



Company: Whiting Oil & Gas  
Field: Weld Co., CO  
Location: Sec.30-T10N-R57W  
Well: Horsetail 30F-3107  
Borehole: Original Hole  
Rig: Xtreme 18  
Plan: Rev 0

**PATHFINDER**  
A Schlumberger Company

#### SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	Begin Nudge
3	900.00	4.00	166.40	899.84	-6.78	1.64	2.00	166.40	6.83	Hold Tangent
4	5039.71	4.00	166.40	5029.46	-287.46	69.54	0.00	0.00	289.53	KOP, Build 11°/100' DLS
5	5821.53	90.00	166.40	5514.00	-792.49	191.72	11.00	0.00	798.20	LP, Begin Turn
6	6275.01	90.00	180.00	5514.00	-1241.72	245.27	3.00	90.00	1248.92	EOT, Hold to TD
7	12700.40	90.00	180.00	5514.00	-7667.11	244.79	0.00	0.00	7671.02	PBHL/TD

#### WELL DETAILS: Horsetail 30F-3107

+N/-S	+E/-W	GL 4780.00	KB @ 4797.00usft (Xtreme 18 17' KB)	Longitude
0.00	0.00	Northing 1542660.21	Easting 3471669.90	40° 48' 37.958 N 103° 47' 45.712 W

#### WELLBORE TARGET DETAILS

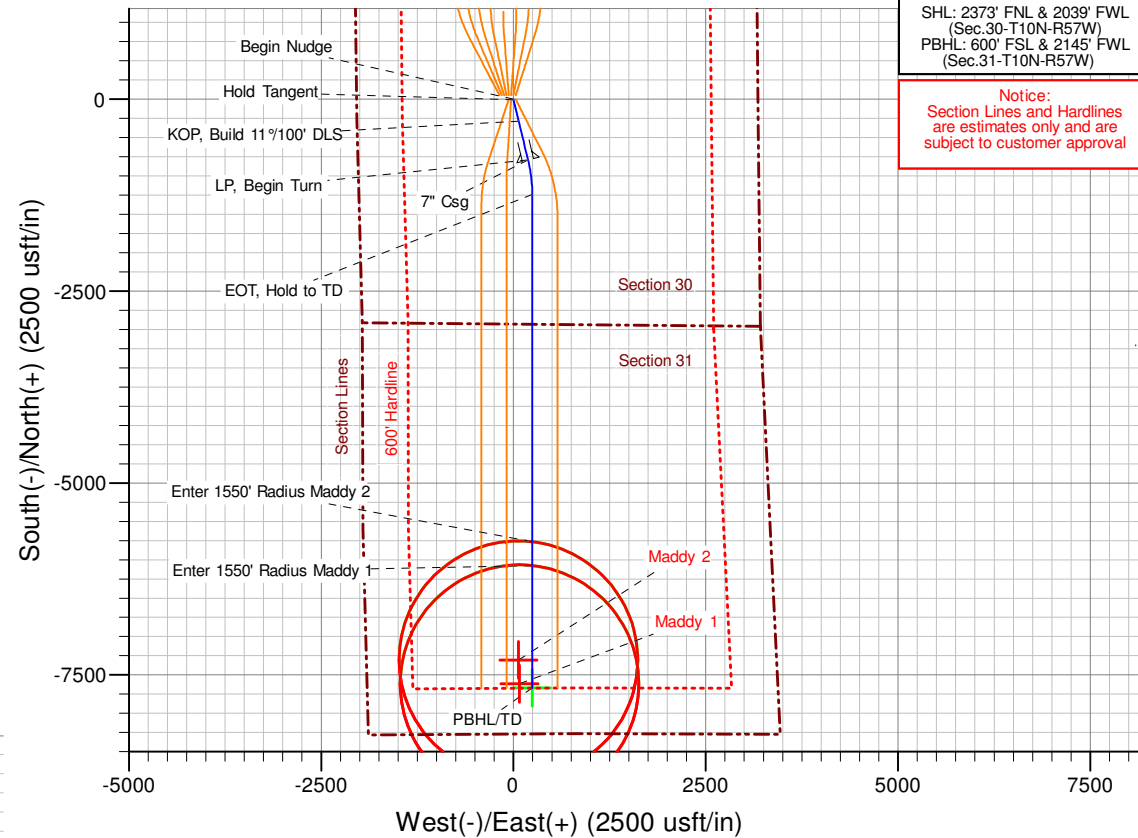
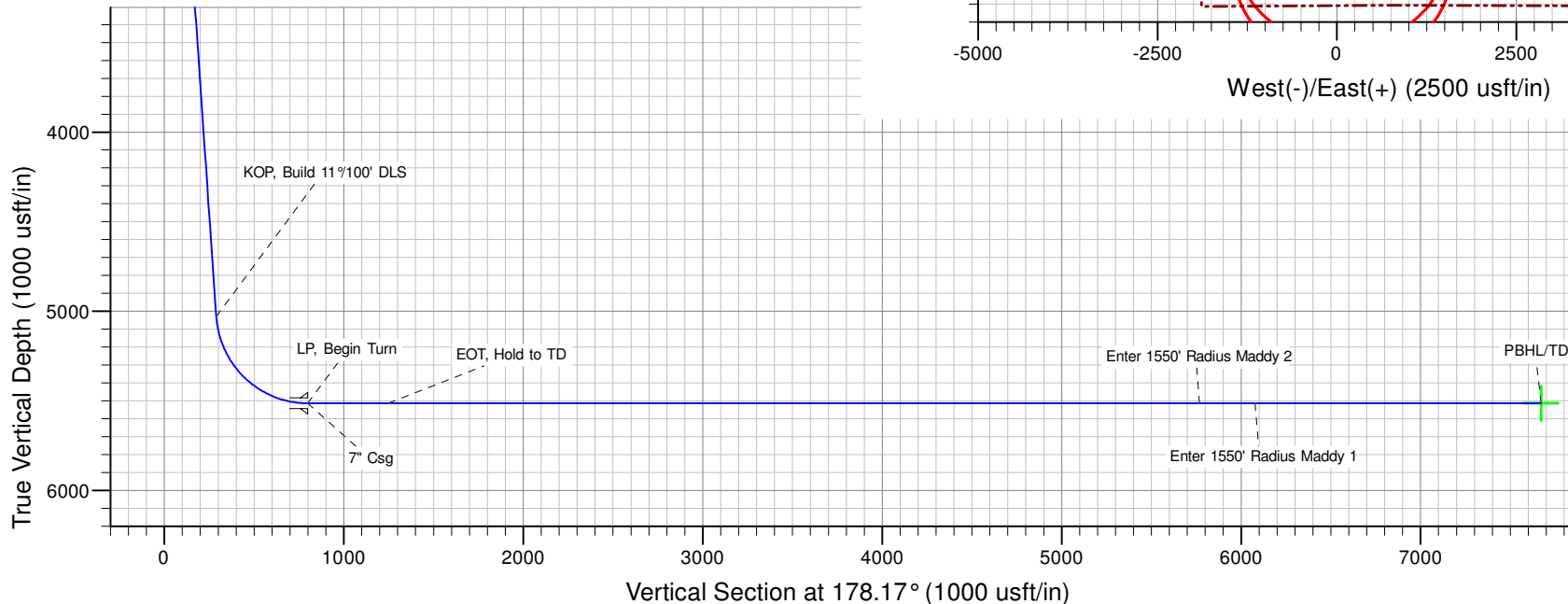
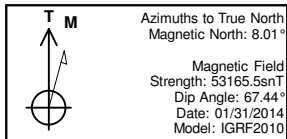
Name	TVD	+N/-S	+E/-W	Shape
PBHL Horsetail 30F-3107	5514.00	-7667.11	244.79	Point
Maddy #1	6300.00	-7614.29	79.47	Circle (Radius: 1550.00)
Maddy #2	6500.00	-7302.78	65.90	Circle (Radius: 1550.00)

#### CASING DETAILS

TVD	MD	Name	Size
5514.00	5821.53	7" Csg	7

#### FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1498.00	1499.62	Pierre
1550.00	1551.75	Surface Casing
5469.00	5603.42	Niobrara
5514.00	5821.25	Target TVD



SHL: 2373' FNL & 2039' FWL  
(Sec.30-T10N-R57W)  
PBHL: 600' FSL & 2145' FWL  
(Sec.31-T10N-R57W)

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

7" Casing:  
2131' FSL 2230' FWL  
271' From Horsetail 30F-3106  
213' From Horsetail 30F-3108

Enter Maddy 2  
1550' Radius @ 10,796' MD  
Enter Maddy 1  
1550' Radius @ 11,106' MD



# **Whiting Oil & Gas**

**Weld Co., CO  
Sec.30-T10N-R57W  
Horsetail 30F-3107**

**Original Hole**

**Plan: Rev 0**

## **Standard Planning Report**

**04 February, 2014**



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Horsetail 30F-3107
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Site:</b>	Sec.30-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 30F-3107	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	Rev 0		

<b>Project</b>	Weld Co., CO		
<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		Sec.30-T10N-R57W			
Site Position: From:		Northing:	1,542,707.40 usft	Latitude:	40° 48' 38.459 N
	Lat/Long	Easting:	3,471,489.02 usft	Longitude:	103° 47' 48.052 W
	Position Uncertainty:	0.00 usft	Slot Radius:	13-3/16 "	Grid Convergence:

Well	Horsetail 30F-3107					
Well Position	+N/-S	-50.65 usft	Northing:	1,542,660.22 usft	Latitude:	40° 48' 37.958 N
	+E/-W	179.94 usft	Easting:	3,471,669.90 usft	Longitude:	103° 47' 45.712 W
Position Uncertainty		0.00 usft	Wellhead Elevation:	4,797.00 usft	Ground Level:	4,780.00 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	01/31/14	8.01	67.44	53,166

<b>Design</b>	Rev 0				
<b>Audit Notes:</b>					
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<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	178.17	

<b>Plan Sections</b>										
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	
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00	
900.00	4.00	166.40	899.84	-6.78	1.64	2.00	2.00	0.00	166.40	
5,039.71	4.00	166.40	5,029.46	-287.46	69.54	0.00	0.00	0.00	0.00	
5,821.53	90.00	166.40	5,514.00	-792.49	191.72	11.00	11.00	0.00	0.00	
6,275.01	90.00	180.00	5,514.00	-1,241.72	245.27	3.00	0.00	3.00	90.00	
12,700.40	90.00	180.00	5,514.00	-7,667.11	244.79	0.00	0.00	0.00	0.00	PBHL Horsetail 30F-3



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Horsetail 30F-3107
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<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Site:</b>	Sec.30-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 30F-3107	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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
700.00	0.00	0.00	700.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Begin Nudge</b>									
800.00	2.00	166.40	799.98	-1.70	0.41	1.71	2.00	2.00	0.00
900.00	4.00	166.40	899.84	-6.78	1.64	6.83	2.00	2.00	0.00
<b>Hold Tangent</b>									
1,000.00	4.00	166.40	999.59	-13.56	3.28	13.66	0.00	0.00	0.00
1,100.00	4.00	166.40	1,099.35	-20.34	4.92	20.49	0.00	0.00	0.00
1,200.00	4.00	166.40	1,199.11	-27.12	6.56	27.32	0.00	0.00	0.00
1,300.00	4.00	166.40	1,298.86	-33.90	8.20	34.15	0.00	0.00	0.00
1,400.00	4.00	166.40	1,398.62	-40.68	9.84	40.98	0.00	0.00	0.00
1,499.62	4.00	166.40	1,498.00	-47.44	11.48	47.78	0.00	0.00	0.00
<b>Pierre</b>									
1,500.00	4.00	166.40	1,498.38	-47.46	11.48	47.81	0.00	0.00	0.00
1,551.75	4.00	166.40	1,550.00	-50.97	12.33	51.34	0.00	0.00	0.00
<b>Surface Casing</b>									
1,600.00	4.00	166.40	1,598.13	-54.24	13.12	54.63	0.00	0.00	0.00
1,700.00	4.00	166.40	1,697.89	-61.02	14.76	61.46	0.00	0.00	0.00
1,800.00	4.00	166.40	1,797.65	-67.80	16.40	68.29	0.00	0.00	0.00
1,900.00	4.00	166.40	1,897.40	-74.58	18.04	75.12	0.00	0.00	0.00
2,000.00	4.00	166.40	1,997.16	-81.36	19.68	81.95	0.00	0.00	0.00
2,100.00	4.00	166.40	2,096.91	-88.14	21.32	88.78	0.00	0.00	0.00
2,200.00	4.00	166.40	2,196.67	-94.92	22.96	95.61	0.00	0.00	0.00
2,300.00	4.00	166.40	2,296.43	-101.70	24.60	102.44	0.00	0.00	0.00
2,400.00	4.00	166.40	2,396.18	-108.48	26.24	109.27	0.00	0.00	0.00
2,500.00	4.00	166.40	2,495.94	-115.26	27.89	116.09	0.00	0.00	0.00
2,600.00	4.00	166.40	2,595.70	-122.04	29.53	122.92	0.00	0.00	0.00
2,700.00	4.00	166.40	2,695.45	-128.82	31.17	129.75	0.00	0.00	0.00
2,800.00	4.00	166.40	2,795.21	-135.60	32.81	136.58	0.00	0.00	0.00
2,900.00	4.00	166.40	2,894.97	-142.38	34.45	143.41	0.00	0.00	0.00
3,000.00	4.00	166.40	2,994.72	-149.16	36.09	150.24	0.00	0.00	0.00
3,100.00	4.00	166.40	3,094.48	-155.94	37.73	157.07	0.00	0.00	0.00
3,200.00	4.00	166.40	3,194.23	-162.72	39.37	163.90	0.00	0.00	0.00
3,300.00	4.00	166.40	3,293.99	-169.50	41.01	170.73	0.00	0.00	0.00
3,400.00	4.00	166.40	3,393.75	-176.28	42.65	177.56	0.00	0.00	0.00
3,500.00	4.00	166.40	3,493.50	-183.06	44.29	184.38	0.00	0.00	0.00
3,600.00	4.00	166.40	3,593.26	-189.84	45.93	191.21	0.00	0.00	0.00
3,700.00	4.00	166.40	3,693.02	-196.62	47.57	198.04	0.00	0.00	0.00
3,800.00	4.00	166.40	3,792.77	-203.40	49.21	204.87	0.00	0.00	0.00
3,900.00	4.00	166.40	3,892.53	-210.18	50.85	211.70	0.00	0.00	0.00
4,000.00	4.00	166.40	3,992.29	-216.96	52.49	218.53	0.00	0.00	0.00
4,100.00	4.00	166.40	4,092.04	-223.74	54.13	225.36	0.00	0.00	0.00
4,200.00	4.00	166.40	4,191.80	-230.52	55.77	232.19	0.00	0.00	0.00
4,300.00	4.00	166.40	4,291.56	-237.30	57.41	239.02	0.00	0.00	0.00
4,400.00	4.00	166.40	4,391.31	-244.08	59.05	245.84	0.00	0.00	0.00
4,500.00	4.00	166.40	4,491.07	-250.86	60.69	252.67	0.00	0.00	0.00
4,600.00	4.00	166.40	4,590.82	-257.64	62.33	259.50	0.00	0.00	0.00
4,700.00	4.00	166.40	4,690.58	-264.42	63.97	266.33	0.00	0.00	0.00



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<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Site:</b>	Sec.30-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 30F-3107	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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)
4,800.00	4.00	166.40	4,790.34	-271.21	65.61	273.16	0.00	0.00	0.00
4,900.00	4.00	166.40	4,890.09	-277.99	67.25	279.99	0.00	0.00	0.00
5,000.00	4.00	166.40	4,989.85	-284.77	68.89	286.82	0.00	0.00	0.00
5,039.71	4.00	166.40	5,029.46	-287.46	69.54	289.53	0.00	0.00	0.00
<b>KOP, Build 11°/100' DLS</b>									
5,100.00	10.63	166.40	5,089.23	-294.92	71.35	297.04	11.00	11.00	0.00
5,200.00	21.63	166.40	5,185.14	-321.88	77.87	324.20	11.00	11.00	0.00
5,300.00	32.63	166.40	5,274.00	-366.14	88.58	368.78	11.00	11.00	0.00
5,400.00	43.63	166.40	5,352.54	-426.06	103.08	429.13	11.00	11.00	0.00
5,500.00	54.63	166.40	5,417.87	-499.45	120.83	503.05	11.00	11.00	0.00
5,600.00	65.63	166.40	5,467.60	-583.61	141.19	587.81	11.00	11.00	0.00
5,603.42	66.01	166.40	5,469.00	-586.64	141.92	590.87	11.00	11.00	0.00
<b>Niobrara</b>									
5,700.00	76.63	166.40	5,499.89	-675.44	163.41	680.31	11.00	11.00	0.00
5,800.00	87.63	166.40	5,513.56	-771.57	186.66	777.14	11.00	11.00	0.00
5,821.25	89.97	166.40	5,514.00	-792.22	191.66	797.94	11.00	11.00	0.00
<b>Target TVD</b>									
5,821.53	90.00	166.40	5,514.00	-792.49	191.72	798.21	10.93	10.93	0.00
<b>LP, Begin Turn - 7" Csg</b>									
5,900.00	90.00	168.75	5,514.00	-869.12	208.60	875.33	3.00	0.00	3.00
6,000.00	90.00	171.75	5,514.00	-967.67	225.53	974.37	3.00	0.00	3.00
6,100.00	90.00	174.75	5,514.00	-1,066.96	237.27	1,073.99	3.00	0.00	3.00
6,200.00	90.00	177.75	5,514.00	-1,166.74	243.81	1,173.92	3.00	0.00	3.00
6,275.01	90.00	180.00	5,514.00	-1,241.72	245.27	1,248.92	3.00	0.00	3.00
<b>EOT, Hold to TD</b>									
6,300.00	90.00	180.00	5,514.00	-1,266.72	245.27	1,273.90	0.00	0.00	0.00
6,400.00	90.00	180.00	5,514.00	-1,366.72	245.26	1,373.85	0.00	0.00	0.00
6,500.00	90.00	180.00	5,514.00	-1,466.72	245.26	1,473.80	0.00	0.00	0.00
6,600.00	90.00	180.00	5,514.00	-1,566.72	245.25	1,573.75	0.00	0.00	0.00
6,700.00	90.00	180.00	5,514.00	-1,666.72	245.24	1,673.69	0.00	0.00	0.00
6,800.00	90.00	180.00	5,514.00	-1,766.72	245.23	1,773.64	0.00	0.00	0.00
6,900.00	90.00	180.00	5,514.00	-1,866.72	245.23	1,873.59	0.00	0.00	0.00
7,000.00	90.00	180.00	5,514.00	-1,966.72	245.22	1,973.54	0.00	0.00	0.00
7,100.00	90.00	180.00	5,514.00	-2,066.72	245.21	2,073.49	0.00	0.00	0.00
7,200.00	90.00	180.00	5,514.00	-2,166.72	245.20	2,173.44	0.00	0.00	0.00
7,300.00	90.00	180.00	5,514.00	-2,266.72	245.20	2,273.39	0.00	0.00	0.00
7,400.00	90.00	180.00	5,514.00	-2,366.72	245.19	2,373.34	0.00	0.00	0.00
7,500.00	90.00	180.00	5,514.00	-2,466.72	245.18	2,473.28	0.00	0.00	0.00
7,600.00	90.00	180.00	5,514.00	-2,566.72	245.17	2,573.23	0.00	0.00	0.00
7,700.00	90.00	180.00	5,514.00	-2,666.72	245.17	2,673.18	0.00	0.00	0.00
7,800.00	90.00	180.00	5,514.00	-2,766.72	245.16	2,773.13	0.00	0.00	0.00
7,900.00	90.00	180.00	5,514.00	-2,866.72	245.15	2,873.08	0.00	0.00	0.00
8,000.00	90.00	180.00	5,514.00	-2,966.72	245.14	2,973.03	0.00	0.00	0.00
8,100.00	90.00	180.00	5,514.00	-3,066.72	245.14	3,072.98	0.00	0.00	0.00
8,200.00	90.00	180.00	5,514.00	-3,166.72	245.13	3,172.93	0.00	0.00	0.00
8,300.00	90.00	180.00	5,514.00	-3,266.72	245.12	3,272.88	0.00	0.00	0.00
8,400.00	90.00	180.00	5,514.00	-3,366.72	245.11	3,372.82	0.00	0.00	0.00
8,500.00	90.00	180.00	5,514.00	-3,466.72	245.11	3,472.77	0.00	0.00	0.00
8,600.00	90.00	180.00	5,514.00	-3,566.72	245.10	3,572.72	0.00	0.00	0.00
8,700.00	90.00	180.00	5,514.00	-3,666.72	245.09	3,672.67	0.00	0.00	0.00
8,800.00	90.00	180.00	5,514.00	-3,766.72	245.08	3,772.62	0.00	0.00	0.00
8,900.00	90.00	180.00	5,514.00	-3,866.72	245.08	3,872.57	0.00	0.00	0.00
9,000.00	90.00	180.00	5,514.00	-3,966.72	245.07	3,972.52	0.00	0.00	0.00



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<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Site:</b>	Sec.30-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 30F-3107	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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)
9,100.00	90.00	180.00	5,514.00	-4,066.72	245.06	4,072.47	0.00	0.00	0.00
9,200.00	90.00	180.00	5,514.00	-4,166.72	245.05	4,172.42	0.00	0.00	0.00
9,300.00	90.00	180.00	5,514.00	-4,266.72	245.05	4,272.36	0.00	0.00	0.00
9,400.00	90.00	180.00	5,514.00	-4,366.72	245.04	4,372.31	0.00	0.00	0.00
9,500.00	90.00	180.00	5,514.00	-4,466.72	245.03	4,472.26	0.00	0.00	0.00
9,600.00	90.00	180.00	5,514.00	-4,566.72	245.02	4,572.21	0.00	0.00	0.00
9,700.00	90.00	180.00	5,514.00	-4,666.72	245.02	4,672.16	0.00	0.00	0.00
9,800.00	90.00	180.00	5,514.00	-4,766.72	245.01	4,772.11	0.00	0.00	0.00
9,900.00	90.00	180.00	5,514.00	-4,866.72	245.00	4,872.06	0.00	0.00	0.00
10,000.00	90.00	180.00	5,514.00	-4,966.72	244.99	4,972.01	0.00	0.00	0.00
10,100.00	90.00	180.00	5,514.00	-5,066.72	244.99	5,071.95	0.00	0.00	0.00
10,200.00	90.00	180.00	5,514.00	-5,166.72	244.98	5,171.90	0.00	0.00	0.00
10,300.00	90.00	180.00	5,514.00	-5,266.72	244.97	5,271.85	0.00	0.00	0.00
10,400.00	90.00	180.00	5,514.00	-5,366.72	244.96	5,371.80	0.00	0.00	0.00
10,500.00	90.00	180.00	5,514.00	-5,466.72	244.95	5,471.75	0.00	0.00	0.00
10,600.00	90.00	180.00	5,514.00	-5,566.72	244.95	5,571.70	0.00	0.00	0.00
10,700.00	90.00	180.00	5,514.00	-5,666.72	244.94	5,671.65	0.00	0.00	0.00
10,796.00	90.00	180.00	5,514.00	-5,762.72	244.93	5,767.60	0.00	0.00	0.00
Enter 1550' Radius Maddy 2									
10,800.00	90.00	180.00	5,514.00	-5,766.72	244.93	5,771.60	0.00	0.00	0.00
10,900.00	90.00	180.00	5,514.00	-5,866.72	244.92	5,871.55	0.00	0.00	0.00
11,000.00	90.00	180.00	5,514.00	-5,966.72	244.92	5,971.49	0.00	0.00	0.00
11,100.00	90.00	180.00	5,514.00	-6,066.72	244.91	6,071.44	0.00	0.00	0.00
11,106.00	90.00	180.00	5,514.00	-6,072.72	244.91	6,077.44	0.00	0.00	0.00
Enter 1550' Radius Maddy 1									
11,200.00	90.00	180.00	5,514.00	-6,166.72	244.90	6,171.39	0.00	0.00	0.00
11,300.00	90.00	180.00	5,514.00	-6,266.72	244.89	6,271.34	0.00	0.00	0.00
11,400.00	90.00	180.00	5,514.00	-6,366.72	244.89	6,371.29	0.00	0.00	0.00
11,500.00	90.00	180.00	5,514.00	-6,466.72	244.88	6,471.24	0.00	0.00	0.00
11,600.00	90.00	180.00	5,514.00	-6,566.72	244.87	6,571.19	0.00	0.00	0.00
11,700.00	90.00	180.00	5,514.00	-6,666.72	244.86	6,671.14	0.00	0.00	0.00
11,800.00	90.00	180.00	5,514.00	-6,766.72	244.86	6,771.08	0.00	0.00	0.00
11,900.00	90.00	180.00	5,514.00	-6,866.72	244.85	6,871.03	0.00	0.00	0.00
12,000.00	90.00	180.00	5,514.00	-6,966.72	244.84	6,970.98	0.00	0.00	0.00
12,100.00	90.00	180.00	5,514.00	-7,066.72	244.83	7,070.93	0.00	0.00	0.00
12,200.00	90.00	180.00	5,514.00	-7,166.72	244.83	7,170.88	0.00	0.00	0.00
12,300.00	90.00	180.00	5,514.00	-7,266.72	244.82	7,270.83	0.00	0.00	0.00
12,400.00	90.00	180.00	5,514.00	-7,366.72	244.81	7,370.78	0.00	0.00	0.00
12,500.00	90.00	180.00	5,514.00	-7,466.72	244.80	7,470.73	0.00	0.00	0.00
12,600.00	90.00	180.00	5,514.00	-7,566.72	244.80	7,570.68	0.00	0.00	0.00
12,700.00	90.00	180.00	5,514.00	-7,666.72	244.79	7,670.62	0.00	0.00	0.00
12,700.40	90.00	180.00	5,514.00	-7,667.11	244.79	7,671.02	0.00	0.00	0.00
PBHL/TD									



<b>Database:</b>	EDM 5000.1 Single User Db	<b>Local Co-ordinate Reference:</b>	Well Horsetail 30F-3107
<b>Company:</b>	Whiting Oil & Gas	<b>TVD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Project:</b>	Weld Co., CO	<b>MD Reference:</b>	KB @ 4797.00usft (Xtreme 18 17' KB)
<b>Site:</b>	Sec.30-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail 30F-3107	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Original Hole		
<b>Design:</b>	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)		
PBHL Horsetail 30F-310	0.00	0.00	5,514.00	-7,667.11	244.79	1,534,999.22	3,472,061.96	40° 47' 22.200 N	103° 47' 42.529 W
- plan hits target center									
- Point									
Maddy #1	0.00	0.00	6,300.00	-7,614.29	79.47	1,535,048.86	3,471,895.66	40° 47' 22.722 N	103° 47' 44.678 W
- plan misses target center by 803.20usft at 12647.58usft MD (5514.00 TVD, -7614.30 N, 244.79 E)									
- Circle (radius 1,550.00)									
Maddy #2	0.00	0.00	6,500.00	-7,302.78	65.90	1,535,360.05	3,471,876.11	40° 47' 25.800 N	103° 47' 44.855 W
- plan misses target center by 1002.10usft at 12336.07usft MD (5514.00 TVD, -7302.79 N, 244.82 E)									
- Circle (radius 1,550.00)									

Casing Points					
Measured Depth	Vertical Depth			Casing Diameter	Hole Diameter
(usft)	(usft)	Name		(")	(")
5,821.53	5,514.00	7" Csg		7	7-1/2

Formations					
Measured Depth	Vertical Depth			Dip	Dip Direction
(usft)	(usft)	Name	Lithology	(°)	(°)
1,499.62	1,498.00	Pierre		0.00	
1,551.75	1,550.00	Surface Casing		0.00	
5,603.42	5,469.00	Niobrara		0.00	
5,821.25	5,514.00	Target TVD		0.00	

Plan Annotations				
Measured Depth	Vertical Depth	Local Coordinates		
(usft)	(usft)	+N/-S	+E/-W	Comment
(usft)	(usft)	(usft)	(usft)	
700.00	700.00	0.00	0.00	Begin Nudge
900.00	899.84	-6.78	1.64	Hold Tangent
5,039.71	5,029.46	-287.46	69.54	KOP, Build 11°/100' DLS
5,821.53	5,514.00	-792.49	191.72	LP, Begin Turn
6,275.01	5,514.00	-1,241.72	245.27	EOT, Hold to TD
10,796.00	5,514.00	-5,762.72	244.93	Enter 1550' Radius Maddy 2
11,106.00	5,514.00	-6,072.72	244.91	Enter 1550' Radius Maddy 1
12,700.40	5,514.00	-7,667.11	244.79	PBHL/TD