



Company: Whiting Oil & Gas
Field: Weld Co., CO
Location: Sec.30-T10N-R57W
Well: Horsetail 30F-3108
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	VSect	Annotation
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	Begin Nudge
3	650.00	3.00	153.23	649.93	-3.51	1.77	2.00	153.23	3.62	Hold Tangent
4	5044.48	3.00	153.23	5038.39	-208.84	105.36	0.00	0.00	215.78	KOP, Build 11°/100' DLS
5	5835.39	90.00	153.23	5532.00	-673.25	339.64	11.00	0.00	695.62	LP, Begin Turn
6	6727.70	90.00	180.00	5532.00	-1533.45	544.34	3.00	90.00	1568.16	EOT, Hold to TD
7	12859.17	90.00	180.00	5532.00	-7664.92	544.41	0.00	0.00	7684.23	PBHL/TD

WELL DETAILS: Horsetail 30F-3108

+N/-S	+E/-W	GL 4780.00	KB @ 4797.00usft (Xtreme 18 17' KB)	Longitude
0.00	0.00	Northing 1542660.79	Easting 3471700.07	40° 48' 37.958 N 103° 47' 45.319 W

WELLBORE TARGET DETAILS

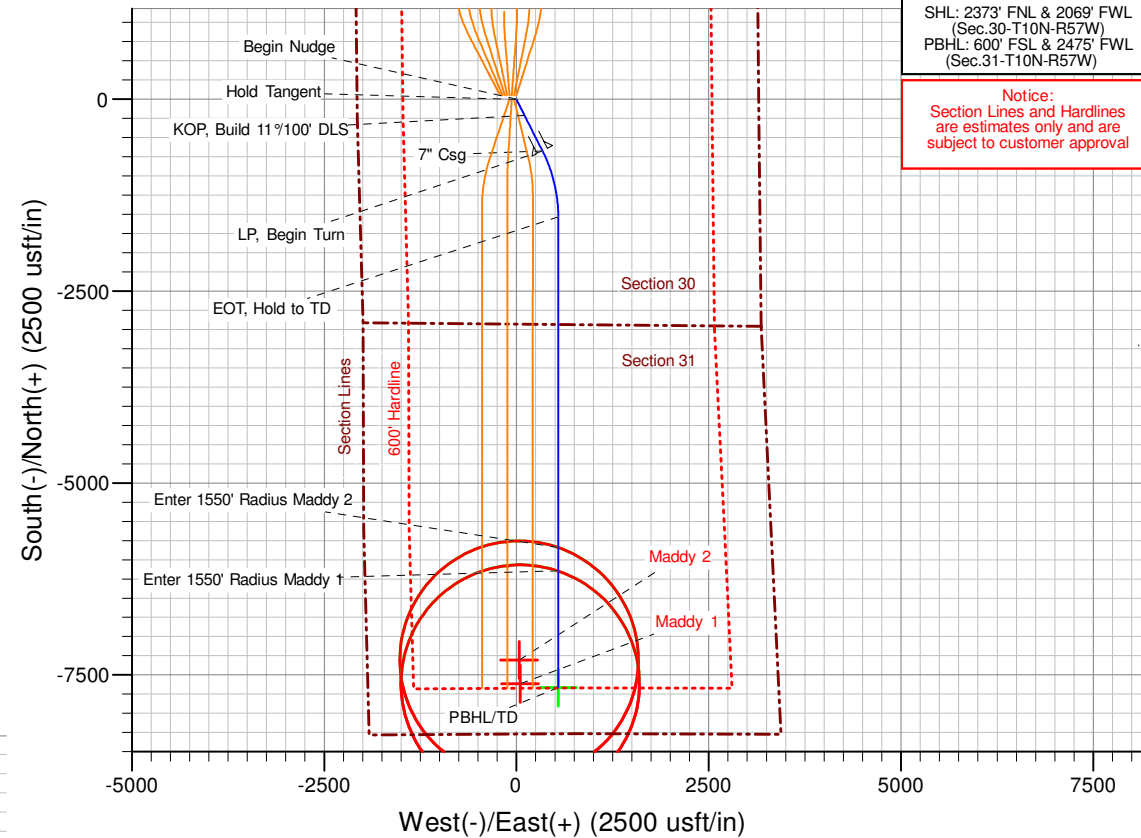
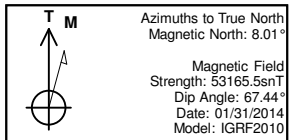
Name	TVD	+N/-S	+E/-W	Shape
PBHL Horsetail 30F-3108	5532.00	-7664.92	544.41	Point
Maddy #1	6300.00	-7614.29	49.29	Circle (Radius: 1550.00)
Maddy #2	6500.00	-7302.78	35.72	Circle (Radius: 1550.00)

CASING DETAILS

TVD	MD	Name	Size
5532.00	5835.39	7" Csg	7

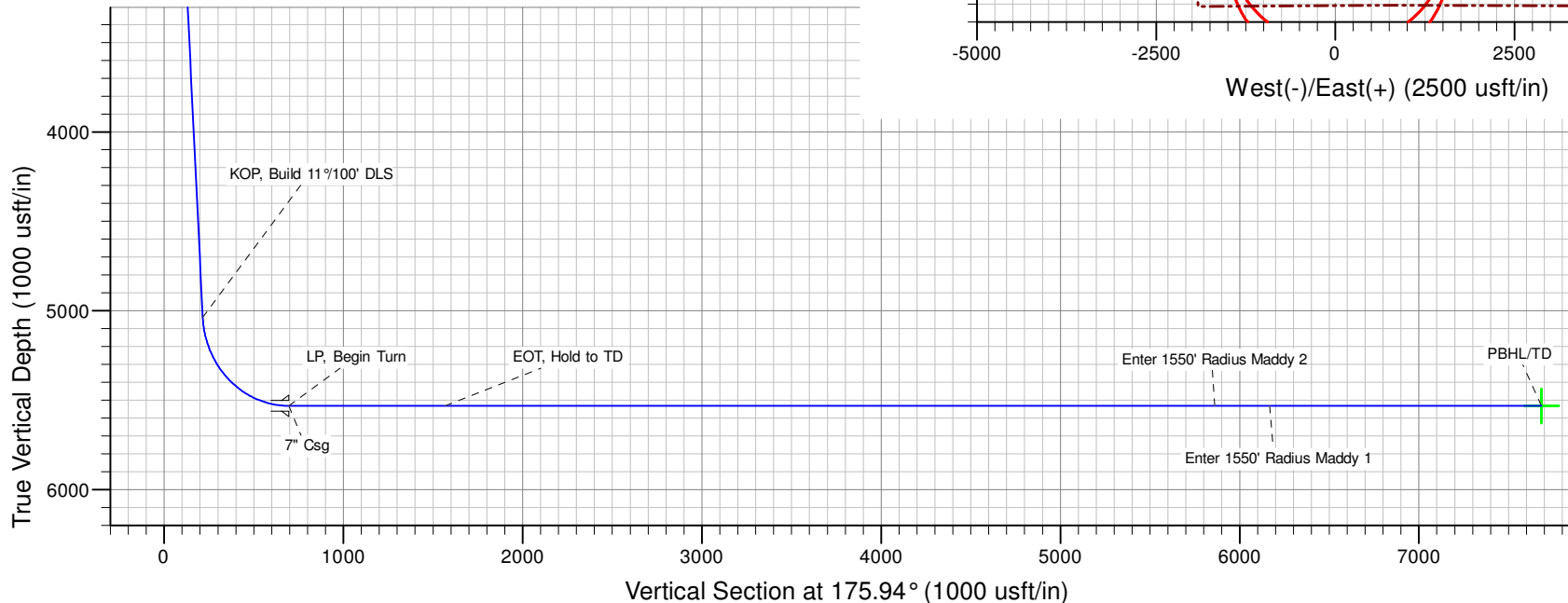
FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1498.00	1499.23	Pierre
1550.00	1551.30	Surface Casing
5469.00	5576.55	Niobrara
5532.00	5835.39	Target TVD



SHL: 2373' FNL & 2069' FWL
(Sec.30-T10N-R57W)
PBHL: 600' FSL & 2475' FWL
(Sec.31-T10N-R57W)

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



7" Casing:
2250' FSL 2409' FWL
202' From Horsetail 30F-3107

Enter Maddy 2
1550' Radius @ 11,032' MD
Enter Maddy 1
1550' Radius @ 11,339' MD



Whiting Oil & Gas

Weld Co., CO

Sec.30-T10N-R57W

Horsetail 30F-3108

Original Hole

Plan: Rev 0

Standard Planning Report

04 February, 2014



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Horsetail 30F-3108
Company:	Whiting Oil & Gas	TVD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Project:	Weld Co., CO	MD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Site:	Sec.30-T10N-R57W	North Reference:	True
Well:	Horsetail 30F-3108	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.30-T10N-R57W			
Site Position:		Northing:	1,542,707.40 usft	Latitude: 40° 48' 38.459 N
From:	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: 1.10 °

Well	Horsetail 30F-3108			
Well Position	+N/-S	-50.65 usft	Northing:	1,542,660.80 usft
	+E/-W	210.11 usft	Easting:	3,471,700.06 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	4,797.00 usft	Ground Level: 4,780.00 usft

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

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	175.94

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	
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.00	
650.00	3.00	153.23	649.93	-3.51	1.77	2.00	2.00	0.00	153.23	
5,044.48	3.00	153.23	5,038.39	-208.84	105.36	0.00	0.00	0.00	0.00	
5,835.39	90.00	153.23	5,532.00	-673.25	339.64	11.00	11.00	0.00	0.00	
6,727.70	90.00	180.00	5,532.00	-1,533.45	544.34	3.00	0.00	3.00	90.00	
12,859.17	90.00	180.00	5,532.00	-7,664.92	544.41	0.00	0.00	0.00	0.00	PBHL Horsetail 30F-3



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Horsetail 30F-3108
Company:	Whiting Oil & Gas	TVD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Project:	Weld Co., CO	MD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Site:	Sec.30-T10N-R57W	North Reference:	True
Well:	Horsetail 30F-3108	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
Begin Nudge									
600.00	2.00	153.23	599.98	-1.56	0.79	1.61	2.00	2.00	0.00
650.00	3.00	153.23	649.93	-3.51	1.77	3.62	2.00	2.00	0.00
Hold Tangent									
700.00	3.00	153.23	699.86	-5.84	2.95	6.04	0.00	0.00	0.00
800.00	3.00	153.23	799.73	-10.51	5.30	10.86	0.00	0.00	0.00
900.00	3.00	153.23	899.59	-15.19	7.66	15.69	0.00	0.00	0.00
1,000.00	3.00	153.23	999.45	-19.86	10.02	20.52	0.00	0.00	0.00
1,100.00	3.00	153.23	1,099.31	-24.53	12.38	25.35	0.00	0.00	0.00
1,200.00	3.00	153.23	1,199.18	-29.20	14.73	30.18	0.00	0.00	0.00
1,300.00	3.00	153.23	1,299.04	-33.88	17.09	35.00	0.00	0.00	0.00
1,400.00	3.00	153.23	1,398.90	-38.55	19.45	39.83	0.00	0.00	0.00
1,499.23	3.00	153.23	1,498.00	-43.19	21.79	44.62	0.00	0.00	0.00
Pierre									
1,500.00	3.00	153.23	1,498.77	-43.22	21.81	44.66	0.00	0.00	0.00
1,551.30	3.00	153.23	1,550.00	-45.62	23.01	47.14	0.00	0.00	0.00
Surface Casing									
1,600.00	3.00	153.23	1,598.63	-47.90	24.16	49.49	0.00	0.00	0.00
1,700.00	3.00	153.23	1,698.49	-52.57	26.52	54.32	0.00	0.00	0.00
1,800.00	3.00	153.23	1,798.36	-57.24	28.88	59.14	0.00	0.00	0.00
1,900.00	3.00	153.23	1,898.22	-61.91	31.23	63.97	0.00	0.00	0.00
2,000.00	3.00	153.23	1,998.08	-66.59	33.59	68.80	0.00	0.00	0.00
2,100.00	3.00	153.23	2,097.94	-71.26	35.95	73.63	0.00	0.00	0.00
2,200.00	3.00	153.23	2,197.81	-75.93	38.31	78.45	0.00	0.00	0.00
2,300.00	3.00	153.23	2,297.67	-80.60	40.66	83.28	0.00	0.00	0.00
2,400.00	3.00	153.23	2,397.53	-85.28	43.02	88.11	0.00	0.00	0.00
2,500.00	3.00	153.23	2,497.40	-89.95	45.38	92.94	0.00	0.00	0.00
2,600.00	3.00	153.23	2,597.26	-94.62	47.74	97.77	0.00	0.00	0.00
2,700.00	3.00	153.23	2,697.12	-99.30	50.09	102.59	0.00	0.00	0.00
2,800.00	3.00	153.23	2,796.99	-103.97	52.45	107.42	0.00	0.00	0.00
2,900.00	3.00	153.23	2,896.85	-108.64	54.81	112.25	0.00	0.00	0.00
3,000.00	3.00	153.23	2,996.71	-113.31	57.16	117.08	0.00	0.00	0.00
3,100.00	3.00	153.23	3,096.57	-117.99	59.52	121.91	0.00	0.00	0.00
3,200.00	3.00	153.23	3,196.44	-122.66	61.88	126.73	0.00	0.00	0.00
3,300.00	3.00	153.23	3,296.30	-127.33	64.24	131.56	0.00	0.00	0.00
3,400.00	3.00	153.23	3,396.16	-132.00	66.59	136.39	0.00	0.00	0.00
3,500.00	3.00	153.23	3,496.03	-136.68	68.95	141.22	0.00	0.00	0.00
3,600.00	3.00	153.23	3,595.89	-141.35	71.31	146.05	0.00	0.00	0.00
3,700.00	3.00	153.23	3,695.75	-146.02	73.66	150.87	0.00	0.00	0.00
3,800.00	3.00	153.23	3,795.61	-150.69	76.02	155.70	0.00	0.00	0.00
3,900.00	3.00	153.23	3,895.48	-155.37	78.38	160.53	0.00	0.00	0.00
4,000.00	3.00	153.23	3,995.34	-160.04	80.74	165.36	0.00	0.00	0.00
4,100.00	3.00	153.23	4,095.20	-164.71	83.09	170.19	0.00	0.00	0.00
4,200.00	3.00	153.23	4,195.07	-169.39	85.45	175.01	0.00	0.00	0.00
4,300.00	3.00	153.23	4,294.93	-174.06	87.81	179.84	0.00	0.00	0.00
4,400.00	3.00	153.23	4,394.79	-178.73	90.17	184.67	0.00	0.00	0.00
4,500.00	3.00	153.23	4,494.66	-183.40	92.52	189.50	0.00	0.00	0.00
4,600.00	3.00	153.23	4,594.52	-188.08	94.88	194.33	0.00	0.00	0.00



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Company:	Whiting Oil & Gas	TVD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Project:	Weld Co., CO	MD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Site:	Sec.30-T10N-R57W	North Reference:	True
Well:	Horsetail 30F-3108	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)
4,700.00	3.00	153.23	4,694.38	-192.75	97.24	199.15	0.00	0.00	0.00
4,800.00	3.00	153.23	4,794.24	-197.42	99.59	203.98	0.00	0.00	0.00
4,900.00	3.00	153.23	4,894.11	-202.09	101.95	208.81	0.00	0.00	0.00
5,000.00	3.00	153.23	4,993.97	-206.77	104.31	213.64	0.00	0.00	0.00
5,044.48	3.00	153.23	5,038.39	-208.84	105.36	215.78	0.00	0.00	0.00
KOP, Build 11°/100' DLS									
5,100.00	9.11	153.23	5,093.57	-214.07	107.99	221.18	11.00	11.00	0.00
5,200.00	20.11	153.23	5,190.19	-236.55	119.34	244.41	11.00	11.00	0.00
5,300.00	31.11	153.23	5,280.23	-275.08	138.77	284.22	11.00	11.00	0.00
5,400.00	42.11	153.23	5,360.38	-328.24	165.59	339.15	11.00	11.00	0.00
5,500.00	53.11	153.23	5,427.70	-394.08	198.80	407.17	11.00	11.00	0.00
5,576.55	61.53	153.23	5,469.00	-451.55	227.80	466.56	11.00	11.00	0.00
Niobrara									
5,600.00	64.11	153.23	5,479.71	-470.17	237.19	485.80	11.00	11.00	0.00
5,700.00	75.11	153.23	5,514.50	-553.73	279.35	572.13	11.00	11.00	0.00
5,800.00	86.11	153.23	5,530.80	-641.68	323.71	663.00	11.00	11.00	0.00
5,835.39	90.00	153.23	5,532.00	-673.25	339.64	695.62	11.00	11.00	0.00
LP, Begin Turn - Target TVD - 7" Csg									
5,900.00	90.00	155.17	5,532.00	-731.42	367.76	755.64	3.00	0.00	3.00
6,000.00	90.00	158.17	5,532.00	-823.23	407.36	850.02	3.00	0.00	3.00
6,100.00	90.00	161.17	5,532.00	-916.99	442.10	946.01	3.00	0.00	3.00
6,200.00	90.00	164.17	5,532.00	-1,012.44	471.89	1,043.33	3.00	0.00	3.00
6,300.00	90.00	167.17	5,532.00	-1,109.32	496.64	1,141.71	3.00	0.00	3.00
6,400.00	90.00	170.17	5,532.00	-1,207.36	516.29	1,240.90	3.00	0.00	3.00
6,500.00	90.00	173.17	5,532.00	-1,306.29	530.78	1,340.61	3.00	0.00	3.00
6,600.00	90.00	176.17	5,532.00	-1,405.84	540.07	1,440.57	3.00	0.00	3.00
6,700.00	90.00	179.17	5,532.00	-1,505.75	544.14	1,540.52	3.00	0.00	3.00
6,727.70	90.00	180.00	5,532.00	-1,533.45	544.34	1,568.16	3.00	0.00	3.00
EOT, Hold to TD									
6,800.00	90.00	180.00	5,532.00	-1,605.75	544.34	1,640.28	0.00	0.00	0.00
6,900.00	90.00	180.00	5,532.00	-1,705.75	544.34	1,740.03	0.00	0.00	0.00
7,000.00	90.00	180.00	5,532.00	-1,805.75	544.34	1,839.78	0.00	0.00	0.00
7,100.00	90.00	180.00	5,532.00	-1,905.75	544.34	1,939.53	0.00	0.00	0.00
7,200.00	90.00	180.00	5,532.00	-2,005.75	544.34	2,039.27	0.00	0.00	0.00
7,300.00	90.00	180.00	5,532.00	-2,105.75	544.34	2,139.02	0.00	0.00	0.00
7,400.00	90.00	180.00	5,532.00	-2,205.75	544.34	2,238.77	0.00	0.00	0.00
7,500.00	90.00	180.00	5,532.00	-2,305.75	544.35	2,338.52	0.00	0.00	0.00
7,600.00	90.00	180.00	5,532.00	-2,405.75	544.35	2,438.27	0.00	0.00	0.00
7,700.00	90.00	180.00	5,532.00	-2,505.75	544.35	2,538.02	0.00	0.00	0.00
7,800.00	90.00	180.00	5,532.00	-2,605.75	544.35	2,637.77	0.00	0.00	0.00
7,900.00	90.00	180.00	5,532.00	-2,705.75	544.35	2,737.52	0.00	0.00	0.00
8,000.00	90.00	180.00	5,532.00	-2,805.75	544.35	2,837.27	0.00	0.00	0.00
8,100.00	90.00	180.00	5,532.00	-2,905.75	544.35	2,937.01	0.00	0.00	0.00
8,200.00	90.00	180.00	5,532.00	-3,005.75	544.35	3,036.76	0.00	0.00	0.00
8,300.00	90.00	180.00	5,532.00	-3,105.75	544.35	3,136.51	0.00	0.00	0.00
8,400.00	90.00	180.00	5,532.00	-3,205.75	544.36	3,236.26	0.00	0.00	0.00
8,500.00	90.00	180.00	5,532.00	-3,305.75	544.36	3,336.01	0.00	0.00	0.00
8,600.00	90.00	180.00	5,532.00	-3,405.75	544.36	3,435.76	0.00	0.00	0.00
8,700.00	90.00	180.00	5,532.00	-3,505.75	544.36	3,535.51	0.00	0.00	0.00
8,800.00	90.00	180.00	5,532.00	-3,605.75	544.36	3,635.26	0.00	0.00	0.00
8,900.00	90.00	180.00	5,532.00	-3,705.75	544.36	3,735.00	0.00	0.00	0.00
9,000.00	90.00	180.00	5,532.00	-3,805.75	544.36	3,834.75	0.00	0.00	0.00
9,100.00	90.00	180.00	5,532.00	-3,905.75	544.36	3,934.50	0.00	0.00	0.00



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Project:	Weld Co., CO	MD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Site:	Sec.30-T10N-R57W	North Reference:	True
Well:	Horsetail 30F-3108	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)
9,200.00	90.00	180.00	5,532.00	-4,005.75	544.36	4,034.25	0.00	0.00	0.00
9,300.00	90.00	180.00	5,532.00	-4,105.75	544.37	4,134.00	0.00	0.00	0.00
9,400.00	90.00	180.00	5,532.00	-4,205.75	544.37	4,233.75	0.00	0.00	0.00
9,500.00	90.00	180.00	5,532.00	-4,305.75	544.37	4,333.50	0.00	0.00	0.00
9,600.00	90.00	180.00	5,532.00	-4,405.75	544.37	4,433.25	0.00	0.00	0.00
9,700.00	90.00	180.00	5,532.00	-4,505.75	544.37	4,532.99	0.00	0.00	0.00
9,800.00	90.00	180.00	5,532.00	-4,605.75	544.37	4,632.74	0.00	0.00	0.00
9,900.00	90.00	180.00	5,532.00	-4,705.75	544.37	4,732.49	0.00	0.00	0.00
10,000.00	90.00	180.00	5,532.00	-4,805.75	544.37	4,832.24	0.00	0.00	0.00
10,100.00	90.00	180.00	5,532.00	-4,905.75	544.37	4,931.99	0.00	0.00	0.00
10,200.00	90.00	180.00	5,532.00	-5,005.75	544.38	5,031.74	0.00	0.00	0.00
10,300.00	90.00	180.00	5,532.00	-5,105.75	544.38	5,131.49	0.00	0.00	0.00
10,400.00	90.00	180.00	5,532.00	-5,205.75	544.38	5,231.24	0.00	0.00	0.00
10,500.00	90.00	180.00	5,532.00	-5,305.75	544.38	5,330.99	0.00	0.00	0.00
10,600.00	90.00	180.00	5,532.00	-5,405.75	544.38	5,430.73	0.00	0.00	0.00
10,700.00	90.00	180.00	5,532.00	-5,505.75	544.38	5,530.48	0.00	0.00	0.00
10,800.00	90.00	180.00	5,532.00	-5,605.75	544.38	5,630.23	0.00	0.00	0.00
10,900.00	90.00	180.00	5,532.00	-5,705.75	544.38	5,729.98	0.00	0.00	0.00
11,000.00	90.00	180.00	5,532.00	-5,805.75	544.38	5,829.73	0.00	0.00	0.00
11,032.00	90.00	180.00	5,532.00	-5,837.75	544.38	5,861.65	0.00	0.00	0.00
Enter 1550' Radius Maddy 2									
11,100.00	90.00	180.00	5,532.00	-5,905.75	544.39	5,929.48	0.00	0.00	0.00
11,200.00	90.00	180.00	5,532.00	-6,005.75	544.39	6,029.23	0.00	0.00	0.00
11,300.00	90.00	180.00	5,532.00	-6,105.75	544.39	6,128.98	0.00	0.00	0.00
11,339.00	90.00	180.00	5,532.00	-6,144.75	544.39	6,167.88	0.00	0.00	0.00
Enter 1550' Radius Maddy 1									
11,400.00	90.00	180.00	5,532.00	-6,205.75	544.39	6,228.72	0.00	0.00	0.00
11,500.00	90.00	180.00	5,532.00	-6,305.75	544.39	6,328.47	0.00	0.00	0.00
11,600.00	90.00	180.00	5,532.00	-6,405.75	544.39	6,428.22	0.00	0.00	0.00
11,700.00	90.00	180.00	5,532.00	-6,505.75	544.39	6,527.97	0.00	0.00	0.00
11,800.00	90.00	180.00	5,532.00	-6,605.75	544.39	6,627.72	0.00	0.00	0.00
11,900.00	90.00	180.00	5,532.00	-6,705.75	544.39	6,727.47	0.00	0.00	0.00
12,000.00	90.00	180.00	5,532.00	-6,805.75	544.40	6,827.22	0.00	0.00	0.00
12,100.00	90.00	180.00	5,532.00	-6,905.75	544.40	6,926.97	0.00	0.00	0.00
12,200.00	90.00	180.00	5,532.00	-7,005.75	544.40	7,026.71	0.00	0.00	0.00
12,300.00	90.00	180.00	5,532.00	-7,105.75	544.40	7,126.46	0.00	0.00	0.00
12,400.00	90.00	180.00	5,532.00	-7,205.75	544.40	7,226.21	0.00	0.00	0.00
12,500.00	90.00	180.00	5,532.00	-7,305.75	544.40	7,325.96	0.00	0.00	0.00
12,600.00	90.00	180.00	5,532.00	-7,405.75	544.40	7,425.71	0.00	0.00	0.00
12,700.00	90.00	180.00	5,532.00	-7,505.75	544.40	7,525.46	0.00	0.00	0.00
12,800.00	90.00	180.00	5,532.00	-7,605.75	544.40	7,625.21	0.00	0.00	0.00
12,859.17	90.00	180.00	5,532.00	-7,664.92	544.41	7,684.23	0.00	0.00	0.00
PBHL/TD									



Database:	EDM 5000.1 Single User Db	Local Co-ordinate Reference:	Well Horsetail 30F-3108
Company:	Whiting Oil & Gas	TVD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Project:	Weld Co., CO	MD Reference:	KB @ 4797.00usft (Xtreme 18 17' KB)
Site:	Sec.30-T10N-R57W	North Reference:	True
Well:	Horsetail 30F-3108	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)		
PBHL Horsetail 30F-310	0.00	0.00	5,532.00	-7,664.92	544.41	1,535,007.75	3,472,391.66	40° 47' 22.222 N	103° 47' 38.242 W
- plan hits target center									
- Point									
Maddy #1	0.00	0.00	6,300.00	-7,614.29	49.29	1,535,048.86	3,471,895.66	40° 47' 22.722 N	103° 47' 44.678 W
- plan misses target center by 913.80usft at 12800.00usft MD (5532.00 TVD, -7605.75 N, 544.40 E)									
- Circle (radius 1,550.00)									
Maddy #2	0.00	0.00	6,500.00	-7,302.78	35.72	1,535,360.05	3,471,876.11	40° 47' 25.800 N	103° 47' 44.855 W
- plan misses target center by 1093.52usft at 12497.02usft MD (5532.00 TVD, -7302.77 N, 544.40 E)									
- Circle (radius 1,550.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (")	Hole Diameter (")	
5,835.39	5,532.00	7" Csg	7	7-1/2	

Formations					
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)
1,499.23	1,498.00	Pierre		0.00	
1,551.30	1,550.00	Surface Casing		0.00	
5,576.55	5,469.00	Niobrara		0.00	
5,835.39	5,532.00	Target TVD		0.00	

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
500.00	500.00	0.00	0.00	Begin Nudge	
650.00	649.93	-3.51	1.77	Hold Tangent	
5,044.48	5,038.39	-208.84	105.36	KOP, Build 11°/100' DLS	
5,835.39	5,532.00	-673.25	339.64	LP, Begin Turn	
6,727.70	5,532.00	-1,533.45	544.34	EOT, Hold to TD	
11,032.00	5,532.00	-5,837.75	544.38	Enter 1550' Radius Maddy 2	
11,339.00	5,532.00	-6,144.75	544.39	Enter 1550' Radius Maddy 1	
12,859.17	5,532.00	-7,664.92	544.41	PBHL/TD	