



Project: Weld County, CO
Site: Sec 8-T10N-R57W
Well: Horsetail #08D-1701
Wellbore: Hz
Design: APD

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



Azimuths to True North
Magnetic North: 7.86°
Magnetic Field
Strength: 53082.4snT
Dip Angle: 67.44°
Date: 2/5/2015
Model: IGRF2010

WELL DETAILS: Horsetail #08D-1701

+N/-S	+E/-W	Northing	Ground Level:	4962.20	Longitude	Slot
0.00	0.00	1560655.03	Easting	3474761.85	40° 51' 35.140 N	103° 47' 0.980 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	554.37	5.09	331.72	554.04	9.94	-5.35	2.00	331.72	-9.84	
4	4781.95	5.09	331.72	4784.96	340.06	-182.99	0.00	0.00	-336.61	
5	5036.32	0.00	0.00	5019.00	350.00	-188.33	2.00	180.00	-346.45	
6	5236.32	0.00	0.00	5219.00	350.00	-188.33	0.00	0.00	-346.45	
7	6054.71	90.00	180.00	5740.00	-171.00	-188.33	11.00	180.00	174.46	
8	16038.74	90.00	180.00	5740.00	-10155.03	-188.33	0.00	0.00	10156.78	PBHL 1701

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1700.00	1704.87	Upper Pierre
3500.00	3511.99	Hygiene
3650.00	3662.58	Lower Pierre
5631.00	5711.52	P200 Marker
5658.00	5758.42	P300 Marker
5672.00	5785.54	P350 Marker
5680.00	5802.20	Sharon Springs
5694.00	5834.13	Niobrara
5707.00	5868.28	Top A 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'
554.04	554.37	5.09	331.72	9.94	-5.35	-9.84	11.29	Hold 5.09° Inc
4784.96	4781.95	5.09	331.72	340.06	-182.99	-336.61	386.17	Drop 2°/100'
5019.00	5036.32	0.00	0.00	350.00	-188.33	-346.45	397.45	Hold Vertical
5219.00	5236.32	0.00	0.00	350.00	-188.33	-346.45	397.45	KOP, Build 11°/100'
5740.00	6054.71	90.00	180.00	-171.00	-188.33	174.46	918.45	LP @ 90° Inc, Hold
5740.00	16038.74	90.00	180.00	-10155.03	-188.33	10156.78	10902.49	TD at 16038.74

DESIGN TARGET DETAILS

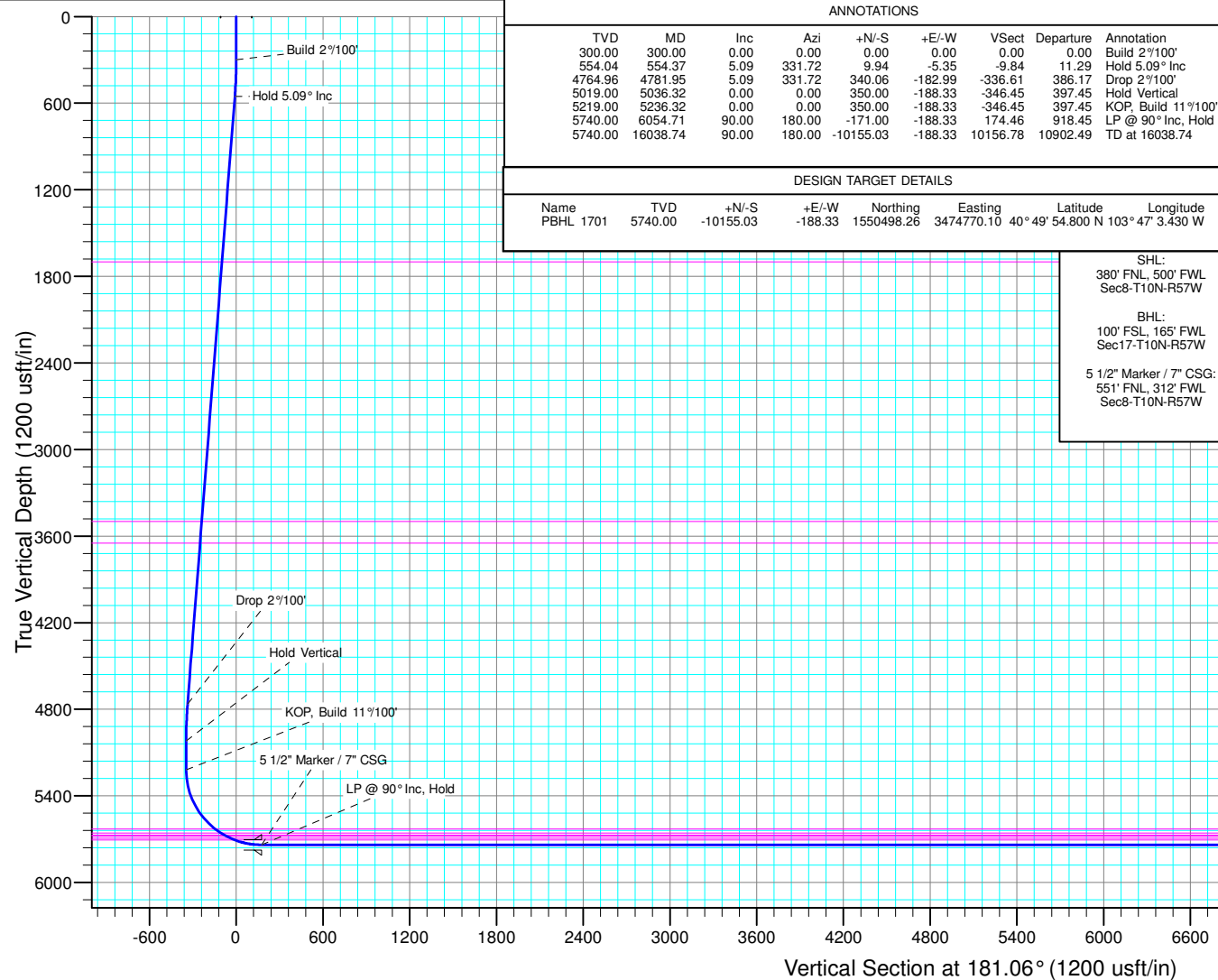
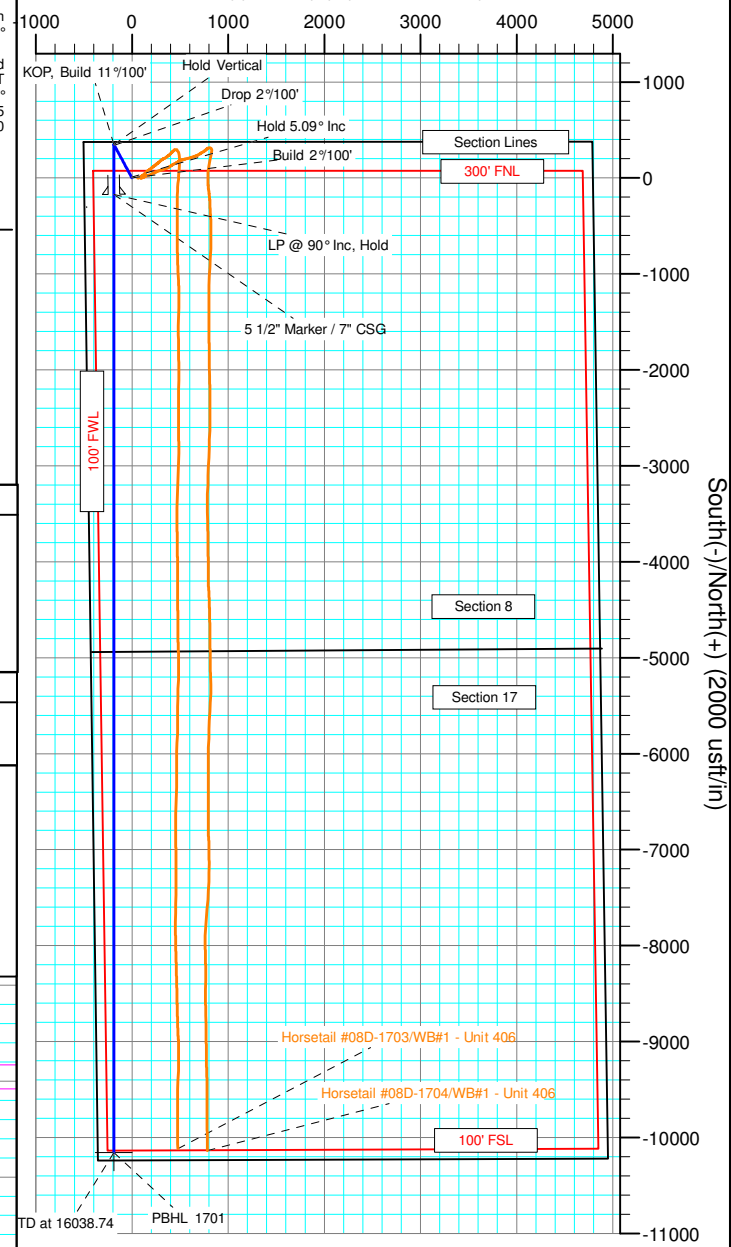
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 1701	5740.00	-10155.03	-188.33	1550498.26	3474770.10	40° 49' 54.800 N	103° 47' 3.430 W

SHL:
380' FNL, 500' FWL
Sec8-T10N-R57W

BHL:
100' FSL, 165' FWL
Sec17-T10N-R57W

5 1/2" Marker / 7" CSG:
551' FNL, 312' FWL
Sec8-T10N-R57W

West(-)/East(+) (2000 usft/in)





Whiting Petroleum Corp.

**Weld County, CO
Sec 8-T10N-R57W
Horsetail #08D-1701**

Hz

Plan: APD

Standard Planning Report

17 March, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1701
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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 8-T10N-R57W			
Site Position:		Northing:	1,561,022.64 usft	Latitude:	40° 51' 38.869 N
From:	Lat/Long	Easting:	3,474,249.13 usft	Longitude:	103° 47' 7.559 W
Position Uncertainty:	0.00 usft	Slot Radius:	13.200 in	Grid Convergence:	1.11 °

Well	Horsetail #08D-1701					
Well Position	+N/-S	-377.44 usft	Northing:	1,560,655.04 usft	Latitude:	40° 51' 35.140 N
	+E/-W	505.51 usft	Easting:	3,474,761.85 usft	Longitude:	103° 47' 0.980 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,962.20 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/5/2015	7.86	67.44	53,082

Design	APD			
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	181.06

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	
554.37	5.09	331.72	554.04	9.94	-5.35	2.00	2.00	0.00	331.72	
4,781.95	5.09	331.72	4,764.96	340.06	-182.99	0.00	0.00	0.00	0.00	
5,036.32	0.00	0.00	5,019.00	350.00	-188.33	2.00	-2.00	0.00	180.00	
5,236.32	0.00	0.00	5,219.00	350.00	-188.33	0.00	0.00	0.00	0.00	
6,054.71	90.00	180.00	5,740.00	-171.00	-188.33	11.00	11.00	0.00	180.00	
16,038.74	90.00	180.00	5,740.00	-10,155.04	-188.33	0.00	0.00	0.00	0.00	PBHL 1701



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1701
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	APD		

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	331.72	399.98	1.54	-0.83	-1.52	2.00	2.00	0.00
500.00	4.00	331.72	499.84	6.15	-3.31	-6.08	2.00	2.00	0.00
554.37	5.09	331.72	554.04	9.94	-5.35	-9.84	2.00	2.00	0.00
Hold 5.09° Inc									
600.00	5.09	331.72	599.49	13.50	-7.27	-13.36	0.00	0.00	0.00
700.00	5.09	331.72	699.09	21.31	-11.47	-21.09	0.00	0.00	0.00
800.00	5.09	331.72	798.70	29.12	-15.67	-28.82	0.00	0.00	0.00
900.00	5.09	331.72	898.30	36.93	-19.87	-36.55	0.00	0.00	0.00
1,000.00	5.09	331.72	997.91	44.74	-24.07	-44.28	0.00	0.00	0.00
1,100.00	5.09	331.72	1,097.52	52.55	-28.27	-52.01	0.00	0.00	0.00
1,200.00	5.09	331.72	1,197.12	60.35	-32.48	-59.74	0.00	0.00	0.00
1,300.00	5.09	331.72	1,296.73	68.16	-36.68	-67.47	0.00	0.00	0.00
1,400.00	5.09	331.72	1,396.33	75.97	-40.88	-75.20	0.00	0.00	0.00
1,500.00	5.09	331.72	1,495.94	83.78	-45.08	-82.93	0.00	0.00	0.00
1,600.00	5.09	331.72	1,595.55	91.59	-49.28	-90.66	0.00	0.00	0.00
1,700.00	5.09	331.72	1,695.15	99.40	-53.49	-98.39	0.00	0.00	0.00
1,704.87	5.09	331.72	1,700.00	99.78	-53.69	-98.77	0.00	0.00	0.00
Upper Pierre									
1,800.00	5.09	331.72	1,794.76	107.21	-57.69	-106.12	0.00	0.00	0.00
1,900.00	5.09	331.72	1,894.36	115.02	-61.89	-113.85	0.00	0.00	0.00
2,000.00	5.09	331.72	1,993.97	122.82	-66.09	-121.58	0.00	0.00	0.00
2,100.00	5.09	331.72	2,093.58	130.63	-70.29	-129.31	0.00	0.00	0.00
2,200.00	5.09	331.72	2,193.18	138.44	-74.50	-137.04	0.00	0.00	0.00
2,300.00	5.09	331.72	2,292.79	146.25	-78.70	-144.77	0.00	0.00	0.00
2,400.00	5.09	331.72	2,392.40	154.06	-82.90	-152.50	0.00	0.00	0.00
2,500.00	5.09	331.72	2,492.00	161.87	-87.10	-160.23	0.00	0.00	0.00
2,600.00	5.09	331.72	2,591.61	169.68	-91.30	-167.96	0.00	0.00	0.00
2,700.00	5.09	331.72	2,691.21	177.49	-95.50	-175.68	0.00	0.00	0.00
2,800.00	5.09	331.72	2,790.82	185.30	-99.71	-183.41	0.00	0.00	0.00
2,900.00	5.09	331.72	2,890.43	193.10	-103.91	-191.14	0.00	0.00	0.00
3,000.00	5.09	331.72	2,990.03	200.91	-108.11	-198.87	0.00	0.00	0.00
3,100.00	5.09	331.72	3,089.64	208.72	-112.31	-206.60	0.00	0.00	0.00
3,200.00	5.09	331.72	3,189.24	216.53	-116.51	-214.33	0.00	0.00	0.00
3,300.00	5.09	331.72	3,288.85	224.34	-120.72	-222.06	0.00	0.00	0.00
3,400.00	5.09	331.72	3,388.46	232.15	-124.92	-229.79	0.00	0.00	0.00
3,500.00	5.09	331.72	3,488.06	239.96	-129.12	-237.52	0.00	0.00	0.00
3,511.99	5.09	331.72	3,500.00	240.89	-129.62	-238.45	0.00	0.00	0.00
Hygiene									
3,600.00	5.09	331.72	3,587.67	247.77	-133.32	-245.25	0.00	0.00	0.00
3,662.58	5.09	331.72	3,650.00	252.65	-135.95	-250.09	0.00	0.00	0.00
Lower Pierre									
3,700.00	5.09	331.72	3,687.27	255.57	-137.52	-252.98	0.00	0.00	0.00
3,800.00	5.09	331.72	3,786.88	263.38	-141.73	-260.71	0.00	0.00	0.00
3,900.00	5.09	331.72	3,886.49	271.19	-145.93	-268.44	0.00	0.00	0.00
4,000.00	5.09	331.72	3,986.09	279.00	-150.13	-276.17	0.00	0.00	0.00
4,100.00	5.09	331.72	4,085.70	286.81	-154.33	-283.90	0.00	0.00	0.00
4,200.00	5.09	331.72	4,185.30	294.62	-158.53	-291.63	0.00	0.00	0.00
4,300.00	5.09	331.72	4,284.91	302.43	-162.74	-299.36	0.00	0.00	0.00
4,400.00	5.09	331.72	4,384.52	310.24	-166.94	-307.09	0.00	0.00	0.00



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	APD		

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	5.09	331.72	4,484.12	318.04	-171.14	-314.82	0.00	0.00	0.00	
4,600.00	5.09	331.72	4,583.73	325.85	-175.34	-322.55	0.00	0.00	0.00	
4,700.00	5.09	331.72	4,683.33	333.66	-179.54	-330.28	0.00	0.00	0.00	
4,781.95	5.09	331.72	4,764.96	340.06	-182.99	-336.61	0.00	0.00	0.00	
Drop 2°/100'										
4,800.00	4.73	331.72	4,782.95	341.42	-183.72	-337.96	2.00	-2.00	0.00	
4,900.00	2.73	331.72	4,882.73	347.14	-186.80	-343.62	2.00	-2.00	0.00	
5,000.00	0.73	331.72	4,982.68	349.80	-188.23	-346.25	2.00	-2.00	0.00	
5,036.32	0.00	0.00	5,019.00	350.00	-188.33	-346.45	2.00	-2.00	77.87	
Hold Vertical										
5,100.00	0.00	0.00	5,082.68	350.00	-188.33	-346.45	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,182.68	350.00	-188.33	-346.45	0.00	0.00	0.00	
5,236.32	0.00	0.00	5,219.00	350.00	-188.33	-346.45	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,300.00	7.00	180.00	5,282.52	346.11	-188.33	-342.56	11.00	11.00	0.00	
5,400.00	18.00	180.00	5,380.00	324.50	-188.33	-320.95	11.00	11.00	0.00	
5,500.00	29.00	180.00	5,471.56	284.69	-188.33	-281.15	11.00	11.00	0.00	
5,600.00	39.99	180.00	5,553.85	228.14	-188.33	-224.61	11.00	11.00	0.00	
5,700.00	50.99	180.00	5,623.85	156.93	-188.33	-153.41	11.00	11.00	0.00	
5,711.52	52.26	180.00	5,631.00	147.90	-188.33	-144.38	11.00	11.00	0.00	
P200 Marker										
5,758.42	57.42	180.00	5,658.00	109.57	-188.33	-106.06	11.00	11.00	0.00	
P300 Marker										
5,785.54	60.40	180.00	5,672.00	86.36	-188.33	-82.85	11.00	11.00	0.00	
P350 Marker										
5,800.00	61.99	180.00	5,678.97	73.68	-188.33	-70.18	11.00	11.00	0.00	
5,802.20	62.23	180.00	5,680.00	71.73	-188.33	-68.23	11.00	11.00	0.00	
Sharon Springs										
5,834.13	65.74	180.00	5,694.00	43.05	-188.33	-39.55	11.00	11.00	0.00	
Niobrara										
5,868.28	69.50	180.00	5,707.00	11.47	-188.33	-7.98	11.00	11.00	0.00	
Top A Chalk										
5,900.00	72.99	180.00	5,717.20	-18.56	-188.33	22.05	11.00	11.00	0.00	
6,000.00	83.98	180.00	5,737.13	-116.39	-188.33	119.87	11.00	11.00	0.00	
6,054.71	90.00	180.00	5,740.00	-171.00	-188.33	174.47	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG										
6,100.00	90.00	180.00	5,740.00	-216.29	-188.33	219.75	0.00	0.00	0.00	
6,200.00	90.00	180.00	5,740.00	-316.29	-188.33	319.73	0.00	0.00	0.00	
6,300.00	90.00	180.00	5,740.00	-416.29	-188.33	419.71	0.00	0.00	0.00	
6,400.00	90.00	180.00	5,740.00	-516.29	-188.33	519.70	0.00	0.00	0.00	
6,500.00	90.00	180.00	5,740.00	-616.29	-188.33	619.68	0.00	0.00	0.00	
6,600.00	90.00	180.00	5,740.00	-716.29	-188.33	719.66	0.00	0.00	0.00	
6,700.00	90.00	180.00	5,740.00	-816.29	-188.33	819.64	0.00	0.00	0.00	
6,800.00	90.00	180.00	5,740.00	-916.29	-188.33	919.63	0.00	0.00	0.00	
6,900.00	90.00	180.00	5,740.00	-1,016.29	-188.33	1,019.61	0.00	0.00	0.00	
7,000.00	90.00	180.00	5,740.00	-1,116.29	-188.33	1,119.59	0.00	0.00	0.00	
7,100.00	90.00	180.00	5,740.00	-1,216.29	-188.33	1,219.58	0.00	0.00	0.00	
7,200.00	90.00	180.00	5,740.00	-1,316.29	-188.33	1,319.56	0.00	0.00	0.00	
7,300.00	90.00	180.00	5,740.00	-1,416.29	-188.33	1,419.54	0.00	0.00	0.00	
7,400.00	90.00	180.00	5,740.00	-1,516.29	-188.33	1,519.52	0.00	0.00	0.00	
7,500.00	90.00	180.00	5,740.00	-1,616.29	-188.33	1,619.51	0.00	0.00	0.00	
7,600.00	90.00	180.00	5,740.00	-1,716.29	-188.33	1,719.49	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1701
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	HZ		
Design:	APD		

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)
7,700.00	90.00	180.00	5,740.00	-1,816.29	-188.33	1,819.47	0.00	0.00	0.00
7,800.00	90.00	180.00	5,740.00	-1,916.29	-188.33	1,919.46	0.00	0.00	0.00
7,900.00	90.00	180.00	5,740.00	-2,016.29	-188.33	2,019.44	0.00	0.00	0.00
8,000.00	90.00	180.00	5,740.00	-2,116.29	-188.33	2,119.42	0.00	0.00	0.00
8,100.00	90.00	180.00	5,740.00	-2,216.29	-188.33	2,219.40	0.00	0.00	0.00
8,200.00	90.00	180.00	5,740.00	-2,316.29	-188.33	2,319.39	0.00	0.00	0.00
8,300.00	90.00	180.00	5,740.00	-2,416.29	-188.33	2,419.37	0.00	0.00	0.00
8,400.00	90.00	180.00	5,740.00	-2,516.29	-188.33	2,519.35	0.00	0.00	0.00
8,500.00	90.00	180.00	5,740.00	-2,616.29	-188.33	2,619.34	0.00	0.00	0.00
8,600.00	90.00	180.00	5,740.00	-2,716.29	-188.33	2,719.32	0.00	0.00	0.00
8,700.00	90.00	180.00	5,740.00	-2,816.29	-188.33	2,819.30	0.00	0.00	0.00
8,800.00	90.00	180.00	5,740.00	-2,916.29	-188.33	2,919.28	0.00	0.00	0.00
8,900.00	90.00	180.00	5,740.00	-3,016.29	-188.33	3,019.27	0.00	0.00	0.00
9,000.00	90.00	180.00	5,740.00	-3,116.29	-188.33	3,119.25	0.00	0.00	0.00
9,100.00	90.00	180.00	5,740.00	-3,216.29	-188.33	3,219.23	0.00	0.00	0.00
9,200.00	90.00	180.00	5,740.00	-3,316.29	-188.33	3,319.21	0.00	0.00	0.00
9,300.00	90.00	180.00	5,740.00	-3,416.29	-188.33	3,419.20	0.00	0.00	0.00
9,400.00	90.00	180.00	5,740.00	-3,516.29	-188.33	3,519.18	0.00	0.00	0.00
9,500.00	90.00	180.00	5,740.00	-3,616.29	-188.33	3,619.16	0.00	0.00	0.00
9,600.00	90.00	180.00	5,740.00	-3,716.29	-188.33	3,719.15	0.00	0.00	0.00
9,700.00	90.00	180.00	5,740.00	-3,816.29	-188.33	3,819.13	0.00	0.00	0.00
9,800.00	90.00	180.00	5,740.00	-3,916.29	-188.33	3,919.11	0.00	0.00	0.00
9,900.00	90.00	180.00	5,740.00	-4,016.29	-188.33	4,019.09	0.00	0.00	0.00
10,000.00	90.00	180.00	5,740.00	-4,116.29	-188.33	4,119.08	0.00	0.00	0.00
10,100.00	90.00	180.00	5,740.00	-4,216.29	-188.33	4,219.06	0.00	0.00	0.00
10,200.00	90.00	180.00	5,740.00	-4,316.29	-188.33	4,319.04	0.00	0.00	0.00
10,300.00	90.00	180.00	5,740.00	-4,416.29	-188.33	4,419.03	0.00	0.00	0.00
10,400.00	90.00	180.00	5,740.00	-4,516.29	-188.33	4,519.01	0.00	0.00	0.00
10,500.00	90.00	180.00	5,740.00	-4,616.29	-188.33	4,618.99	0.00	0.00	0.00
10,600.00	90.00	180.00	5,740.00	-4,716.29	-188.33	4,718.97	0.00	0.00	0.00
10,700.00	90.00	180.00	5,740.00	-4,816.29	-188.33	4,818.96	0.00	0.00	0.00
10,800.00	90.00	180.00	5,740.00	-4,916.29	-188.33	4,918.94	0.00	0.00	0.00
10,900.00	90.00	180.00	5,740.00	-5,016.29	-188.33	5,018.92	0.00	0.00	0.00
11,000.00	90.00	180.00	5,740.00	-5,116.29	-188.33	5,118.91	0.00	0.00	0.00
11,100.00	90.00	180.00	5,740.00	-5,216.29	-188.33	5,218.89	0.00	0.00	0.00
11,200.00	90.00	180.00	5,740.00	-5,316.29	-188.33	5,318.87	0.00	0.00	0.00
11,300.00	90.00	180.00	5,740.00	-5,416.29	-188.33	5,418.85	0.00	0.00	0.00
11,400.00	90.00	180.00	5,740.00	-5,516.29	-188.33	5,518.84	0.00	0.00	0.00
11,500.00	90.00	180.00	5,740.00	-5,616.29	-188.33	5,618.82	0.00	0.00	0.00
11,600.00	90.00	180.00	5,740.00	-5,716.29	-188.33	5,718.80	0.00	0.00	0.00
11,700.00	90.00	180.00	5,740.00	-5,816.29	-188.33	5,818.78	0.00	0.00	0.00
11,800.00	90.00	180.00	5,740.00	-5,916.29	-188.33	5,918.77	0.00	0.00	0.00
11,900.00	90.00	180.00	5,740.00	-6,016.29	-188.33	6,018.75	0.00	0.00	0.00
12,000.00	90.00	180.00	5,740.00	-6,116.29	-188.33	6,118.73	0.00	0.00	0.00
12,100.00	90.00	180.00	5,740.00	-6,216.29	-188.33	6,218.72	0.00	0.00	0.00
12,200.00	90.00	180.00	5,740.00	-6,316.29	-188.33	6,318.70	0.00	0.00	0.00
12,300.00	90.00	180.00	5,740.00	-6,416.29	-188.33	6,418.68	0.00	0.00	0.00
12,400.00	90.00	180.00	5,740.00	-6,516.29	-188.33	6,518.66	0.00	0.00	0.00
12,500.00	90.00	180.00	5,740.00	-6,616.29	-188.33	6,618.65	0.00	0.00	0.00
12,600.00	90.00	180.00	5,740.00	-6,716.29	-188.33	6,718.63	0.00	0.00	0.00
12,700.00	90.00	180.00	5,740.00	-6,816.29	-188.33	6,818.61	0.00	0.00	0.00
12,800.00	90.00	180.00	5,740.00	-6,916.29	-188.33	6,918.60	0.00	0.00	0.00
12,900.00	90.00	180.00	5,740.00	-7,016.29	-188.33	7,018.58	0.00	0.00	0.00
13,000.00	90.00	180.00	5,740.00	-7,116.29	-188.33	7,118.56	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1701
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

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)	
13,100.00	90.00	180.00	5,740.00	-7,216.29	-188.33	7,218.54	0.00	0.00	0.00	
13,200.00	90.00	180.00	5,740.00	-7,316.29	-188.33	7,318.53	0.00	0.00	0.00	
13,300.00	90.00	180.00	5,740.00	-7,416.29	-188.33	7,418.51	0.00	0.00	0.00	
13,400.00	90.00	180.00	5,740.00	-7,516.29	-188.33	7,518.49	0.00	0.00	0.00	
13,500.00	90.00	180.00	5,740.00	-7,616.29	-188.33	7,618.48	0.00	0.00	0.00	
13,600.00	90.00	180.00	5,740.00	-7,716.29	-188.33	7,718.46	0.00	0.00	0.00	
13,700.00	90.00	180.00	5,740.00	-7,816.29	-188.33	7,818.44	0.00	0.00	0.00	
13,800.00	90.00	180.00	5,740.00	-7,916.29	-188.33	7,918.42	0.00	0.00	0.00	
13,900.00	90.00	180.00	5,740.00	-8,016.29	-188.33	8,018.41	0.00	0.00	0.00	
14,000.00	90.00	180.00	5,740.00	-8,116.29	-188.33	8,118.39	0.00	0.00	0.00	
14,100.00	90.00	180.00	5,740.00	-8,216.29	-188.33	8,218.37	0.00	0.00	0.00	
14,200.00	90.00	180.00	5,740.00	-8,316.29	-188.33	8,318.36	0.00	0.00	0.00	
14,300.00	90.00	180.00	5,740.00	-8,416.29	-188.33	8,418.34	0.00	0.00	0.00	
14,400.00	90.00	180.00	5,740.00	-8,516.29	-188.33	8,518.32	0.00	0.00	0.00	
14,500.00	90.00	180.00	5,740.00	-8,616.29	-188.33	8,618.30	0.00	0.00	0.00	
14,600.00	90.00	180.00	5,740.00	-8,716.29	-188.33	8,718.29	0.00	0.00	0.00	
14,700.00	90.00	180.00	5,740.00	-8,816.29	-188.33	8,818.27	0.00	0.00	0.00	
14,800.00	90.00	180.00	5,740.00	-8,916.29	-188.33	8,918.25	0.00	0.00	0.00	
14,900.00	90.00	180.00	5,740.00	-9,016.29	-188.33	9,018.23	0.00	0.00	0.00	
15,000.00	90.00	180.00	5,740.00	-9,116.29	-188.33	9,118.22	0.00	0.00	0.00	
15,100.00	90.00	180.00	5,740.00	-9,216.29	-188.33	9,218.20	0.00	0.00	0.00	
15,200.00	90.00	180.00	5,740.00	-9,316.29	-188.33	9,318.18	0.00	0.00	0.00	
15,300.00	90.00	180.00	5,740.00	-9,416.29	-188.33	9,418.17	0.00	0.00	0.00	
15,400.00	90.00	180.00	5,740.00	-9,516.29	-188.33	9,518.15	0.00	0.00	0.00	
15,500.00	90.00	180.00	5,740.00	-9,616.29	-188.33	9,618.13	0.00	0.00	0.00	
15,600.00	90.00	180.00	5,740.00	-9,716.29	-188.33	9,718.11	0.00	0.00	0.00	
15,700.00	90.00	180.00	5,740.00	-9,816.29	-188.33	9,818.10	0.00	0.00	0.00	
15,800.00	90.00	180.00	5,740.00	-9,916.29	-188.33	9,918.08	0.00	0.00	0.00	
15,900.00	90.00	180.00	5,740.00	-10,016.29	-188.33	10,018.06	0.00	0.00	0.00	
16,000.00	90.00	180.00	5,740.00	-10,116.29	-188.33	10,118.05	0.00	0.00	0.00	
16,038.74	90.00	180.00	5,740.00	-10,155.04	-188.33	10,156.78	0.00	0.00	0.00	
TD at 16038.74										

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										
PBHL 1701	0.00	0.00	5,740.00	-10,155.04	-188.33	1,550,498.26	3,474,770.10	40° 49' 54.800 N		103° 47' 3.430 W
- plan hits target center										
- Point										

Casing Points						Casing Diameter (in)	Hole Diameter (in)
Measured Depth (usft)	Vertical Depth (usft)	Name					
6,054.71	5,740.00	5 1/2" Marker / 7" CSG				7.000	8.750



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1701
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4980.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4980.70usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1701	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,704.87	1,700.00	Upper Pierre				
3,511.99	3,500.00	Hygiene				
3,662.58	3,650.00	Lower Pierre				
5,711.52	5,631.00	P200 Marker				
5,758.42	5,658.00	P300 Marker				
5,785.54	5,672.00	P350 Marker				
5,802.20	5,680.00	Sharon Springs				
5,834.13	5,694.00	Niobrara				
5,868.28	5,707.00	Top A 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'
554.37	554.04	9.94	-5.35	Hold 5.09° Inc
4,781.95	4,764.96	340.06	-182.99	Drop 2°/100'
5,036.32	5,019.00	350.00	-188.33	Hold Vertical
5,236.32	5,219.00	350.00	-188.33	KOP, Build 11°/100'
6,054.71	5,740.00	-171.00	-188.33	LP @ 90° Inc, Hold
16,038.74	5,740.00	-10,155.04	-188.33	TD at 16038.74