



Project: Weld County, CO
Site: Sec 8-T10N-R57W
Well: Horsetail #08B-1743
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

FORMATION TOP DETAILS

TVDPath	MDPath	Formation
1550.00	1552.36	Upper Pierre
3500.00	3506.45	Hygiene
3650.00	3656.77	Lower Pierre
5515.00	5525.03	P200 Marker
5530.00	5540.03	P300 Marker
5550.00	5560.04	P350 Marker
5702.00	5715.44	Sharon Springs
5707.00	5720.75	Niobrara
5727.00	5742.22	Top A Chalk
5764.00	5782.95	Top A Marl
5783.00	5804.50	A Marl
5792.00	5814.88	Top Upper B
5820.00	5848.00	Base Upper B
5837.00	5868.81	Top Lower B
5857.00	5894.11	Base Lower B
5864.00	5903.21	Top B Marl
5914.00	5972.75	Top C Chalk
5922.00	5984.81	Middle C Chalk
5936.00	6006.75	Middle C Marl
5955.00	6038.54	Lower C Chalk
5973.00	6071.47	Lower C Marl
6004.00	6138.29	Lower C Marker
6009.00	6150.93	Top Ft Hays
6029.00	6211.59	FT Hays Marker

WELL DETAILS: Horsetail #08B-1743

+N/-S	+E/-W	Northing	Ground Level:	4890.00	Longitude	Slot
0.00	0.00	1560769.59	Easting	3477637.03	40° 51' 35.720 N	103° 46' 23.540 W

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSec	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	485.42	3.71	17.09	485.29	5.73	1.76	2.00	17.09	-5.72	
4	5152.61	3.71	17.09	5142.71	294.27	90.48	0.00	0.00	-293.44	
5	5338.03	0.00	0.00	5328.00	300.00	92.25	2.00	180.00	-299.15	
6	5538.03	0.00	0.00	5528.00	300.00	92.25	0.00	0.00	-299.15	
7	6356.42	90.00	180.00	6049.00	-221.00	92.25	11.00	180.00	221.83	
8	16326.90	90.00	180.00	6049.00	-10191.49	92.25	0.00	0.00	10191.90	PBHL 1743

ANNOTATIONS

TVD	MD	Inc	Azi	+N/-S	+E/-W	VSec	Departure	Annotation
300.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00	Build 2°/100'
485.29	485.42	3.71	17.09	5.73	1.76	-5.72	6.00	Hold 3.71° Inc
5142.71	5152.61	3.71	17.09	294.27	90.48	-293.44	307.86	Drop 2°/100'
5328.00	5338.03	0.00	0.00	300.00	92.25	-299.15	313.86	Hold Vertical
5528.00	5538.03	0.00	0.00	300.00	92.25	-299.15	313.86	KOP, Build 11°/100'
6049.00	6356.42	90.00	180.00	-221.00	92.25	221.83	834.86	LP @ 90° Inc, Hold
6049.00	16326.90	90.00	180.00	-10191.49	92.25	10191.90	10805.35	TD at 16326.90

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 1743	6049.00	-10191.49	92.25	1550581.83	3477927.70	40° 49' 55.020 N	103° 46' 22.340 W



Azimuths to True North
Magnetic North: 7.85°

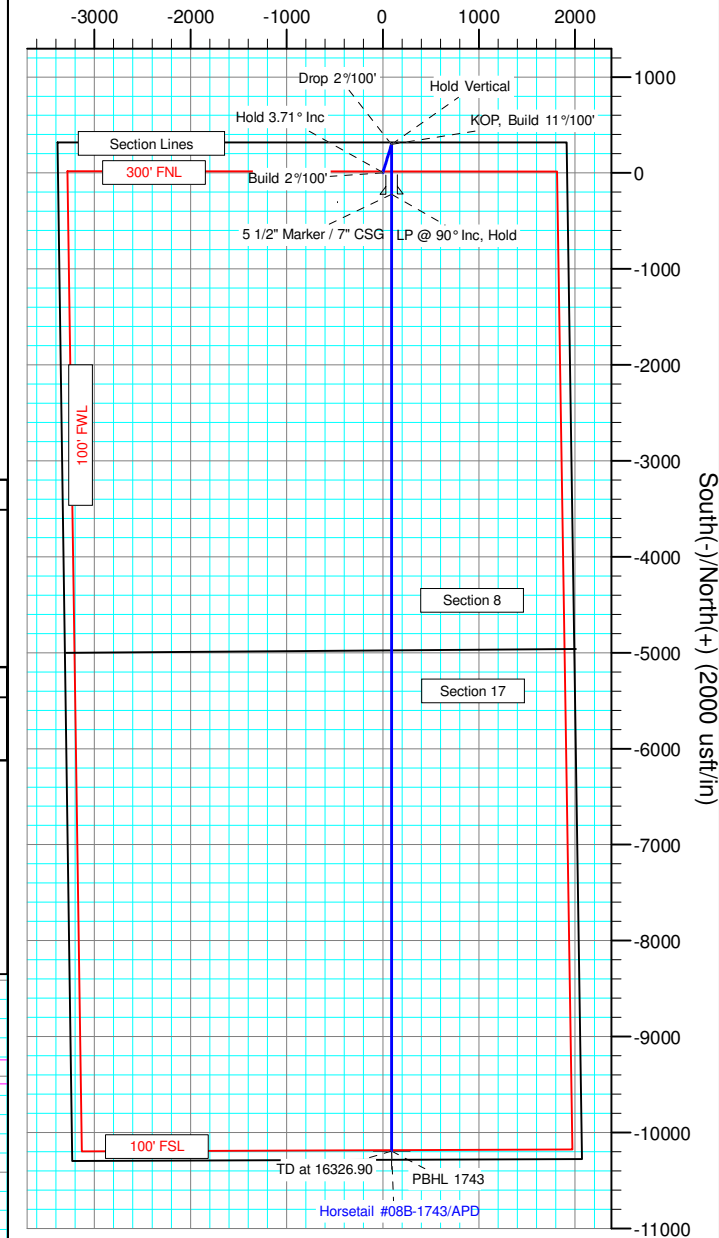
Magnetic Field
Strength: 53076.8nT
Dip Angle: 67.44°
Date: 3/2/2015
Model: IGRF2010

SHL:
330' FNL, 1919' FEL
Sec8-T10N-R57W

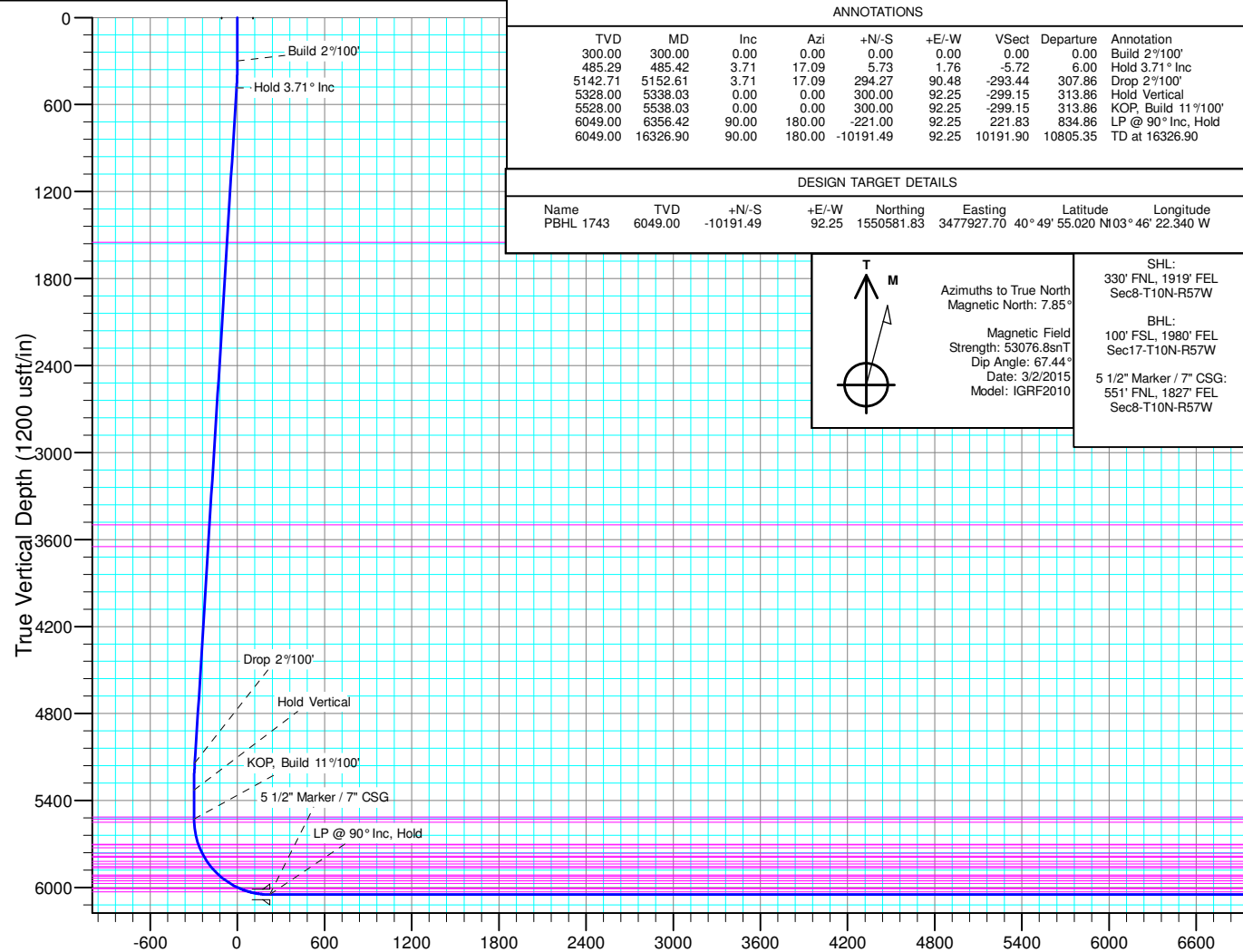
BHL:
100' FSL, 1980' FEL
Sec17-T10N-R57W

5 1/2" Marker / 7" CSG:
551' FNL, 1827' FEL
Sec8-T10N-R57W

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



South(-)/North(+) (2000 usft/in)



Vertical Section at 179.48° (1200 usft/in)



Whiting Petroleum Corp.

Weld County, CO

Sec 8-T10N-R57W

Horsetail #08B-1743

Hz

Plan: APD

Standard Planning Report

22 March, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08B-1743
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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 #08B-1743					
Well Position	+N/-S	-318.50 usft	Northing:	1,560,769.59 usft	Latitude:	40° 51' 35.720 N
	+E/-W	3,382.37 usft	Easting:	3,477,637.02 usft	Longitude:	103° 46' 23.540 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,890.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/2/2015	7.85	67.44	53,077

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	179.48

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	
485.42	3.71	17.09	485.29	5.73	1.76	2.00	2.00	0.00	17.09	
5,152.61	3.71	17.09	5,142.71	294.27	90.48	0.00	0.00	0.00	0.00	
5,338.03	0.00	0.00	5,328.00	300.00	92.25	2.00	-2.00	0.00	180.00	
5,538.03	0.00	0.00	5,528.00	300.00	92.25	0.00	0.00	0.00	0.00	
6,356.42	90.00	180.00	6,049.00	-221.00	92.25	11.00	11.00	0.00	180.00	
16,326.90	90.00	180.00	6,049.00	-10,191.49	92.25	0.00	0.00	0.00	0.00	PBHL 1743



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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	17.09	399.98	1.67	0.51	-1.66	2.00	2.00	0.00
485.42	3.71	17.09	485.29	5.73	1.76	-5.72	2.00	2.00	0.00
Hold 3.71° Inc									
500.00	3.71	17.09	499.84	6.63	2.04	-6.62	0.00	0.00	0.00
600.00	3.71	17.09	599.63	12.82	3.94	-12.78	0.00	0.00	0.00
700.00	3.71	17.09	699.42	19.00	5.84	-18.95	0.00	0.00	0.00
800.00	3.71	17.09	799.21	25.18	7.74	-25.11	0.00	0.00	0.00
900.00	3.71	17.09	899.00	31.36	9.64	-31.27	0.00	0.00	0.00
1,000.00	3.71	17.09	998.79	37.55	11.54	-37.44	0.00	0.00	0.00
1,100.00	3.71	17.09	1,098.58	43.73	13.45	-43.60	0.00	0.00	0.00
1,200.00	3.71	17.09	1,198.37	49.91	15.35	-49.77	0.00	0.00	0.00
1,300.00	3.71	17.09	1,298.17	56.09	17.25	-55.93	0.00	0.00	0.00
1,400.00	3.71	17.09	1,397.96	62.27	19.15	-62.10	0.00	0.00	0.00
1,500.00	3.71	17.09	1,497.75	68.46	21.05	-68.26	0.00	0.00	0.00
1,552.36	3.71	17.09	1,550.00	71.69	22.04	-71.49	0.00	0.00	0.00
Upper Pierre									
1,600.00	3.71	17.09	1,597.54	74.64	22.95	-74.43	0.00	0.00	0.00
1,700.00	3.71	17.09	1,697.33	80.82	24.85	-80.59	0.00	0.00	0.00
1,800.00	3.71	17.09	1,797.12	87.00	26.75	-86.76	0.00	0.00	0.00
1,900.00	3.71	17.09	1,896.91	93.19	28.65	-92.92	0.00	0.00	0.00
2,000.00	3.71	17.09	1,996.70	99.37	30.55	-99.09	0.00	0.00	0.00
2,100.00	3.71	17.09	2,096.49	105.55	32.45	-105.25	0.00	0.00	0.00
2,200.00	3.71	17.09	2,196.28	111.73	34.36	-111.42	0.00	0.00	0.00
2,300.00	3.71	17.09	2,296.07	117.91	36.26	-117.58	0.00	0.00	0.00
2,400.00	3.71	17.09	2,395.86	124.10	38.16	-123.75	0.00	0.00	0.00
2,500.00	3.71	17.09	2,495.65	130.28	40.06	-129.91	0.00	0.00	0.00
2,600.00	3.71	17.09	2,595.44	136.46	41.96	-136.07	0.00	0.00	0.00
2,700.00	3.71	17.09	2,695.23	142.64	43.86	-142.24	0.00	0.00	0.00
2,800.00	3.71	17.09	2,795.02	148.82	45.76	-148.40	0.00	0.00	0.00
2,900.00	3.71	17.09	2,894.81	155.01	47.66	-154.57	0.00	0.00	0.00
3,000.00	3.71	17.09	2,994.61	161.19	49.56	-160.73	0.00	0.00	0.00
3,100.00	3.71	17.09	3,094.40	167.37	51.46	-166.90	0.00	0.00	0.00
3,200.00	3.71	17.09	3,194.19	173.55	53.36	-173.06	0.00	0.00	0.00
3,300.00	3.71	17.09	3,293.98	179.74	55.27	-179.23	0.00	0.00	0.00
3,400.00	3.71	17.09	3,393.77	185.92	57.17	-185.39	0.00	0.00	0.00
3,500.00	3.71	17.09	3,493.56	192.10	59.07	-191.56	0.00	0.00	0.00
3,506.46	3.71	17.09	3,500.00	192.50	59.19	-191.95	0.00	0.00	0.00
Hygiene									
3,600.00	3.71	17.09	3,593.35	198.28	60.97	-197.72	0.00	0.00	0.00
3,656.77	3.71	17.09	3,650.00	201.79	62.05	-201.22	0.00	0.00	0.00
Lower Pierre									
3,700.00	3.71	17.09	3,693.14	204.46	62.87	-203.89	0.00	0.00	0.00
3,800.00	3.71	17.09	3,792.93	210.65	64.77	-210.05	0.00	0.00	0.00
3,900.00	3.71	17.09	3,892.72	216.83	66.67	-216.22	0.00	0.00	0.00
4,000.00	3.71	17.09	3,992.51	223.01	68.57	-222.38	0.00	0.00	0.00
4,100.00	3.71	17.09	4,092.30	229.19	70.47	-228.55	0.00	0.00	0.00
4,200.00	3.71	17.09	4,192.09	235.37	72.37	-234.71	0.00	0.00	0.00
4,300.00	3.71	17.09	4,291.88	241.56	74.27	-240.87	0.00	0.00	0.00
4,400.00	3.71	17.09	4,391.67	247.74	76.18	-247.04	0.00	0.00	0.00



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08B-1743
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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	3.71	17.09	4,491.46	253.92	78.08	-253.20	0.00	0.00	0.00	
4,600.00	3.71	17.09	4,591.26	260.10	79.98	-259.37	0.00	0.00	0.00	
4,700.00	3.71	17.09	4,691.05	266.29	81.88	-265.53	0.00	0.00	0.00	
4,800.00	3.71	17.09	4,790.84	272.47	83.78	-271.70	0.00	0.00	0.00	
4,900.00	3.71	17.09	4,890.63	278.65	85.68	-277.86	0.00	0.00	0.00	
5,000.00	3.71	17.09	4,990.42	284.83	87.58	-284.03	0.00	0.00	0.00	
5,100.00	3.71	17.09	5,090.21	291.01	89.48	-290.19	0.00	0.00	0.00	
5,152.61	3.71	17.09	5,142.71	294.27	90.48	-293.44	0.00	0.00	0.00	
Drop 2°/100'										
5,200.00	2.76	17.09	5,190.02	296.82	91.27	-295.98	2.00	-2.00	0.00	
5,300.00	0.76	17.09	5,289.97	299.76	92.17	-298.91	2.00	-2.00	0.00	
5,338.03	0.00	0.00	5,328.00	300.00	92.25	-299.15	2.00	-2.00	0.00	
Hold Vertical										
5,400.00	0.00	0.00	5,389.97	300.00	92.25	-299.15	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,489.97	300.00	92.25	-299.15	0.00	0.00	0.00	
5,525.03	0.00	0.00	5,515.00	300.00	92.25	-299.15	0.00	0.00	0.00	
P200 Marker										
5,538.03	0.00	0.00	5,528.00	300.00	92.25	-299.15	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,540.03	0.22	180.00	5,530.00	300.00	92.25	-299.15	11.00	11.00	0.00	
P300 Marker										
5,560.04	2.42	180.00	5,550.00	299.54	92.25	-298.69	11.00	11.00	0.00	
P350 Marker										
5,600.00	6.81	180.00	5,589.82	296.32	92.25	-295.47	11.00	11.00	0.00	
5,700.00	17.81	180.00	5,687.37	275.03	92.25	-274.18	11.00	11.00	0.00	
5,715.44	19.51	180.00	5,702.00	270.09	92.25	-269.24	11.00	11.00	0.00	
Sharon Springs										
5,720.75	20.09	180.00	5,707.00	268.29	92.25	-267.44	11.00	11.00	0.00	
Niobrara										
5,742.22	22.46	180.00	5,727.00	260.50	92.25	-259.65	11.00	11.00	0.00	
Top A Chalk										
5,782.95	26.93	180.00	5,764.00	243.48	92.25	-242.64	11.00	11.00	0.00	
Top A Marl										
5,800.00	28.81	180.00	5,779.07	235.51	92.25	-234.67	11.00	11.00	0.00	
5,804.50	29.30	180.00	5,783.00	233.33	92.25	-232.49	11.00	11.00	0.00	
A Marl										
5,814.88	30.45	180.00	5,792.00	228.16	92.25	-227.32	11.00	11.00	0.00	
Top Upper B										
5,848.00	34.09	180.00	5,820.00	210.48	92.25	-209.64	11.00	11.00	0.00	
Base Upper B										
5,868.81	36.38	180.00	5,837.00	198.48	92.25	-197.63	11.00	11.00	0.00	
Top Lower B										
5,894.11	39.16	180.00	5,857.00	182.98	92.25	-182.14	11.00	11.00	0.00	
Base Lower B										
5,900.00	39.81	180.00	5,861.54	179.24	92.25	-178.39	11.00	11.00	0.00	
5,903.21	40.16	180.00	5,864.00	177.18	92.25	-176.33	11.00	11.00	0.00	
Top B Marl										
5,972.75	47.81	180.00	5,914.00	128.92	92.25	-128.08	11.00	11.00	0.00	
Top C Chalk										
5,984.81	49.13	180.00	5,922.00	119.89	92.25	-119.05	11.00	11.00	0.00	
Middle C Chalk										
6,000.00	50.80	180.00	5,931.77	108.26	92.25	-107.42	11.00	11.00	0.00	



WOG

Planning Report

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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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)	
6,006.75	51.55	180.00	5,936.00	103.00	92.25	-102.16	11.00	11.00	0.00	
Middle C Marl										
6,038.54	55.04	180.00	5,955.00	77.52	92.25	-76.68	11.00	11.00	0.00	
Lower C Chalk										
6,071.47	58.66	180.00	5,973.00	49.95	92.25	-49.12	11.00	11.00	0.00	
Lower C Marl										
6,100.00	61.80	180.00	5,987.16	25.19	92.25	-24.35	11.00	11.00	0.00	
6,138.29	66.01	180.00	6,004.00	-9.19	92.25	10.02	11.00	11.00	0.00	
Lower C Marker										
6,150.93	67.40	180.00	6,009.00	-20.80	92.25	21.63	11.00	11.00	0.00	
Top Ft Hays										
6,200.00	72.80	180.00	6,025.70	-66.92	92.25	67.76	11.00	11.00	0.00	
6,211.59	74.07	180.00	6,029.00	-78.03	92.25	78.86	11.00	11.00	0.00	
FT Hays Marker										
6,300.00	83.80	180.00	6,045.95	-164.69	92.25	165.52	11.00	11.00	0.00	
6,356.42	90.00	180.00	6,049.00	-221.00	92.25	221.83	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG										
6,400.00	90.00	180.00	6,049.00	-264.58	92.25	265.41	0.00	0.00	0.00	
6,500.00	90.00	180.00	6,049.00	-364.58	92.25	365.40	0.00	0.00	0.00	
6,600.00	90.00	180.00	6,049.00	-464.58	92.25	465.40	0.00	0.00	0.00	
6,700.00	90.00	180.00	6,049.00	-564.58	92.25	565.40	0.00	0.00	0.00	
6,800.00	90.00	180.00	6,049.00	-664.58	92.25	665.39	0.00	0.00	0.00	
6,900.00	90.00	180.00	6,049.00	-764.58	92.25	765.39	0.00	0.00	0.00	
7,000.00	90.00	180.00	6,049.00	-864.58	92.25	865.38	0.00	0.00	0.00	
7,100.00	90.00	180.00	6,049.00	-964.58	92.25	965.38	0.00	0.00	0.00	
7,200.00	90.00	180.00	6,049.00	-1,064.58	92.25	1,065.38	0.00	0.00	0.00	
7,300.00	90.00	180.00	6,049.00	-1,164.58	92.25	1,165.37	0.00	0.00	0.00	
7,400.00	90.00	180.00	6,049.00	-1,264.58	92.25	1,265.37	0.00	0.00	0.00	
7,500.00	90.00	180.00	6,049.00	-1,364.58	92.25	1,365.36	0.00	0.00	0.00	
7,600.00	90.00	180.00	6,049.00	-1,464.58	92.25	1,465.36	0.00	0.00	0.00	
7,700.00	90.00	180.00	6,049.00	-1,564.58	92.25	1,565.35	0.00	0.00	0.00	
7,800.00	90.00	180.00	6,049.00	-1,664.58	92.25	1,665.35	0.00	0.00	0.00	
7,900.00	90.00	180.00	6,049.00	-1,764.58	92.25	1,765.35	0.00	0.00	0.00	
8,000.00	90.00	180.00	6,049.00	-1,864.58	92.25	1,865.34	0.00	0.00	0.00	
8,100.00	90.00	180.00	6,049.00	-1,964.58	92.25	1,965.34	0.00	0.00	0.00	
8,200.00	90.00	180.00	6,049.00	-2,064.58	92.25	2,065.33	0.00	0.00	0.00	
8,300.00	90.00	180.00	6,049.00	-2,164.58	92.25	2,165.33	0.00	0.00	0.00	
8,400.00	90.00	180.00	6,049.00	-2,264.58	92.25	2,265.33	0.00	0.00	0.00	
8,500.00	90.00	180.00	6,049.00	-2,364.58	92.25	2,365.32	0.00	0.00	0.00	
8,600.00	90.00	180.00	6,049.00	-2,464.58	92.25	2,465.32	0.00	0.00	0.00	
8,700.00	90.00	180.00	6,049.00	-2,564.58	92.25	2,565.31	0.00	0.00	0.00	
8,800.00	90.00	180.00	6,049.00	-2,664.58	92.25	2,665.31	0.00	0.00	0.00	
8,900.00	90.00	180.00	6,049.00	-2,764.58	92.25	2,765.31	0.00	0.00	0.00	
9,000.00	90.00	180.00	6,049.00	-2,864.58	92.25	2,865.30	0.00	0.00	0.00	
9,100.00	90.00	180.00	6,049.00	-2,964.58	92.25	2,965.30	0.00	0.00	0.00	
9,200.00	90.00	180.00	6,049.00	-3,064.58	92.25	3,065.29	0.00	0.00	0.00	
9,300.00	90.00	180.00	6,049.00	-3,164.58	92.25	3,165.29	0.00	0.00	0.00	
9,400.00	90.00	180.00	6,049.00	-3,264.58	92.25	3,265.29	0.00	0.00	0.00	
9,500.00	90.00	180.00	6,049.00	-3,364.58	92.25	3,365.28	0.00	0.00	0.00	
9,600.00	90.00	180.00	6,049.00	-3,464.58	92.25	3,465.28	0.00	0.00	0.00	
9,700.00	90.00	180.00	6,049.00	-3,564.58	92.25	3,565.27	0.00	0.00	0.00	
9,800.00	90.00	180.00	6,049.00	-3,664.58	92.25	3,665.27	0.00	0.00	0.00	
9,900.00	90.00	180.00	6,049.00	-3,764.58	92.25	3,765.26	0.00	0.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08B-1743
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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)
10,000.00	90.00	180.00	6,049.00	-3,864.58	92.25	3,865.26	0.00	0.00	0.00
10,100.00	90.00	180.00	6,049.00	-3,964.58	92.25	3,965.26	0.00	0.00	0.00
10,200.00	90.00	180.00	6,049.00	-4,064.58	92.25	4,065.25	0.00	0.00	0.00
10,300.00	90.00	180.00	6,049.00	-4,164.58	92.25	4,165.25	0.00	0.00	0.00
10,400.00	90.00	180.00	6,049.00	-4,264.58	92.25	4,265.24	0.00	0.00	0.00
10,500.00	90.00	180.00	6,049.00	-4,364.58	92.25	4,365.24	0.00	0.00	0.00
10,600.00	90.00	180.00	6,049.00	-4,464.58	92.25	4,465.24	0.00	0.00	0.00
10,700.00	90.00	180.00	6,049.00	-4,564.58	92.25	4,565.23	0.00	0.00	0.00
10,800.00	90.00	180.00	6,049.00	-4,664.58	92.25	4,665.23	0.00	0.00	0.00
10,900.00	90.00	180.00	6,049.00	-4,764.58	92.25	4,765.22	0.00	0.00	0.00
11,000.00	90.00	180.00	6,049.00	-4,864.58	92.25	4,865.22	0.00	0.00	0.00
11,100.00	90.00	180.00	6,049.00	-4,964.58	92.25	4,965.22	0.00	0.00	0.00
11,200.00	90.00	180.00	6,049.00	-5,064.58	92.25	5,065.21	0.00	0.00	0.00
11,300.00	90.00	180.00	6,049.00	-5,164.58	92.25	5,165.21	0.00	0.00	0.00
11,400.00	90.00	180.00	6,049.00	-5,264.58	92.25	5,265.20	0.00	0.00	0.00
11,500.00	90.00	180.00	6,049.00	-5,364.58	92.25	5,365.20	0.00	0.00	0.00
11,600.00	90.00	180.00	6,049.00	-5,464.58	92.25	5,465.20	0.00	0.00	0.00
11,700.00	90.00	180.00	6,049.00	-5,564.58	92.25	5,565.19	0.00	0.00	0.00
11,800.00	90.00	180.00	6,049.00	-5,664.58	92.25	5,665.19	0.00	0.00	0.00
11,900.00	90.00	180.00	6,049.00	-5,764.58	92.25	5,765.18	0.00	0.00	0.00
12,000.00	90.00	180.00	6,049.00	-5,864.58	92.25	5,865.18	0.00	0.00	0.00
12,100.00	90.00	180.00	6,049.00	-5,964.58	92.25	5,965.17	0.00	0.00	0.00
12,200.00	90.00	180.00	6,049.00	-6,064.58	92.25	6,065.17	0.00	0.00	0.00
12,300.00	90.00	180.00	6,049.00	-6,164.58	92.25	6,165.17	0.00	0.00	0.00
12,400.00	90.00	180.00	6,049.00	-6,264.58	92.25	6,265.16	0.00	0.00	0.00
12,500.00	90.00	180.00	6,049.00	-6,364.58	92.25	6,365.16	0.00	0.00	0.00
12,600.00	90.00	180.00	6,049.00	-6,464.58	92.25	6,465.15	0.00	0.00	0.00
12,700.00	90.00	180.00	6,049.00	-6,564.58	92.25	6,565.15	0.00	0.00	0.00
12,800.00	90.00	180.00	6,049.00	-6,664.58	92.25	6,665.15	0.00	0.00	0.00
12,900.00	90.00	180.00	6,049.00	-6,764.58	92.25	6,765.14	0.00	0.00	0.00
13,000.00	90.00	180.00	6,049.00	-6,864.58	92.25	6,865.14	0.00	0.00	0.00
13,100.00	90.00	180.00	6,049.00	-6,964.58	92.25	6,965.13	0.00	0.00	0.00
13,200.00	90.00	180.00	6,049.00	-7,064.58	92.25	7,065.13	0.00	0.00	0.00
13,300.00	90.00	180.00	6,049.00	-7,164.58	92.25	7,165.13	0.00	0.00	0.00
13,400.00	90.00	180.00	6,049.00	-7,264.58	92.25	7,265.12	0.00	0.00	0.00
13,500.00	90.00	180.00	6,049.00	-7,364.58	92.25	7,365.12	0.00	0.00	0.00
13,600.00	90.00	180.00	6,049.00	-7,464.58	92.25	7,465.11	0.00	0.00	0.00
13,700.00	90.00	180.00	6,049.00	-7,564.58	92.25	7,565.11	0.00	0.00	0.00
13,800.00	90.00	180.00	6,049.00	-7,664.58	92.25	7,665.11	0.00	0.00	0.00
13,900.00	90.00	180.00	6,049.00	-7,764.58	92.25	7,765.10	0.00	0.00	0.00
14,000.00	90.00	180.00	6,049.00	-7,864.58	92.25	7,865.10	0.00	0.00	0.00
14,100.00	90.00	180.00	6,049.00	-7,964.58	92.25	7,965.09	0.00	0.00	0.00
14,200.00	90.00	180.00	6,049.00	-8,064.58	92.25	8,065.09	0.00	0.00	0.00
14,300.00	90.00	180.00	6,049.00	-8,164.58	92.25	8,165.08	0.00	0.00	0.00
14,400.00	90.00	180.00	6,049.00	-8,264.58	92.25	8,265.08	0.00	0.00	0.00
14,500.00	90.00	180.00	6,049.00	-8,364.58	92.25	8,365.08	0.00	0.00	0.00
14,600.00	90.00	180.00	6,049.00	-8,464.58	92.25	8,465.07	0.00	0.00	0.00
14,700.00	90.00	180.00	6,049.00	-8,564.58	92.25	8,565.07	0.00	0.00	0.00
14,800.00	90.00	180.00	6,049.00	-8,664.58	92.25	8,665.06	0.00	0.00	0.00
14,900.00	90.00	180.00	6,049.00	-8,764.58	92.25	8,765.06	0.00	0.00	0.00
15,000.00	90.00	180.00	6,049.00	-8,864.58	92.25	8,865.06	0.00	0.00	0.00
15,100.00	90.00	180.00	6,049.00	-8,964.58	92.25	8,965.05	0.00	0.00	0.00
15,200.00	90.00	180.00	6,049.00	-9,064.58	92.25	9,065.05	0.00	0.00	0.00
15,300.00	90.00	180.00	6,049.00	-9,164.58	92.25	9,165.04	0.00	0.00	0.00



WOG
Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08B-1743
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	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)	
15,400.00	90.00	180.00	6,049.00	-9,264.58	92.25	9,265.04	0.00	0.00	0.00	
15,500.00	90.00	180.00	6,049.00	-9,364.58	92.25	9,365.04	0.00	0.00	0.00	
15,600.00	90.00	180.00	6,049.00	-9,464.58	92.25	9,465.03	0.00	0.00	0.00	
15,700.00	90.00	180.00	6,049.00	-9,564.58	92.25	9,565.03	0.00	0.00	0.00	
15,800.00	90.00	180.00	6,049.00	-9,664.58	92.25	9,665.02	0.00	0.00	0.00	
15,900.00	90.00	180.00	6,049.00	-9,764.58	92.25	9,765.02	0.00	0.00	0.00	
16,000.00	90.00	180.00	6,049.00	-9,864.58	92.25	9,865.02	0.00	0.00	0.00	
16,100.00	90.00	180.00	6,049.00	-9,964.58	92.25	9,965.01	0.00	0.00	0.00	
16,200.00	90.00	180.00	6,049.00	-10,064.58	92.25	10,065.01	0.00	0.00	0.00	
16,300.00	90.00	180.00	6,049.00	-10,164.58	92.25	10,165.00	0.00	0.00	0.00	
16,326.90	90.00	180.00	6,049.00	-10,191.49	92.25	10,191.90	0.00	0.00	0.00	
TD at 16326.90										

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 1743	0.00	0.00	6,049.00	-10,191.49	92.25	1,550,581.84	3,477,927.70	40° 49' 55.020 N	103° 46' 22.340 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,356.42	6,049.00	5 1/2" Marker / 7" CSG	7.000	8.750	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08B-1743
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4908.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4908.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08B-1743	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,552.36	1,550.00	Upper Pierre				
3,506.46	3,500.00	Hygiene				
3,656.77	3,650.00	Lower Pierre				
5,525.03	5,515.00	P200 Marker				
5,540.03	5,530.00	P300 Marker				
5,560.04	5,550.00	P350 Marker				
5,715.44	5,702.00	Sharon Springs				
5,720.75	5,707.00	Niobrara				
5,742.22	5,727.00	Top A Chalk				
5,782.95	5,764.00	Top A Marl				
5,804.50	5,783.00	A Marl				
5,814.88	5,792.00	Top Upper B				
5,848.00	5,820.00	Base Upper B				
5,868.81	5,837.00	Top Lower B				
5,894.11	5,857.00	Base Lower B				
5,903.21	5,864.00	Top B Marl				
5,972.75	5,914.00	Top C Chalk				
5,984.81	5,922.00	Middle C Chalk				
6,006.75	5,936.00	Middle C Marl				
6,038.54	5,955.00	Lower C Chalk				
6,071.47	5,973.00	Lower C Marl				
6,138.29	6,004.00	Lower C Marker				
6,150.93	6,009.00	Top Ft Hays				
6,211.59	6,029.00	FT Hays Marker				

Plan Annotations					
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates			
		+N/-S (usft)	+E/-W (usft)	Comment	
300.00	300.00	0.00	0.00	Build 2°/100'	
485.42	485.29	5.73	1.76	Hold 3.71° Inc	
5,152.61	5,142.71	294.27	90.48	Drop 2°/100'	
5,338.03	5,328.00	300.00	92.25	Hold Vertical	
5,538.03	5,528.00	300.00	92.25	KOP, Build 11°/100'	
6,356.42	6,049.00	-221.00	92.25	LP @ 90° Inc, Hold	
16,326.90	6,049.00	-10,191.49	92.25	TD at 16326.90	