3,191,541.35 usft	Longitude: 104° 48' 37.310 W
Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence: 0.45 °

Well	Thornton 12			
Well Position	+N/-S	-307.86 usft	Northing:	1,456,822.92 usft
	+E/-W	-0.11 usft	Easting:	3,191,541.24 usft
Position Uncertainty	0.00 usft		Wellhead Elevation:	5,055.00 usft
			Ground Level:	5,039.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	6/20/2014	8.50	67.09	52,904

Design	Rev 0			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	95.63

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,149.61	10.99	208.10	1,146.24	-46.37	-24.75	2.00	2.00	0.00	208.10	
6,335.65	10.99	208.10	6,237.14	-918.67	-490.48	0.00	0.00	0.00	0.00	
6,885.26	0.00	0.00	6,783.38	-965.04	-515.23	2.00	-2.00	0.00	180.00	KOP 12
6,985.26	0.00	0.00	6,883.38	-965.04	-515.23	0.00	0.00	0.00	0.00	
7,985.26	90.00	90.00	7,520.00	-965.04	121.39	9.00	9.00	0.00	90.00	LP 12
17,645.24	90.00	90.00	7,520.00	-965.04	9,781.37	0.00	0.00	0.00	0.00	PBHL Thornton 12



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
Company:	Extraction Oil & Gas	TVD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Project:	Weld Co., Co	MD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned 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
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	0.00	0.00	600.00	0.00	0.00	0.00	0.00	0.00	0.00
Begin Nudge									
700.00	2.00	208.10	699.98	-1.54	-0.82	-0.67	2.00	2.00	0.00
800.00	4.00	208.10	799.84	-6.16	-3.29	-2.67	2.00	2.00	0.00
900.00	6.00	208.10	899.45	-13.84	-7.39	-6.00	2.00	2.00	0.00
1,000.00	8.00	208.10	998.70	-24.59	-13.13	-10.65	2.00	2.00	0.00
1,100.00	10.00	208.10	1,097.47	-38.39	-20.50	-16.63	2.00	2.00	0.00
1,149.61	10.99	208.10	1,146.24	-46.37	-24.75	-20.08	2.00	2.00	0.00
Hold Tangent									
1,200.00	10.99	208.10	1,195.71	-54.84	-29.28	-23.75	0.00	0.00	0.00
1,300.00	10.99	208.10	1,293.88	-71.66	-38.26	-31.04	0.00	0.00	0.00
1,400.00	10.99	208.10	1,392.04	-88.48	-47.24	-38.32	0.00	0.00	0.00
1,500.00	10.99	208.10	1,490.21	-105.30	-56.22	-45.61	0.00	0.00	0.00
1,600.00	10.99	208.10	1,588.37	-122.12	-65.20	-52.90	0.00	0.00	0.00
1,700.00	10.99	208.10	1,686.54	-138.94	-74.18	-60.18	0.00	0.00	0.00
1,800.00	10.99	208.10	1,784.70	-155.76	-83.16	-67.47	0.00	0.00	0.00
1,900.00	10.99	208.10	1,882.87	-172.58	-92.14	-74.75	0.00	0.00	0.00
2,000.00	10.99	208.10	1,981.03	-189.40	-101.12	-82.04	0.00	0.00	0.00
2,100.00	10.99	208.10	2,079.20	-206.22	-110.10	-89.32	0.00	0.00	0.00
2,200.00	10.99	208.10	2,177.36	-223.04	-119.08	-96.61	0.00	0.00	0.00
2,300.00	10.99	208.10	2,275.53	-239.86	-128.06	-103.89	0.00	0.00	0.00
2,400.00	10.99	208.10	2,373.69	-256.69	-137.04	-111.18	0.00	0.00	0.00
2,500.00	10.99	208.10	2,471.86	-273.51	-146.02	-118.46	0.00	0.00	0.00
2,600.00	10.99	208.10	2,570.02	-290.33	-155.00	-125.75	0.00	0.00	0.00
2,700.00	10.99	208.10	2,668.19	-307.15	-163.98	-133.03	0.00	0.00	0.00
2,800.00	10.99	208.10	2,766.36	-323.97	-172.96	-140.32	0.00	0.00	0.00
2,900.00	10.99	208.10	2,864.52	-340.79	-181.94	-147.61	0.00	0.00	0.00
3,000.00	10.99	208.10	2,962.69	-357.61	-190.92	-154.89	0.00	0.00	0.00
3,100.00	10.99	208.10	3,060.85	-374.43	-199.91	-162.18	0.00	0.00	0.00
3,200.00	10.99	208.10	3,159.02	-391.25	-208.89	-169.46	0.00	0.00	0.00
3,300.00	10.99	208.10	3,257.18	-408.07	-217.87	-176.75	0.00	0.00	0.00
3,400.00	10.99	208.10	3,355.35	-424.89	-226.85	-184.03	0.00	0.00	0.00
3,500.00	10.99	208.10	3,453.51	-441.71	-235.83	-191.32	0.00	0.00	0.00
3,600.00	10.99	208.10	3,551.68	-458.53	-244.81	-198.60	0.00	0.00	0.00
3,700.00	10.99	208.10	3,649.84	-475.35	-253.79	-205.89	0.00	0.00	0.00
3,800.00	10.99	208.10	3,748.01	-492.17	-262.77	-213.17	0.00	0.00	0.00
3,900.00	10.99	208.10	3,846.17	-508.99	-271.75	-220.46	0.00	0.00	0.00
3,965.02	10.99	208.10	3,910.00	-519.93	-277.59	-225.20	0.00	0.00	0.00
Parkman									
4,000.00	10.99	208.10	3,944.34	-525.81	-280.73	-227.74	0.00	0.00	0.00
4,100.00	10.99	208.10	4,042.50	-542.63	-289.71	-235.03	0.00	0.00	0.00
4,200.00	10.99	208.10	4,140.67	-559.45	-298.69	-242.32	0.00	0.00	0.00
4,300.00	10.99	208.10	4,238.84	-576.27	-307.67	-249.60	0.00	0.00	0.00
4,400.00	10.99	208.10	4,337.00	-593.09	-316.65	-256.89	0.00	0.00	0.00
4,500.00	10.99	208.10	4,435.17	-609.91	-325.63	-264.17	0.00	0.00	0.00
4,600.00	10.99	208.10	4,533.33	-626.73	-334.61	-271.46	0.00	0.00	0.00
4,700.00	10.99	208.10	4,631.50	-643.55	-343.59	-278.74	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
Company:	Extraction Oil & Gas	TVD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Project:	Weld Co., Co	MD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned 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)
4,711.72	10.99	208.10	4,643.00	-645.52	-344.64	-279.60	0.00	0.00	0.00
Sussex									
4,800.00	10.99	208.10	4,729.66	-660.37	-352.57	-286.03	0.00	0.00	0.00
4,900.00	10.99	208.10	4,827.83	-677.19	-361.55	-293.31	0.00	0.00	0.00
5,000.00	10.99	208.10	4,925.99	-694.01	-370.53	-300.60	0.00	0.00	0.00
5,100.00	10.99	208.10	5,024.16	-710.83	-379.51	-307.88	0.00	0.00	0.00
5,141.61	10.99	208.10	5,065.00	-717.83	-383.25	-310.92	0.00	0.00	0.00
Shannon									
5,200.00	10.99	208.10	5,122.32	-727.65	-388.49	-315.17	0.00	0.00	0.00
5,300.00	10.99	208.10	5,220.49	-744.48	-397.47	-322.46	0.00	0.00	0.00
5,400.00	10.99	208.10	5,318.65	-761.30	-406.45	-329.74	0.00	0.00	0.00
5,500.00	10.99	208.10	5,416.82	-778.12	-415.43	-337.03	0.00	0.00	0.00
5,600.00	10.99	208.10	5,514.98	-794.94	-424.41	-344.31	0.00	0.00	0.00
5,700.00	10.99	208.10	5,613.15	-811.76	-433.39	-351.60	0.00	0.00	0.00
5,800.00	10.99	208.10	5,711.32	-828.58	-442.37	-358.88	0.00	0.00	0.00
5,900.00	10.99	208.10	5,809.48	-845.40	-451.35	-366.17	0.00	0.00	0.00
6,000.00	10.99	208.10	5,907.65	-862.22	-460.33	-373.45	0.00	0.00	0.00
6,100.00	10.99	208.10	6,005.81	-879.04	-469.31	-380.74	0.00	0.00	0.00
6,200.00	10.99	208.10	6,103.98	-895.86	-478.29	-388.02	0.00	0.00	0.00
6,300.00	10.99	208.10	6,202.14	-912.68	-487.27	-395.31	0.00	0.00	0.00
6,335.65	10.99	208.10	6,237.14	-918.67	-490.48	-397.91	0.00	0.00	0.00
Begin Drop									
6,400.00	9.71	208.10	6,300.44	-928.87	-495.92	-402.32	2.00	-2.00	0.00
6,500.00	7.71	208.10	6,399.28	-942.22	-503.05	-408.11	2.00	-2.00	0.00
6,600.00	5.71	208.10	6,498.59	-952.52	-508.55	-412.57	2.00	-2.00	0.00
6,700.00	3.71	208.10	6,598.25	-959.76	-512.41	-415.70	2.00	-2.00	0.00
6,800.00	1.71	208.10	6,698.13	-963.92	-514.63	-417.50	2.00	-2.00	0.00
6,885.26	0.00	0.00	6,783.38	-965.04	-515.23	-417.99	2.00	-2.00	0.00
Vertical Point									
6,900.00	0.00	0.00	6,798.12	-965.04	-515.23	-417.99	0.00	0.00	0.00
6,985.26	0.00	0.00	6,883.38	-965.04	-515.23	-417.99	0.00	0.00	0.00
KOP, Build 9°/100' DLS									
7,000.00	1.33	90.00	6,898.12	-965.04	-515.06	-417.82	9.00	9.00	0.00
7,100.00	10.33	90.00	6,997.50	-965.04	-504.92	-407.73	9.00	9.00	0.00
7,200.00	19.33	90.00	7,094.07	-965.04	-479.35	-382.29	9.00	9.00	0.00
7,300.00	28.33	90.00	7,185.46	-965.04	-439.00	-342.13	9.00	9.00	0.00
7,305.17	28.79	90.00	7,190.00	-965.04	-436.53	-339.66	9.00	9.00	0.00
Niobrara									
7,400.00	37.33	90.00	7,269.40	-965.04	-384.84	-288.23	9.00	9.00	0.00
7,500.00	46.33	90.00	7,343.84	-965.04	-318.22	-221.93	9.00	9.00	0.00
7,600.00	55.33	90.00	7,406.94	-965.04	-240.78	-144.86	9.00	9.00	0.00
7,700.00	64.33	90.00	7,457.15	-965.04	-154.42	-58.92	9.00	9.00	0.00
7,758.38	69.58	90.00	7,480.00	-965.04	-100.71	-5.47	9.00	9.00	0.00
Fort Hays									
7,800.00	73.33	90.00	7,493.23	-965.04	-61.26	33.78	9.00	9.00	0.00
7,900.00	82.33	90.00	7,514.30	-965.04	36.39	130.96	9.00	9.00	0.00
7,985.26	90.00	90.00	7,520.00	-965.04	121.39	215.56	9.00	9.00	0.00
LP, Hold to TD - Codell - 7" Csg									
8,000.00	90.00	90.00	7,520.00	-965.04	136.13	230.23	0.00	0.00	0.00
8,100.00	90.00	90.00	7,520.00	-965.04	236.13	329.74	0.00	0.00	0.00
8,200.00	90.00	90.00	7,520.00	-965.04	336.13	429.26	0.00	0.00	0.00
8,300.00	90.00	90.00	7,520.00	-965.04	436.13	528.78	0.00	0.00	0.00
8,400.00	90.00	90.00	7,520.00	-965.04	536.13	628.29	0.00	0.00	0.00



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
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Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned 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)	
8,500.00	90.00	90.00	7,520.00	-965.04	636.13	727.81	0.00	0.00	0.00	
8,600.00	90.00	90.00	7,520.00	-965.04	736.13	827.33	0.00	0.00	0.00	
8,700.00	90.00	90.00	7,520.00	-965.04	836.13	926.84	0.00	0.00	0.00	
8,800.00	90.00	90.00	7,520.00	-965.04	936.13	1,026.36	0.00	0.00	0.00	
8,900.00	90.00	90.00	7,520.00	-965.04	1,036.13	1,125.88	0.00	0.00	0.00	
9,000.00	90.00	90.00	7,520.00	-965.04	1,136.13	1,225.39	0.00	0.00	0.00	
9,100.00	90.00	90.00	7,520.00	-965.04	1,236.13	1,324.91	0.00	0.00	0.00	
9,200.00	90.00	90.00	7,520.00	-965.04	1,336.13	1,424.43	0.00	0.00	0.00	
9,300.00	90.00	90.00	7,520.00	-965.04	1,436.13	1,523.95	0.00	0.00	0.00	
9,400.00	90.00	90.00	7,520.00	-965.04	1,536.13	1,623.46	0.00	0.00	0.00	
9,500.00	90.00	90.00	7,520.00	-965.04	1,636.13	1,722.98	0.00	0.00	0.00	
9,600.00	90.00	90.00	7,520.00	-965.04	1,736.13	1,822.50	0.00	0.00	0.00	
9,700.00	90.00	90.00	7,520.00	-965.04	1,836.13	1,922.01	0.00	0.00	0.00	
9,800.00	90.00	90.00	7,520.00	-965.04	1,936.13	2,021.53	0.00	0.00	0.00	
9,900.00	90.00	90.00	7,520.00	-965.04	2,036.13	2,121.05	0.00	0.00	0.00	
10,000.00	90.00	90.00	7,520.00	-965.04	2,136.13	2,220.56	0.00	0.00	0.00	
10,100.00	90.00	90.00	7,520.00	-965.04	2,236.13	2,320.08	0.00	0.00	0.00	
10,200.00	90.00	90.00	7,520.00	-965.04	2,336.13	2,419.60	0.00	0.00	0.00	
10,300.00	90.00	90.00	7,520.00	-965.04	2,436.13	2,519.11	0.00	0.00	0.00	
10,400.00	90.00	90.00	7,520.00	-965.04	2,536.13	2,618.63	0.00	0.00	0.00	
10,500.00	90.00	90.00	7,520.00	-965.04	2,636.13	2,718.15	0.00	0.00	0.00	
10,600.00	90.00	90.00	7,520.00	-965.04	2,736.13	2,817.66	0.00	0.00	0.00	
10,700.00	90.00	90.00	7,520.00	-965.04	2,836.13	2,917.18	0.00	0.00	0.00	
10,800.00	90.00	90.00	7,520.00	-965.04	2,936.13	3,016.70	0.00	0.00	0.00	
10,900.00	90.00	90.00	7,520.00	-965.04	3,036.13	3,116.21	0.00	0.00	0.00	
11,000.00	90.00	90.00	7,520.00	-965.04	3,136.13	3,215.73	0.00	0.00	0.00	
11,100.00	90.00	90.00	7,520.00	-965.04	3,236.13	3,315.25	0.00	0.00	0.00	
11,200.00	90.00	90.00	7,520.00	-965.04	3,336.13	3,414.76	0.00	0.00	0.00	
11,300.00	90.00	90.00	7,520.00	-965.04	3,436.13	3,514.28	0.00	0.00	0.00	
11,400.00	90.00	90.00	7,520.00	-965.04	3,536.13	3,613.80	0.00	0.00	0.00	
11,500.00	90.00	90.00	7,520.00	-965.04	3,636.13	3,713.32	0.00	0.00	0.00	
11,600.00	90.00	90.00	7,520.00	-965.04	3,736.13	3,812.83	0.00	0.00	0.00	
11,700.00	90.00	90.00	7,520.00	-965.04	3,836.13	3,912.35	0.00	0.00	0.00	
11,800.00	90.00	90.00	7,520.00	-965.04	3,936.13	4,011.87	0.00	0.00	0.00	
11,900.00	90.00	90.00	7,520.00	-965.04	4,036.13	4,111.38	0.00	0.00	0.00	
12,000.00	90.00	90.00	7,520.00	-965.04	4,136.13	4,210.90	0.00	0.00	0.00	
12,100.00	90.00	90.00	7,520.00	-965.04	4,236.13	4,310.42	0.00	0.00	0.00	
12,200.00	90.00	90.00	7,520.00	-965.04	4,336.13	4,409.93	0.00	0.00	0.00	
12,300.00	90.00	90.00	7,520.00	-965.04	4,436.13	4,509.45	0.00	0.00	0.00	
12,400.00	90.00	90.00	7,520.00	-965.04	4,536.13	4,608.97	0.00	0.00	0.00	
12,500.00	90.00	90.00	7,520.00	-965.04	4,636.13	4,708.48	0.00	0.00	0.00	
12,600.00	90.00	90.00	7,520.00	-965.04	4,736.13	4,808.00	0.00	0.00	0.00	
12,700.00	90.00	90.00	7,520.00	-965.04	4,836.13	4,907.52	0.00	0.00	0.00	
12,800.00	90.00	90.00	7,520.00	-965.04	4,936.13	5,007.03	0.00	0.00	0.00	
12,900.00	90.00	90.00	7,520.00	-965.04	5,036.13	5,106.55	0.00	0.00	0.00	
13,000.00	90.00	90.00	7,520.00	-965.04	5,136.13	5,206.07	0.00	0.00	0.00	
13,100.00	90.00	90.00	7,520.00	-965.04	5,236.13	5,305.58	0.00	0.00	0.00	
13,200.00	90.00	90.00	7,520.00	-965.04	5,336.13	5,405.10	0.00	0.00	0.00	
13,300.00	90.00	90.00	7,520.00	-965.04	5,436.13	5,504.62	0.00	0.00	0.00	
13,400.00	90.00	90.00	7,520.00	-965.04	5,536.13	5,604.13	0.00	0.00	0.00	
13,500.00	90.00	90.00	7,520.00	-965.04	5,636.13	5,703.65	0.00	0.00	0.00	
13,600.00	90.00	90.00	7,520.00	-965.04	5,736.13	5,803.17	0.00	0.00	0.00	
13,700.00	90.00	90.00	7,520.00	-965.04	5,836.13	5,902.69	0.00	0.00	0.00	
13,800.00	90.00	90.00	7,520.00	-965.04	5,936.13	6,002.20	0.00	0.00	0.00	



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
Company:	Extraction Oil & Gas	TVD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Project:	Weld Co., Co	MD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Planned 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)
13,900.00	90.00	90.00	7,520.00	-965.04	6,036.13	6,101.72	0.00	0.00	0.00
14,000.00	90.00	90.00	7,520.00	-965.04	6,136.13	6,201.24	0.00	0.00	0.00
14,100.00	90.00	90.00	7,520.00	-965.04	6,236.13	6,300.75	0.00	0.00	0.00
14,200.00	90.00	90.00	7,520.00	-965.04	6,336.13	6,400.27	0.00	0.00	0.00
14,300.00	90.00	90.00	7,520.00	-965.04	6,436.13	6,499.79	0.00	0.00	0.00
14,400.00	90.00	90.00	7,520.00	-965.04	6,536.13	6,599.30	0.00	0.00	0.00
14,500.00	90.00	90.00	7,520.00	-965.04	6,636.13	6,698.82	0.00	0.00	0.00
14,600.00	90.00	90.00	7,520.00	-965.04	6,736.13	6,798.34	0.00	0.00	0.00
14,700.00	90.00	90.00	7,520.00	-965.04	6,836.13	6,897.85	0.00	0.00	0.00
14,800.00	90.00	90.00	7,520.00	-965.04	6,936.13	6,997.37	0.00	0.00	0.00
14,900.00	90.00	90.00	7,520.00	-965.04	7,036.13	7,096.89	0.00	0.00	0.00
15,000.00	90.00	90.00	7,520.00	-965.04	7,136.13	7,196.40	0.00	0.00	0.00
15,100.00	90.00	90.00	7,520.00	-965.04	7,236.13	7,295.92	0.00	0.00	0.00
15,200.00	90.00	90.00	7,520.00	-965.04	7,336.13	7,395.44	0.00	0.00	0.00
15,300.00	90.00	90.00	7,520.00	-965.04	7,436.13	7,494.95	0.00	0.00	0.00
15,400.00	90.00	90.00	7,520.00	-965.04	7,536.13	7,594.47	0.00	0.00	0.00
15,500.00	90.00	90.00	7,520.00	-965.04	7,636.13	7,693.99	0.00	0.00	0.00
15,600.00	90.00	90.00	7,520.00	-965.04	7,736.13	7,793.50	0.00	0.00	0.00
15,700.00	90.00	90.00	7,520.00	-965.04	7,836.13	7,893.02	0.00	0.00	0.00
15,800.00	90.00	90.00	7,520.00	-965.04	7,936.13	7,992.54	0.00	0.00	0.00
15,900.00	90.00	90.00	7,520.00	-965.04	8,036.13	8,092.06	0.00	0.00	0.00
16,000.00	90.00	90.00	7,520.00	-965.04	8,136.13	8,191.57	0.00	0.00	0.00
16,100.00	90.00	90.00	7,520.00	-965.04	8,236.13	8,291.09	0.00	0.00	0.00
16,200.00	90.00	90.00	7,520.00	-965.04	8,336.13	8,390.61	0.00	0.00	0.00
16,300.00	90.00	90.00	7,520.00	-965.04	8,436.13	8,490.12	0.00	0.00	0.00
16,400.00	90.00	90.00	7,520.00	-965.04	8,536.13	8,589.64	0.00	0.00	0.00
16,500.00	90.00	90.00	7,520.00	-965.04	8,636.13	8,689.16	0.00	0.00	0.00
16,600.00	90.00	90.00	7,520.00	-965.04	8,736.13	8,788.67	0.00	0.00	0.00
16,700.00	90.00	90.00	7,520.00	-965.04	8,836.13	8,888.19	0.00	0.00	0.00
16,800.00	90.00	90.00	7,520.00	-965.04	8,936.13	8,987.71	0.00	0.00	0.00
16,900.00	90.00	90.00	7,520.00	-965.04	9,036.13	9,087.22	0.00	0.00	0.00
17,000.00	90.00	90.00	7,520.00	-965.04	9,136.13	9,186.74	0.00	0.00	0.00
17,100.00	90.00	90.00	7,520.00	-965.04	9,236.13	9,286.26	0.00	0.00	0.00
17,200.00	90.00	90.00	7,520.00	-965.04	9,336.13	9,385.77	0.00	0.00	0.00
17,300.00	90.00	90.00	7,520.00	-965.04	9,436.13	9,485.29	0.00	0.00	0.00
17,400.00	90.00	90.00	7,520.00	-965.04	9,536.13	9,584.81	0.00	0.00	0.00
17,500.00	90.00	90.00	7,520.00	-965.04	9,636.13	9,684.32	0.00	0.00	0.00
17,600.00	90.00	90.00	7,520.00	-965.04	9,736.13	9,783.84	0.00	0.00	0.00
17,645.24	90.00	90.00	7,520.00	-965.04	9,781.37	9,828.86	0.00	0.00	0.00
PBHL/TD									



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Thornton 12
Company:	Extraction Oil & Gas	TVD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Project:	Weld Co., Co	MD Reference:	KB @ 5055.00usft (Xtreme 7 - 16')
Site:	Sec.08-T07N-R66W	North Reference:	Grid
Well:	Thornton 12	Survey Calculation Method:	Minimum Curvature
Wellbore:	Original Hole		
Design:	Rev 0		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
KOP 12	0.00	0.00	6,783.38	-965.04	-515.23	1,455,857.88	3,191,026.01	40° 34' 57.702 N	104° 48' 44.118 W
- plan hits target center									
- Point									
PBHL Thornton 12	0.00	0.00	7,520.00	-965.04	9,781.37	1,455,857.88	3,201,322.61	40° 34' 56.892 N	104° 46' 30.670 W
- plan hits target center									
- Point									
LP 12	0.00	0.00	7,520.00	-965.04	121.39	1,455,857.88	3,191,662.64	40° 34' 57.653 N	104° 48' 35.867 W
- plan hits target center									
- Point									

Casing Points				
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")
7,985.26	7,520.00	7" Csg	7	7-1/2

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
3,965.02	3,910.00	Parkman		0.00	
4,711.72	4,643.00	Sussex		0.00	
5,141.61	5,065.00	Shannon		0.00	
7,305.17	7,190.00	Niobrara		0.00	
7,758.38	7,480.00	Fort Hays		0.00	
7,985.26	7,520.00	Codell		0.00	

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
600.00	600.00	0.00	0.00	Begin Nudge
1,149.61	1,146.24	-46.37	-24.75	Hold Tangent
6,335.65	6,237.14	-918.67	-490.48	Begin Drop
6,885.26	6,783.38	-965.04	-515.23	Vertical Point
6,985.26	6,883.38	-965.04	-515.23	KOP, Build 9°/100' DLS
7,985.26	7,520.00	-965.04	121.39	LP, Hold to TD
17,645.24	7,520.00	-965.04	9,781.37	PBHL/TD