



Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07E-1836
Wellbore: Hz
Design: Plan #1

PROJECT DETAILS: Weld County, CO
Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

WELL DETAILS: Horsetail #07E-1836

				Ground Level: 4925.60				
+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot		
0.00	0.00	1558446.90	3470010.05	40° 51' 14.230 N	103° 48' 3.360 W			

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	489.13	3.78	44.11	488.99	4.48	4.34	2.00	44.11	-4.36	
4	5071.12	3.78	44.11	5061.01	221.52	214.75	0.00	0.00	-215.59	
5	5260.26	0.00	0.00	5250.00	226.00	219.09	2.00	180.00	-219.95	
6	5460.26	0.00	0.00	5450.00	226.00	219.09	0.00	0.00	-219.95	
7	6278.64	90.00	180.00	5971.00	-295.00	219.09	11.00	180.00	300.86	
8	14026.51	90.00	180.00	5971.00	-8042.87	219.09	0.00	0.00	8045.85	1836 PBHL

FORMATION TOP DETAILS

TVDPATH	MDPATH	FORMATION
1550.00	1552.45	Upper Pierre
3500.00	3506.71	Hygiene
3650.00	3657.04	Lower Pierre
5515.00	5525.43	P200 Marker
5530.00	5540.57	P300 Marker
5550.00	5560.88	P350 Marker
5702.00	5723.29	Sharon Springs
5707.00	5729.02	Niobrara
5733.00	5759.43	Top A Chalk
5772.00	5807.37	Top A Marl
5792.00	5833.33	A Marl
5803.00	5848.10	Top Upper B
5826.00	5880.31	Base Upper B
5848.00	5913.19	Top Lower B
5882.00	5969.60	Base Lower B
5890.00	5984.22	Top B Chalk
5919.00	6043.89	Top C Chalk
5931.00	6073.16	Middle C Chalk
5947.00	6119.89	Middle C Marl
5971.00	6278.64	Lower C Chalk

ANNOTATIONS

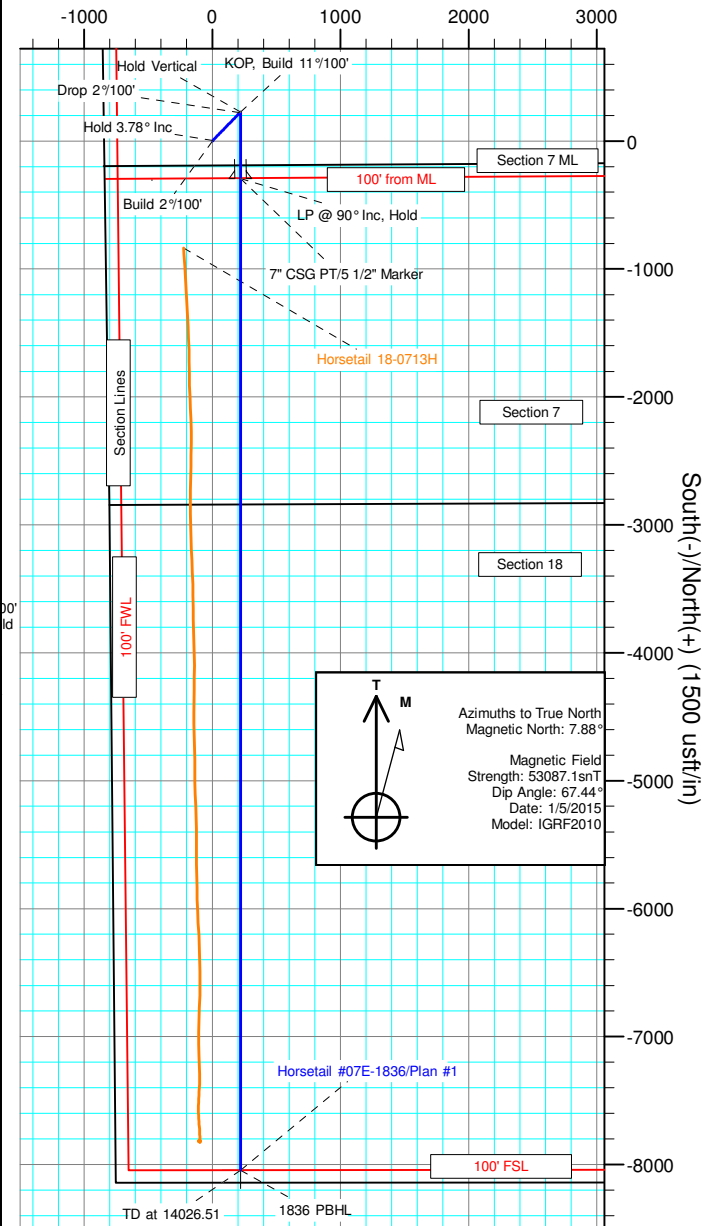
TVD	MD	Inc	Azi	+N/-S	+E/-W	VSect	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
488.99	489.13	3.78	44.11	4.48	4.34	-4.36	6.24	Hold 3.78° Inc
5061.01	5071.12	3.78	44.11	221.52	214.75	-215.59	308.52	Drop 2°/100'
5250.00	5260.26	0.00	0.00	226.00	219.09	-219.95	314.76	Hold Vertical
5450.00	5460.26	0.00	0.00	226.00	219.09	-219.95	314.76	KOP, Build 11°/100'
5971.00	6278.64	90.00	180.00	-295.00	219.09	300.86	835.76	LP @ 90° Inc, Hold
5971.00	14026.51	90.00	180.00	-8042.87	219.09	8045.85	8583.63	TD at 14026.51

DESIGN TARGET DETAILS

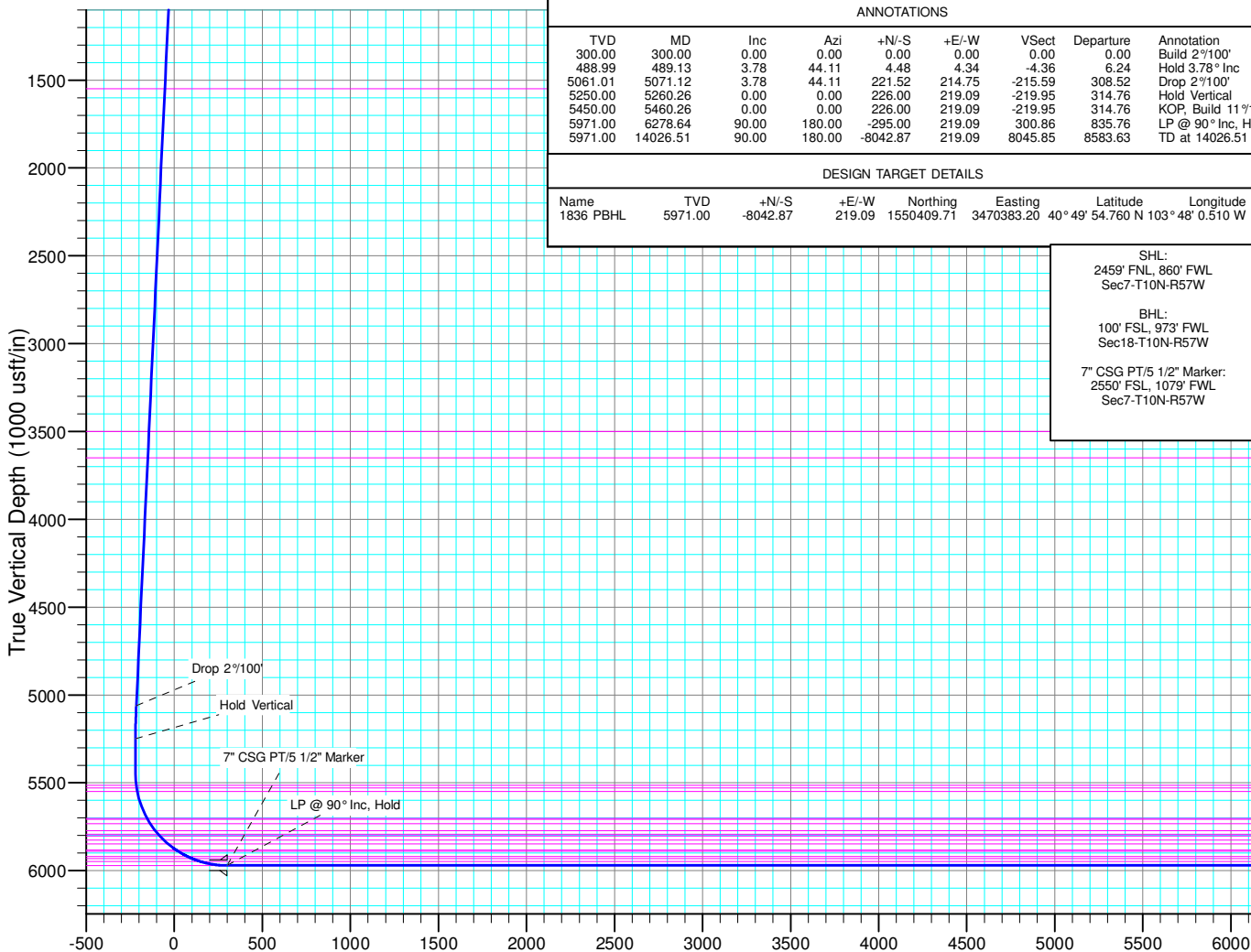
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
1836 PBHL	5971.00	-8042.87	219.09	1550409.71	3470383.20	40° 49' 54.760 N	103° 48' 0.510 W

SHL:
2459' FNL, 860' FWL
Sec7-T10N-R57W
BHL:
100' FSL, 973' FWL
Sec18-T10N-R57W
7" CSG PT/5 1/2" Marker:
2550' FSL, 1079' FWL
Sec7-T10N-R57W

West(-)/East(+) (1500 usft/in)



South(-)/North(+) (1500 usft/in)



Vertical Section at 178.44° (1000 usft/in)



Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07E-1836

Hz

Plan: Plan #1

Standard Planning Report

09 November, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project	Weld County, 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 7-T10N-R57W			
Site Position:		Northing:	1,558,450.14 usft	Latitude:	40° 51' 14.300 N
From:	Lat/Long	Easting:	3,469,810.15 usft	Longitude:	103° 48' 5.960 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.10 °

Well	Horsetail #07E-1836					
Well Position	+N/-S	-7.06 usft	Northing:	1,558,446.91 usft	Latitude:	40° 51' 14.230 N
	+E/-W	199.80 usft	Easting:	3,470,010.05 usft	Longitude:	103° 48' 3.360 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,925.60 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/5/2015	7.89	67.44	53,087

Design	Plan #1			
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	178.44

Plan Sections										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.00	0.00	0.00	0.00	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	
489.13	3.78	44.11	488.99	4.48	4.34	2.00	2.00	0.00	44.11	
5,071.12	3.78	44.11	5,061.01	221.52	214.75	0.00	0.00	0.00	0.00	
5,260.26	0.00	0.00	5,250.00	226.00	219.09	2.00	-2.00	0.00	180.00	
5,460.26	0.00	0.00	5,450.00	226.00	219.09	0.00	0.00	0.00	0.00	
6,278.64	90.00	180.00	5,971.00	-295.00	219.09	11.00	11.00	0.00	180.00	
14,026.51	90.00	180.00	5,971.00	-8,042.87	219.09	0.00	0.00	0.00	0.00	1836 PBHL



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
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
Build 2°/100'									
400.00	2.00	44.11	399.98	1.25	1.21	-1.22	2.00	2.00	0.00
489.13	3.78	44.11	488.99	4.48	4.34	-4.36	2.00	2.00	0.00
Hold 3.78° Inc									
500.00	3.78	44.11	499.84	5.00	4.84	-4.86	0.00	0.00	0.00
600.00	3.78	44.11	599.62	9.73	9.43	-9.47	0.00	0.00	0.00
700.00	3.78	44.11	699.40	14.47	14.03	-14.08	0.00	0.00	0.00
800.00	3.78	44.11	799.19	19.21	18.62	-18.69	0.00	0.00	0.00
900.00	3.78	44.11	898.97	23.94	23.21	-23.30	0.00	0.00	0.00
1,000.00	3.78	44.11	998.75	28.68	27.80	-27.91	0.00	0.00	0.00
1,100.00	3.78	44.11	1,098.53	33.42	32.39	-32.52	0.00	0.00	0.00
1,200.00	3.78	44.11	1,198.31	38.15	36.99	-37.13	0.00	0.00	0.00
1,300.00	3.78	44.11	1,298.10	42.89	41.58	-41.74	0.00	0.00	0.00
1,400.00	3.78	44.11	1,397.88	47.63	46.17	-46.35	0.00	0.00	0.00
1,500.00	3.78	44.11	1,497.66	52.36	50.76	-50.96	0.00	0.00	0.00
1,552.45	3.78	44.11	1,550.00	54.85	53.17	-53.38	0.00	0.00	0.00
Upper Pierre									
1,600.00	3.78	44.11	1,597.44	57.10	55.35	-55.57	0.00	0.00	0.00
1,700.00	3.78	44.11	1,697.22	61.84	59.95	-60.18	0.00	0.00	0.00
1,800.00	3.78	44.11	1,797.01	66.57	64.54	-64.79	0.00	0.00	0.00
1,900.00	3.78	44.11	1,896.79	71.31	69.13	-69.40	0.00	0.00	0.00
2,000.00	3.78	44.11	1,996.57	76.05	73.72	-74.01	0.00	0.00	0.00
2,100.00	3.78	44.11	2,096.35	80.78	78.31	-78.62	0.00	0.00	0.00
2,200.00	3.78	44.11	2,196.14	85.52	82.91	-83.23	0.00	0.00	0.00
2,300.00	3.78	44.11	2,295.92	90.26	87.50	-87.84	0.00	0.00	0.00
2,400.00	3.78	44.11	2,395.70	94.99	92.09	-92.45	0.00	0.00	0.00
2,500.00	3.78	44.11	2,495.48	99.73	96.68	-97.06	0.00	0.00	0.00
2,600.00	3.78	44.11	2,595.26	104.47	101.27	-101.67	0.00	0.00	0.00
2,700.00	3.78	44.11	2,695.05	109.20	105.87	-106.28	0.00	0.00	0.00
2,800.00	3.78	44.11	2,794.83	113.94	110.46	-110.89	0.00	0.00	0.00
2,900.00	3.78	44.11	2,894.61	118.68	115.05	-115.50	0.00	0.00	0.00
3,000.00	3.78	44.11	2,994.39	123.41	119.64	-120.11	0.00	0.00	0.00
3,100.00	3.78	44.11	3,094.17	128.15	124.23	-124.72	0.00	0.00	0.00
3,200.00	3.78	44.11	3,193.96	132.89	128.83	-129.33	0.00	0.00	0.00
3,300.00	3.78	44.11	3,293.74	137.63	133.42	-133.94	0.00	0.00	0.00
3,400.00	3.78	44.11	3,393.52	142.36	138.01	-138.55	0.00	0.00	0.00
3,500.00	3.78	44.11	3,493.30	147.10	142.60	-143.16	0.00	0.00	0.00
3,506.71	3.78	44.11	3,500.00	147.42	142.91	-143.47	0.00	0.00	0.00
Hygiene									
3,600.00	3.78	44.11	3,593.09	151.84	147.19	-147.77	0.00	0.00	0.00
3,657.04	3.78	44.11	3,650.00	154.54	149.81	-150.40	0.00	0.00	0.00
Lower Pierre									
3,700.00	3.78	44.11	3,692.87	156.57	151.78	-152.38	0.00	0.00	0.00
3,800.00	3.78	44.11	3,792.65	161.31	156.38	-156.99	0.00	0.00	0.00
3,900.00	3.78	44.11	3,892.43	166.05	160.97	-161.60	0.00	0.00	0.00
4,000.00	3.78	44.11	3,992.21	170.78	165.56	-166.21	0.00	0.00	0.00
4,100.00	3.78	44.11	4,092.00	175.52	170.15	-170.82	0.00	0.00	0.00
4,200.00	3.78	44.11	4,191.78	180.26	174.74	-175.43	0.00	0.00	0.00
4,300.00	3.78	44.11	4,291.56	184.99	179.34	-180.04	0.00	0.00	0.00
4,400.00	3.78	44.11	4,391.34	189.73	183.93	-184.65	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.00	3.78	44.11	4,491.13	194.47	188.52	-189.26	0.00	0.00	0.00
4,600.00	3.78	44.11	4,590.91	199.20	193.11	-193.87	0.00	0.00	0.00
4,700.00	3.78	44.11	4,690.69	203.94	197.70	-198.48	0.00	0.00	0.00
4,800.00	3.78	44.11	4,790.47	208.68	202.30	-203.09	0.00	0.00	0.00
4,900.00	3.78	44.11	4,890.25	213.41	206.89	-207.70	0.00	0.00	0.00
5,000.00	3.78	44.11	4,990.04	218.15	211.48	-212.31	0.00	0.00	0.00
5,071.12	3.78	44.11	5,061.01	221.52	214.75	-215.59	0.00	0.00	0.00
Drop 2°/100'									
5,100.00	3.21	44.11	5,089.83	222.78	215.97	-216.82	2.00	-2.00	0.00
5,200.00	1.21	44.11	5,189.75	225.55	218.65	-219.51	2.00	-2.00	0.00
5,260.26	0.00	0.00	5,250.00	226.00	219.09	-219.95	2.00	-2.00	0.00
Hold Vertical									
5,300.00	0.00	0.00	5,289.74	226.00	219.09	-219.95	0.00	0.00	0.00
5,400.00	0.00	0.00	5,389.74	226.00	219.09	-219.95	0.00	0.00	0.00
5,460.26	0.00	0.00	5,450.00	226.00	219.09	-219.95	0.00	0.00	0.00
KOP, Build 11°/100'									
5,500.00	4.37	180.00	5,489.70	224.48	219.09	-218.44	11.00	11.00	0.00
5,525.43	7.17	180.00	5,515.00	221.93	219.09	-215.88	11.00	11.00	0.00
P200 Marker									
5,540.57	8.83	180.00	5,530.00	219.82	219.09	-213.77	11.00	11.00	0.00
P300 Marker									
5,550.00	9.87	180.00	5,539.30	218.29	219.09	-212.24	11.00	11.00	0.00
5,560.88	11.07	180.00	5,550.00	216.31	219.09	-210.27	11.00	11.00	0.00
P350 Marker									
5,600.00	15.37	180.00	5,588.07	207.37	219.09	-201.33	11.00	11.00	0.00
5,650.00	20.87	180.00	5,635.58	191.83	219.09	-185.79	11.00	11.00	0.00
5,700.00	26.37	180.00	5,681.37	171.81	219.09	-165.78	11.00	11.00	0.00
5,723.29	28.93	180.00	5,702.00	161.00	219.09	-154.98	11.00	11.00	0.00
Sharon Springs									
5,729.02	29.56	180.00	5,707.00	158.20	219.09	-152.18	11.00	11.00	0.00
Niobrara									
5,750.00	31.86	180.00	5,725.04	147.49	219.09	-141.47	11.00	11.00	0.00
5,759.43	32.90	180.00	5,733.00	142.44	219.09	-136.42	11.00	11.00	0.00
Top A Chalk									
5,800.00	37.36	180.00	5,766.17	119.10	219.09	-113.09	11.00	11.00	0.00
5,807.37	38.17	180.00	5,772.00	114.58	219.09	-108.57	11.00	11.00	0.00
Top A Marl									
5,833.33	41.03	180.00	5,792.00	98.04	219.09	-92.03	11.00	11.00	0.00
A Marl									
5,848.10	42.65	180.00	5,803.00	88.19	219.09	-82.19	11.00	11.00	0.00
Top Upper B									
5,850.00	42.86	180.00	5,804.40	86.90	219.09	-80.90	11.00	11.00	0.00
5,880.31	46.19	180.00	5,826.00	65.65	219.09	-59.66	11.00	11.00	0.00
Base Upper B									
5,900.00	48.36	180.00	5,839.36	51.18	219.09	-45.19	11.00	11.00	0.00
5,913.19	49.81	180.00	5,848.00	41.21	219.09	-35.23	11.00	11.00	0.00
Top Lower B									
5,950.00	53.86	180.00	5,870.74	12.28	219.09	-6.31	11.00	11.00	0.00
5,969.60	56.01	180.00	5,882.00	-3.77	219.09	9.73	11.00	11.00	0.00
Base Lower B									
5,984.22	57.62	180.00	5,890.00	-16.00	219.09	21.96	11.00	11.00	0.00
Top B Marl									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
6,000.00	59.36	180.00	5,898.25	-29.45	219.09	35.41	11.00	11.00	0.00
6,043.89	64.18	180.00	5,919.00	-68.11	219.09	74.05	11.00	11.00	0.00
Top C Chalk									
6,050.00	64.86	180.00	5,921.63	-73.63	219.09	79.57	11.00	11.00	0.00
6,073.16	67.40	180.00	5,931.00	-94.80	219.09	100.73	11.00	11.00	0.00
Middle C Chalk									
6,100.00	70.35	180.00	5,940.67	-119.84	219.09	125.76	11.00	11.00	0.00
6,119.89	72.54	180.00	5,947.00	-138.69	219.09	144.61	11.00	11.00	0.00
Middle C Marl									
6,150.00	75.85	180.00	5,955.20	-167.66	219.09	173.57	11.00	11.00	0.00
6,200.00	81.35	180.00	5,965.08	-216.66	219.09	222.54	11.00	11.00	0.00
6,250.00	86.85	180.00	5,970.21	-266.37	219.09	272.24	11.00	11.00	0.00
6,278.64	90.00	180.00	5,971.00	-295.00	219.09	300.85	11.00	11.00	0.00
LP @ 90° Inc, Hold - Lower C Chalk - 7" CSG PT/5 1/2" Marker									
6,300.00	90.00	180.00	5,971.00	-316.36	219.09	322.21	0.00	0.00	0.00
6,400.00	90.00	180.00	5,971.00	-416.36	219.09	422.17	0.00	0.00	0.00
6,500.00	90.00	180.00	5,971.00	-516.36	219.09	522.13	0.00	0.00	0.00
6,600.00	90.00	180.00	5,971.00	-616.36	219.09	622.10	0.00	0.00	0.00
6,700.00	90.00	180.00	5,971.00	-716.36	219.09	722.06	0.00	0.00	0.00
6,800.00	90.00	180.00	5,971.00	-816.36	219.09	822.02	0.00	0.00	0.00
6,900.00	90.00	180.00	5,971.00	-916.36	219.09	921.98	0.00	0.00	0.00
7,000.00	90.00	180.00	5,971.00	-1,016.36	219.09	1,021.95	0.00	0.00	0.00
7,100.00	90.00	180.00	5,971.00	-1,116.36	219.09	1,121.91	0.00	0.00	0.00
7,200.00	90.00	180.00	5,971.00	-1,216.36	219.09	1,221.87	0.00	0.00	0.00
7,300.00	90.00	180.00	5,971.00	-1,316.36	219.09	1,321.84	0.00	0.00	0.00
7,400.00	90.00	180.00	5,971.00	-1,416.36	219.09	1,421.80	0.00	0.00	0.00
7,500.00	90.00	180.00	5,971.00	-1,516.36	219.09	1,521.76	0.00	0.00	0.00
7,600.00	90.00	180.00	5,971.00	-1,616.36	219.09	1,621.73	0.00	0.00	0.00
7,700.00	90.00	180.00	5,971.00	-1,716.36	219.09	1,721.69	0.00	0.00	0.00
7,800.00	90.00	180.00	5,971.00	-1,816.36	219.09	1,821.65	0.00	0.00	0.00
7,900.00	90.00	180.00	5,971.00	-1,916.36	219.09	1,921.61	0.00	0.00	0.00
8,000.00	90.00	180.00	5,971.00	-2,016.36	219.09	2,021.58	0.00	0.00	0.00
8,100.00	90.00	180.00	5,971.00	-2,116.36	219.09	2,121.54	0.00	0.00	0.00
8,200.00	90.00	180.00	5,971.00	-2,216.36	219.09	2,221.50	0.00	0.00	0.00
8,300.00	90.00	180.00	5,971.00	-2,316.36	219.09	2,321.47	0.00	0.00	0.00
8,400.00	90.00	180.00	5,971.00	-2,416.36	219.09	2,421.43	0.00	0.00	0.00
8,500.00	90.00	180.00	5,971.00	-2,516.36	219.09	2,521.39	0.00	0.00	0.00
8,600.00	90.00	180.00	5,971.00	-2,616.36	219.09	2,621.35	0.00	0.00	0.00
8,700.00	90.00	180.00	5,971.00	-2,716.36	219.09	2,721.32	0.00	0.00	0.00
8,800.00	90.00	180.00	5,971.00	-2,816.36	219.09	2,821.28	0.00	0.00	0.00
8,900.00	90.00	180.00	5,971.00	-2,916.36	219.09	2,921.24	0.00	0.00	0.00
9,000.00	90.00	180.00	5,971.00	-3,016.36	219.09	3,021.21	0.00	0.00	0.00
9,100.00	90.00	180.00	5,971.00	-3,116.36	219.09	3,121.17	0.00	0.00	0.00
9,200.00	90.00	180.00	5,971.00	-3,216.36	219.09	3,221.13	0.00	0.00	0.00
9,300.00	90.00	180.00	5,971.00	-3,316.36	219.09	3,321.09	0.00	0.00	0.00
9,400.00	90.00	180.00	5,971.00	-3,416.36	219.09	3,421.06	0.00	0.00	0.00
9,500.00	90.00	180.00	5,971.00	-3,516.36	219.09	3,521.02	0.00	0.00	0.00
9,600.00	90.00	180.00	5,971.00	-3,616.36	219.09	3,620.98	0.00	0.00	0.00
9,700.00	90.00	180.00	5,971.00	-3,716.36	219.09	3,720.95	0.00	0.00	0.00
9,800.00	90.00	180.00	5,971.00	-3,816.36	219.09	3,820.91	0.00	0.00	0.00
9,900.00	90.00	180.00	5,971.00	-3,916.36	219.09	3,920.87	0.00	0.00	0.00
10,000.00	90.00	180.00	5,971.00	-4,016.36	219.09	4,020.84	0.00	0.00	0.00
10,100.00	90.00	180.00	5,971.00	-4,116.36	219.09	4,120.80	0.00	0.00	0.00
10,200.00	90.00	180.00	5,971.00	-4,216.36	219.09	4,220.76	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,300.00	90.00	180.00	5,971.00	-4,316.36	219.09	4,320.72	0.00	0.00	0.00
10,400.00	90.00	180.00	5,971.00	-4,416.36	219.09	4,420.69	0.00	0.00	0.00
10,500.00	90.00	180.00	5,971.00	-4,516.36	219.09	4,520.65	0.00	0.00	0.00
10,600.00	90.00	180.00	5,971.00	-4,616.36	219.09	4,620.61	0.00	0.00	0.00
10,700.00	90.00	180.00	5,971.00	-4,716.36	219.09	4,720.58	0.00	0.00	0.00
10,800.00	90.00	180.00	5,971.00	-4,816.36	219.09	4,820.54	0.00	0.00	0.00
10,900.00	90.00	180.00	5,971.00	-4,916.36	219.09	4,920.50	0.00	0.00	0.00
11,000.00	90.00	180.00	5,971.00	-5,016.36	219.09	5,020.46	0.00	0.00	0.00
11,100.00	90.00	180.00	5,971.00	-5,116.36	219.09	5,120.43	0.00	0.00	0.00
11,200.00	90.00	180.00	5,971.00	-5,216.36	219.09	5,220.39	0.00	0.00	0.00
11,300.00	90.00	180.00	5,971.00	-5,316.36	219.09	5,320.35	0.00	0.00	0.00
11,400.00	90.00	180.00	5,971.00	-5,416.36	219.09	5,420.32	0.00	0.00	0.00
11,500.00	90.00	180.00	5,971.00	-5,516.36	219.09	5,520.28	0.00	0.00	0.00
11,600.00	90.00	180.00	5,971.00	-5,616.36	219.09	5,620.24	0.00	0.00	0.00
11,700.00	90.00	180.00	5,971.00	-5,716.36	219.09	5,720.20	0.00	0.00	0.00
11,800.00	90.00	180.00	5,971.00	-5,816.36	219.09	5,820.17	0.00	0.00	0.00
11,900.00	90.00	180.00	5,971.00	-5,916.36	219.09	5,920.13	0.00	0.00	0.00
12,000.00	90.00	180.00	5,971.00	-6,016.36	219.09	6,020.09	0.00	0.00	0.00
12,100.00	90.00	180.00	5,971.00	-6,116.36	219.09	6,120.06	0.00	0.00	0.00
12,200.00	90.00	180.00	5,971.00	-6,216.36	219.09	6,220.02	0.00	0.00	0.00
12,300.00	90.00	180.00	5,971.00	-6,316.36	219.09	6,319.98	0.00	0.00	0.00
12,400.00	90.00	180.00	5,971.00	-6,416.36	219.09	6,419.95	0.00	0.00	0.00
12,500.00	90.00	180.00	5,971.00	-6,516.36	219.09	6,519.91	0.00	0.00	0.00
12,600.00	90.00	180.00	5,971.00	-6,616.36	219.09	6,619.87	0.00	0.00	0.00
12,700.00	90.00	180.00	5,971.00	-6,716.36	219.09	6,719.83	0.00	0.00	0.00
12,800.00	90.00	180.00	5,971.00	-6,816.36	219.09	6,819.80	0.00	0.00	0.00
12,900.00	90.00	180.00	5,971.00	-6,916.36	219.09	6,919.76	0.00	0.00	0.00
13,000.00	90.00	180.00	5,971.00	-7,016.36	219.09	7,019.72	0.00	0.00	0.00
13,100.00	90.00	180.00	5,971.00	-7,116.36	219.09	7,119.69	0.00	0.00	0.00
13,200.00	90.00	180.00	5,971.00	-7,216.36	219.09	7,219.65	0.00	0.00	0.00
13,300.00	90.00	180.00	5,971.00	-7,316.36	219.09	7,319.61	0.00	0.00	0.00
13,400.00	90.00	180.00	5,971.00	-7,416.36	219.09	7,419.57	0.00	0.00	0.00
13,500.00	90.00	180.00	5,971.00	-7,516.36	219.09	7,519.54	0.00	0.00	0.00
13,600.00	90.00	180.00	5,971.00	-7,616.36	219.09	7,619.50	0.00	0.00	0.00
13,700.00	90.00	180.00	5,971.00	-7,716.36	219.09	7,719.46	0.00	0.00	0.00
13,800.00	90.00	180.00	5,971.00	-7,816.36	219.09	7,819.43	0.00	0.00	0.00
13,900.00	90.00	180.00	5,971.00	-7,916.36	219.09	7,919.39	0.00	0.00	0.00
14,000.00	90.00	180.00	5,971.00	-8,016.36	219.09	8,019.35	0.00	0.00	0.00
14,026.51	90.00	180.00	5,971.00	-8,042.87	219.09	8,045.85	0.00	0.00	0.00
TD at 14026.51									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
- hit/miss target									
- Shape									
1836 PBHL	0.00	0.00	5,971.00	-8,042.87	219.09	1,550,409.71	3,470,383.19	40° 49' 54.760 N	103° 48' 0.510 W
- plan hits target center									
- Point									



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1836
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1836	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,278.64	5,971.00	7" CSG PT/5 1/2" Marker	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,552.45	1,550.00	Upper Pierre				
3,506.71	3,500.00	Hygiene				
3,657.04	3,650.00	Lower Pierre				
5,525.43	5,515.00	P200 Marker				
5,540.57	5,530.00	P300 Marker				
5,560.88	5,550.00	P350 Marker				
5,723.29	5,702.00	Sharon Springs				
5,729.02	5,707.00	Niobrara				
5,759.43	5,733.00	Top A Chalk				
5,807.37	5,772.00	Top A Marl				
5,833.33	5,792.00	A Marl				
5,848.10	5,803.00	Top Upper B				
5,880.31	5,826.00	Base Upper B				
5,913.19	5,848.00	Top Lower B				
5,969.60	5,882.00	Base Lower B				
5,984.22	5,890.00	Top B Marl				
6,043.89	5,919.00	Top C Chalk				
6,073.16	5,931.00	Middle C Chalk				
6,119.89	5,947.00	Middle C Marl				
6,278.64	5,971.00	Lower C Chalk				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment	
		+N/-S (usft)	+E/-W (usft)		
300.00	300.00	0.00	0.00	Build 2°/100'	
489.13	488.99	4.48	4.34	Hold 3.78° Inc	
5,071.12	5,061.01	221.52	214.75	Drop 2°/100'	
5,260.26	5,250.00	226.00	219.09	Hold Vertical	
5,460.26	5,450.00	226.00	219.09	KOP, Build 11°/100'	
6,278.64	5,971.00	-295.00	219.09	LP @ 90° Inc, Hold	
14,026.51	5,971.00	-8,042.87	219.09	TD at 14026.51	