



Project: Weld County, CO
Site: Sec 8-T10N-R57W
Well: Horsetail #08D-1735
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
1700.00	1704.13	Upper Pierre
3500.00	3510.10	Hygiene
3650.00	3660.59	Lower Pierre
5631.00	5648.00	P200 Marker
5658.00	5676.12	P300 Marker
5672.00	5690.89	P350 Marker
5680.00	5699.40	Sharon Springs
5694.00	5714.41	Niobrara
5707.00	5728.51	Top A Chalk
5745.00	5770.75	Top A Marl
5763.00	5791.39	A Marl
5772.00	5801.89	Top Upper B
5792.00	5825.72	Base Upper B
5815.00	5854.07	Top Lower B
5840.00	5886.30	Base Lower B
5849.00	5898.32	Top B Marl
5891.00	5958.28	Top C Chalk
5901.00	5973.73	Middle C Chalk
5916.00	5998.00	Middle C Marl
5937.00	6034.80	Lower C Chalk
5955.00	6069.90	Lower C Marl
5981.00	6130.06	Lower C Marker
5986.00	6143.67	Top Ft. Hays
6001.00	6191.80	Ft. Hays Marker

WELL DETAILS: Horsetail #08D-1735

+N/-S	+E/-W	Northing	Ground Level:	Easting	Latitude	Longitude	Slot
0.00	0.00	1560706.80	4958.00	3474820.79	40° 51' 35.640 N	103° 47' 0.200 W	

SECTION DETAILS

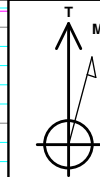
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	Dleg	TFace	VSect	Target
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	
3	532.98	4.66	39.44	532.72	7.31	6.01	2.00	39.44	-7.16	
4	5081.57	4.66	39.44	5066.28	292.69	240.74	0.00	0.00	-286.78	
5	5314.55	0.00	0.00	5299.00	300.00	246.76	2.00	180.00	-293.95	
6	5514.55	0.00	0.00	5499.00	300.00	246.76	0.00	0.00	-293.95	
7	6332.93	90.00	180.00	6020.00	-221.00	246.76	11.00	180.00	226.90	
8	16131.54	90.00	180.00	6020.00	-10201.61	246.76	0.00	0.00	10204.59	PBHL 1735

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'
532.72	532.98	4.66	39.44	7.31	6.01	-7.16	9.47	Hold 4.66° Inc
5066.28	5081.57	4.66	39.44	292.69	240.74	-286.78	378.98	Drop 2°/100'
5299.00	5314.55	0.00	0.00	300.00	246.76	-293.95	388.44	Hold Vertical
5499.00	5514.55	0.00	0.00	300.00	246.76	-293.95	388.44	KOP, Build 11°/100'
6020.00	6332.93	90.00	180.00	-221.00	246.76	226.90	909.44	LP @ 90° Inc, Hold
6020.00	16131.54	90.00	180.00	-10201.61	246.76	10204.59	10890.05	TD at 16131.54

DESIGN TARGET DETAILS

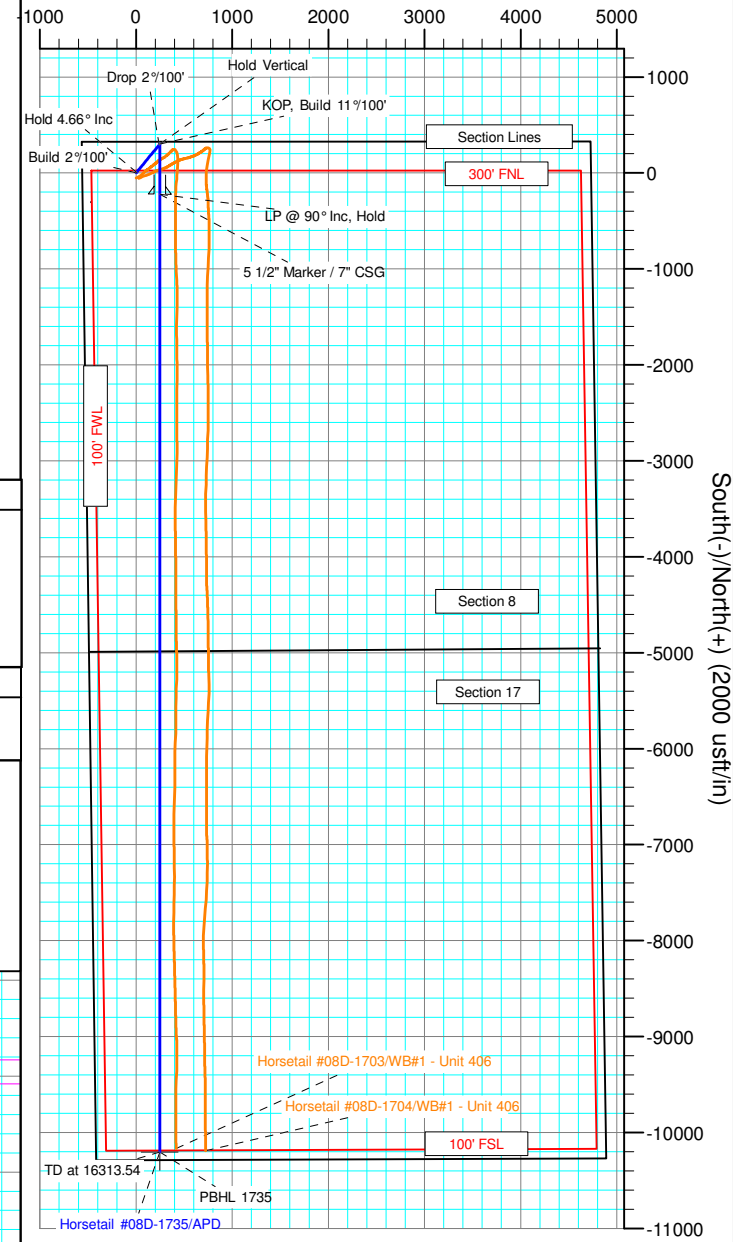
Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
PBHL 1735	6020.00	-10201.61	246.76	1550511.89	3475264.98	40° 49' 54.840 N	103° 46' 56.990 W



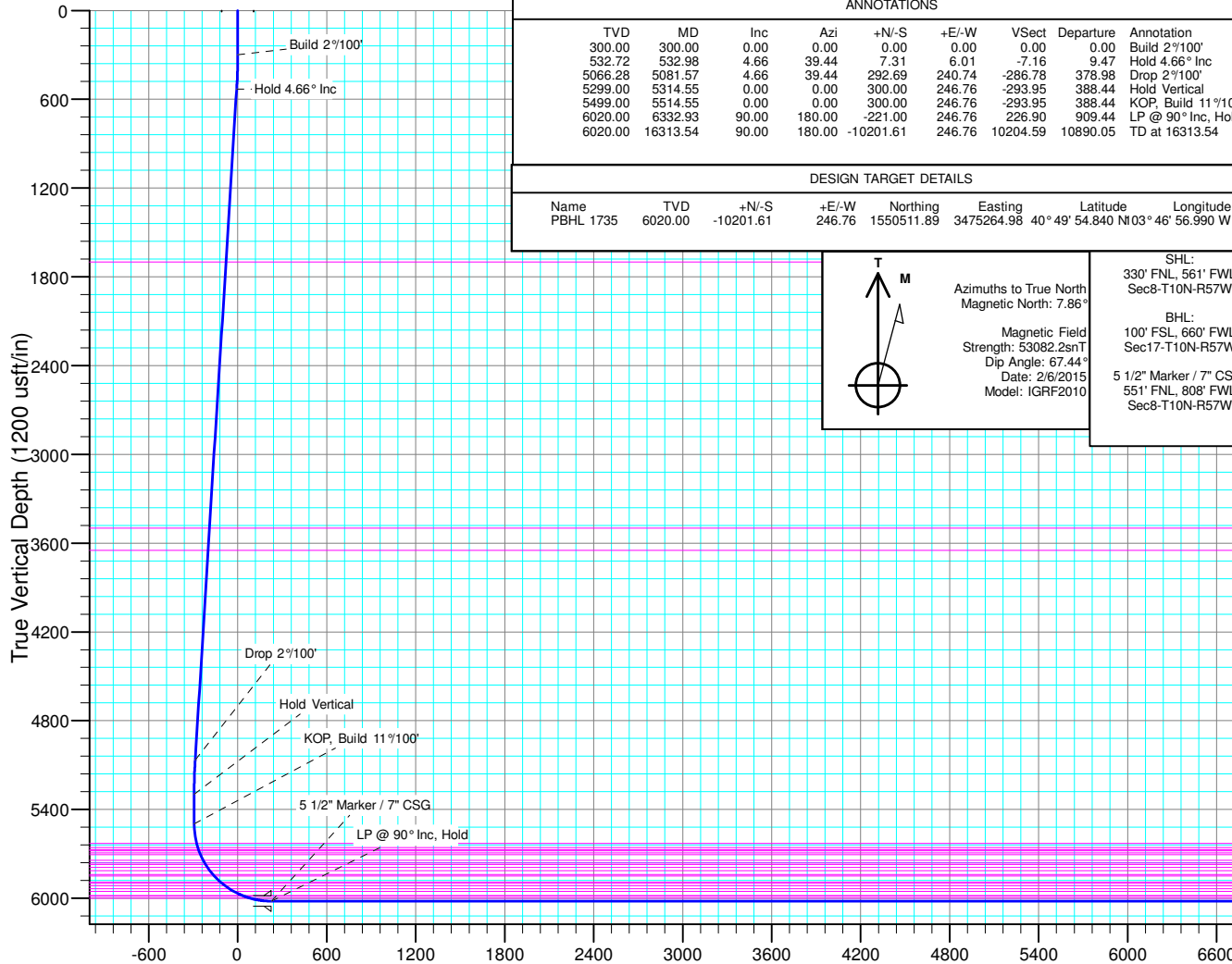
Azimuths to True North
Magnetic North: 7.86°
Magnetic Field
Strength: 53082.2snT
Dip Angle: 67.44°
Date: 2/6/2015
Model: IGRF2010

SHL:
330' FNL, 561' FWL
Sec8-T10N-R57W
BHL:
100' FSL, 660' FWL
Sec17-T10N-R57W
5 1/2" Marker / 7" CSG:
551' FNL, 808' FWL
Sec8-T10N-R57W

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



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



Vertical Section at 178.61° (1200 usft/in)



Whiting Petroleum Corp.

Weld County, CO

Sec 8-T10N-R57W

Horsetail #08D-1735

Hz

Plan: APD

Standard Planning Report

17 March, 2016



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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-1735					
Well Position	+N/-S	-326.82 usft	Northing:	1,560,706.81 usft	Latitude:	40° 51' 35.640 N
	+E/-W	565.44 usft	Easting:	3,474,820.79 usft	Longitude:	103° 47' 0.200 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,958.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	2/6/2015	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	178.61

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	
532.98	4.66	39.44	532.72	7.31	6.01	2.00	2.00	0.00	39.44	
5,081.57	4.66	39.44	5,066.28	292.69	240.74	0.00	0.00	0.00	0.00	
5,314.55	0.00	0.00	5,299.00	300.00	246.76	2.00	-2.00	0.00	180.00	
5,514.55	0.00	0.00	5,499.00	300.00	246.76	0.00	0.00	0.00	0.00	
6,332.93	90.00	180.00	6,020.00	-221.00	246.76	11.00	11.00	0.00	180.00	
16,313.54	90.00	180.00	6,020.00	-10,201.61	246.76	0.00	0.00	0.00	0.00	PBHL 1735



WOG

Planning Report

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Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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	39.44	399.98	1.35	1.11	-1.32	2.00	2.00	0.00
500.00	4.00	39.44	499.84	5.39	4.43	-5.28	2.00	2.00	0.00
532.98	4.66	39.44	532.72	7.31	6.01	-7.16	2.00	2.00	0.00
Hold 4.66° Inc									
600.00	4.66	39.44	599.52	11.52	9.47	-11.28	0.00	0.00	0.00
700.00	4.66	39.44	699.19	17.79	14.63	-17.43	0.00	0.00	0.00
800.00	4.66	39.44	798.86	24.07	19.79	-23.58	0.00	0.00	0.00
900.00	4.66	39.44	898.53	30.34	24.95	-29.73	0.00	0.00	0.00
1,000.00	4.66	39.44	998.20	36.61	30.11	-35.87	0.00	0.00	0.00
1,100.00	4.66	39.44	1,097.87	42.89	35.28	-42.02	0.00	0.00	0.00
1,200.00	4.66	39.44	1,197.54	49.16	40.44	-48.17	0.00	0.00	0.00
1,300.00	4.66	39.44	1,297.21	55.43	45.60	-54.32	0.00	0.00	0.00
1,400.00	4.66	39.44	1,396.88	61.71	50.76	-60.46	0.00	0.00	0.00
1,500.00	4.66	39.44	1,496.55	67.98	55.92	-66.61	0.00	0.00	0.00
1,600.00	4.66	39.44	1,596.22	74.26	61.08	-72.76	0.00	0.00	0.00
1,700.00	4.66	39.44	1,695.89	80.53	66.24	-78.91	0.00	0.00	0.00
1,704.13	4.66	39.44	1,700.00	80.79	66.45	-79.16	0.00	0.00	0.00
Upper Pierre									
1,800.00	4.66	39.44	1,795.56	86.80	71.40	-85.05	0.00	0.00	0.00
1,900.00	4.66	39.44	1,895.23	93.08	76.56	-91.20	0.00	0.00	0.00
2,000.00	4.66	39.44	1,994.89	99.35	81.72	-97.35	0.00	0.00	0.00
2,100.00	4.66	39.44	2,094.56	105.63	86.88	-103.49	0.00	0.00	0.00
2,200.00	4.66	39.44	2,194.23	111.90	92.04	-109.64	0.00	0.00	0.00
2,300.00	4.66	39.44	2,293.90	118.17	97.20	-115.79	0.00	0.00	0.00
2,400.00	4.66	39.44	2,393.57	124.45	102.36	-121.94	0.00	0.00	0.00
2,500.00	4.66	39.44	2,493.24	130.72	107.52	-128.08	0.00	0.00	0.00
2,600.00	4.66	39.44	2,592.91	137.00	112.68	-134.23	0.00	0.00	0.00
2,700.00	4.66	39.44	2,692.58	143.27	117.84	-140.38	0.00	0.00	0.00
2,800.00	4.66	39.44	2,792.25	149.54	123.00	-146.53	0.00	0.00	0.00
2,900.00	4.66	39.44	2,891.92	155.82	128.16	-152.67	0.00	0.00	0.00
3,000.00	4.66	39.44	2,991.59	162.09	133.32	-158.82	0.00	0.00	0.00
3,100.00	4.66	39.44	3,091.26	168.37	138.48	-164.97	0.00	0.00	0.00
3,200.00	4.66	39.44	3,190.93	174.64	143.64	-171.11	0.00	0.00	0.00
3,300.00	4.66	39.44	3,290.60	180.91	148.80	-177.26	0.00	0.00	0.00
3,400.00	4.66	39.44	3,390.27	187.19	153.97	-183.41	0.00	0.00	0.00
3,500.00	4.66	39.44	3,489.94	193.46	159.13	-189.56	0.00	0.00	0.00
3,510.10	4.66	39.44	3,500.00	194.09	159.65	-190.18	0.00	0.00	0.00
Hygiene									
3,600.00	4.66	39.44	3,589.61	199.74	164.29	-195.70	0.00	0.00	0.00
3,660.59	4.66	39.44	3,650.00	203.54	167.41	-199.43	0.00	0.00	0.00
Lower Pierre									
3,700.00	4.66	39.44	3,689.28	206.01	169.45	-201.85	0.00	0.00	0.00
3,800.00	4.66	39.44	3,788.95	212.28	174.61	-208.00	0.00	0.00	0.00
3,900.00	4.66	39.44	3,888.62	218.56	179.77	-214.15	0.00	0.00	0.00
4,000.00	4.66	39.44	3,988.28	224.83	184.93	-220.29	0.00	0.00	0.00
4,100.00	4.66	39.44	4,087.95	231.10	190.09	-226.44	0.00	0.00	0.00
4,200.00	4.66	39.44	4,187.62	237.38	195.25	-232.59	0.00	0.00	0.00
4,300.00	4.66	39.44	4,287.29	243.65	200.41	-238.74	0.00	0.00	0.00
4,400.00	4.66	39.44	4,386.96	249.93	205.57	-244.88	0.00	0.00	0.00



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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	4.66	39.44	4,486.63	256.20	210.73	-251.03	0.00	0.00	0.00	
4,600.00	4.66	39.44	4,586.30	262.47	215.89	-257.18	0.00	0.00	0.00	
4,700.00	4.66	39.44	4,685.97	268.75	221.05	-263.32	0.00	0.00	0.00	
4,800.00	4.66	39.44	4,785.64	275.02	226.21	-269.47	0.00	0.00	0.00	
4,900.00	4.66	39.44	4,885.31	281.30	231.37	-275.62	0.00	0.00	0.00	
5,000.00	4.66	39.44	4,984.98	287.57	236.53	-281.77	0.00	0.00	0.00	
5,081.57	4.66	39.44	5,066.28	292.69	240.74	-286.78	0.00	0.00	0.00	
Drop 2°/100'										
5,100.00	4.29	39.44	5,084.65	293.80	241.66	-287.87	2.00	-2.00	0.00	
5,200.00	2.29	39.44	5,184.48	298.23	245.30	-292.21	2.00	-2.00	0.00	
5,300.00	0.29	39.44	5,284.45	299.97	246.73	-293.92	2.00	-2.00	0.00	
5,314.55	0.00	0.00	5,299.00	300.00	246.76	-293.95	2.00	-2.00	0.00	
Hold Vertical										
5,400.00	0.00	0.00	5,384.45	300.00	246.76	-293.95	0.00	0.00	0.00	
5,500.00	0.00	0.00	5,484.45	300.00	246.76	-293.95	0.00	0.00	0.00	
5,514.55	0.00	0.00	5,499.00	300.00	246.76	-293.95	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,600.00	9.40	180.00	5,584.07	293.01	246.76	-286.96	11.00	11.00	0.00	
5,648.00	14.68	180.00	5,631.00	283.00	246.76	-276.95	11.00	11.00	0.00	
P200 Marker										
5,676.12	17.77	180.00	5,658.00	275.15	246.76	-269.10	11.00	11.00	0.00	
P300 Marker										
5,690.90	19.39	180.00	5,672.00	270.44	246.76	-264.39	11.00	11.00	0.00	
P350 Marker										
5,699.40	20.33	180.00	5,680.00	267.55	246.76	-261.50	11.00	11.00	0.00	
Sharon Springs										
5,700.00	20.39	180.00	5,680.56	267.34	246.76	-261.30	11.00	11.00	0.00	
5,714.41	21.98	180.00	5,694.00	262.13	246.76	-256.09	11.00	11.00	0.00	
Niobrara										
5,728.51	23.53	180.00	5,707.00	256.68	246.76	-250.64	11.00	11.00	0.00	
Top A Chalk										
5,770.75	28.18	180.00	5,745.00	238.27	246.76	-232.23	11.00	11.00	0.00	
Top A Marl										
5,791.39	30.45	180.00	5,763.00	228.16	246.76	-222.13	11.00	11.00	0.00	
A Marl										
5,800.00	31.39	180.00	5,770.38	223.74	246.76	-217.71	11.00	11.00	0.00	
5,801.89	31.60	180.00	5,772.00	222.75	246.76	-216.72	11.00	11.00	0.00	
Top Upper B										
5,825.72	34.22	180.00	5,792.00	209.80	246.76	-203.78	11.00	11.00	0.00	
Base Upper B										
5,854.07	37.34	180.00	5,815.00	193.23	246.76	-187.20	11.00	11.00	0.00	
Top Lower B										
5,886.30	40.88	180.00	5,840.00	172.90	246.76	-166.89	11.00	11.00	0.00	
Base Lower B										
5,898.32	42.20	180.00	5,849.00	164.93	246.76	-158.91	11.00	11.00	0.00	
Top B Marl										
5,900.00	42.39	180.00	5,850.24	163.80	246.76	-157.79	11.00	11.00	0.00	
5,958.28	48.80	180.00	5,891.00	122.19	246.76	-116.18	11.00	11.00	0.00	
Top C Chalk										
5,973.73	50.50	180.00	5,901.00	110.42	246.76	-104.42	11.00	11.00	0.00	
Middle C Chalk										
5,998.00	53.17	180.00	5,916.00	91.33	246.76	-85.34	11.00	11.00	0.00	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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)
Middle C Marl									
6,000.00	53.39	180.00	5,917.20	89.73	246.76	-83.74	11.00	11.00	0.00
6,034.80	57.21	180.00	5,937.00	61.13	246.76	-55.14	11.00	11.00	0.00
Lower C Chalk									
6,069.90	61.07	180.00	5,955.00	31.00	246.76	-25.03	11.00	11.00	0.00
Lower C Marl									
6,100.00	64.38	180.00	5,968.79	4.25	246.76	1.72	11.00	11.00	0.00
6,130.06	67.69	180.00	5,981.00	-23.22	246.76	29.18	11.00	11.00	0.00
Lower C Marker									
6,143.67	69.19	180.00	5,986.00	-35.87	246.76	41.83	11.00	11.00	0.00
Top Ft. Hays									
6,191.80	74.48	180.00	6,001.00	-81.58	246.76	87.53	11.00	11.00	0.00
Ft. Hays Marker									
6,200.00	75.38	180.00	6,003.13	-89.51	246.76	95.45	11.00	11.00	0.00
6,300.00	86.38	180.00	6,018.96	-188.09	246.76	194.00	11.00	11.00	0.00
6,332.93	90.00	180.00	6,020.00	-221.00	246.76	226.90	11.00	11.00	0.00
LP @ 90° Inc, Hold - 5 1/2" Marker / 7" CSG									
6,400.00	90.00	180.00	6,020.00	-288.07	246.76	293.95	0.00	0.00	0.00
6,500.00	90.00	180.00	6,020.00	-388.07	246.76	393.92	0.00	0.00	0.00
6,600.00	90.00	180.00	6,020.00	-488.07	246.76	493.89	0.00	0.00	0.00
6,700.00	90.00	180.00	6,020.00	-588.07	246.76	593.86	0.00	0.00	0.00
6,800.00	90.00	180.00	6,020.00	-688.07	246.76	693.83	0.00	0.00	0.00
6,900.00	90.00	180.00	6,020.00	-788.07	246.76	793.80	0.00	0.00	0.00
7,000.00	90.00	180.00	6,020.00	-888.07	246.76	893.78	0.00	0.00	0.00
7,100.00	90.00	180.00	6,020.00	-988.07	246.76	993.75	0.00	0.00	0.00
7,200.00	90.00	180.00	6,020.00	-1,088.07	246.76	1,093.72	0.00	0.00	0.00
7,300.00	90.00	180.00	6,020.00	-1,188.07	246.76	1,193.69	0.00	0.00	0.00
7,400.00	90.00	180.00	6,020.00	-1,288.07	246.76	1,293.66	0.00	0.00	0.00
7,500.00	90.00	180.00	6,020.00	-1,388.07	246.76	1,393.63	0.00	0.00	0.00
7,600.00	90.00	180.00	6,020.00	-1,488.07	246.76	1,493.60	0.00	0.00	0.00
7,700.00	90.00	180.00	6,020.00	-1,588.07	246.76	1,593.57	0.00	0.00	0.00
7,800.00	90.00	180.00	6,020.00	-1,688.07	246.76	1,693.54	0.00	0.00	0.00
7,900.00	90.00	180.00	6,020.00	-1,788.07	246.76	1,793.51	0.00	0.00	0.00
8,000.00	90.00	180.00	6,020.00	-1,888.07	246.76	1,893.48	0.00	0.00	0.00
8,100.00	90.00	180.00	6,020.00	-1,988.07	246.76	1,993.45	0.00	0.00	0.00
8,200.00	90.00	180.00	6,020.00	-2,088.07	246.76	2,093.42	0.00	0.00	0.00
8,300.00	90.00	180.00	6,020.00	-2,188.07	246.76	2,193.40	0.00	0.00	0.00
8,400.00	90.00	180.00	6,020.00	-2,288.07	246.76	2,293.37	0.00	0.00	0.00
8,500.00	90.00	180.00	6,020.00	-2,388.07	246.76	2,393.34	0.00	0.00	0.00
8,600.00	90.00	180.00	6,020.00	-2,488.07	246.76	2,493.31	0.00	0.00	0.00
8,700.00	90.00	180.00	6,020.00	-2,588.07	246.76	2,593.28	0.00	0.00	0.00
8,800.00	90.00	180.00	6,020.00	-2,688.07	246.76	2,693.25	0.00	0.00	0.00
8,900.00	90.00	180.00	6,020.00	-2,788.07	246.76	2,793.22	0.00	0.00	0.00
9,000.00	90.00	180.00	6,020.00	-2,888.07	246.76	2,893.19	0.00	0.00	0.00
9,100.00	90.00	180.00	6,020.00	-2,988.07	246.76	2,993.16	0.00	0.00	0.00
9,200.00	90.00	180.00	6,020.00	-3,088.07	246.76	3,093.13	0.00	0.00	0.00
9,300.00	90.00	180.00	6,020.00	-3,188.07	246.76	3,193.10	0.00	0.00	0.00
9,400.00	90.00	180.00	6,020.00	-3,288.07	246.76	3,293.07	0.00	0.00	0.00
9,500.00	90.00	180.00	6,020.00	-3,388.07	246.76	3,393.04	0.00	0.00	0.00
9,600.00	90.00	180.00	6,020.00	-3,488.07	246.76	3,493.02	0.00	0.00	0.00
9,700.00	90.00	180.00	6,020.00	-3,588.07	246.76	3,592.99	0.00	0.00	0.00
9,800.00	90.00	180.00	6,020.00	-3,688.07	246.76	3,692.96	0.00	0.00	0.00
9,900.00	90.00	180.00	6,020.00	-3,788.07	246.76	3,792.93	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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	6,020.00	-3,888.07	246.76	3,892.90	0.00	0.00	0.00
10,100.00	90.00	180.00	6,020.00	-3,988.07	246.76	3,992.87	0.00	0.00	0.00
10,200.00	90.00	180.00	6,020.00	-4,088.07	246.76	4,092.84	0.00	0.00	0.00
10,300.00	90.00	180.00	6,020.00	-4,188.07	246.76	4,192.81	0.00	0.00	0.00
10,400.00	90.00	180.00	6,020.00	-4,288.07	246.76	4,292.78	0.00	0.00	0.00
10,500.00	90.00	180.00	6,020.00	-4,388.07	246.76	4,392.75	0.00	0.00	0.00
10,600.00	90.00	180.00	6,020.00	-4,488.07	246.76	4,492.72	0.00	0.00	0.00
10,700.00	90.00	180.00	6,020.00	-4,588.07	246.76	4,592.69	0.00	0.00	0.00
10,800.00	90.00	180.00	6,020.00	-4,688.07	246.76	4,692.66	0.00	0.00	0.00
10,900.00	90.00	180.00	6,020.00	-4,788.07	246.76	4,792.64	0.00	0.00	0.00
11,000.00	90.00	180.00	6,020.00	-4,888.07	246.76	4,892.61	0.00	0.00	0.00
11,100.00	90.00	180.00	6,020.00	-4,988.07	246.76	4,992.58	0.00	0.00	0.00
11,200.00	90.00	180.00	6,020.00	-5,088.07	246.76	5,092.55	0.00	0.00	0.00
11,300.00	90.00	180.00	6,020.00	-5,188.07	246.76	5,192.52	0.00	0.00	0.00
11,400.00	90.00	180.00	6,020.00	-5,288.07	246.76	5,292.49	0.00	0.00	0.00
11,500.00	90.00	180.00	6,020.00	-5,388.07	246.76	5,392.46	0.00	0.00	0.00
11,600.00	90.00	180.00	6,020.00	-5,488.07	246.76	5,492.43	0.00	0.00	0.00
11,700.00	90.00	180.00	6,020.00	-5,588.07	246.76	5,592.40	0.00	0.00	0.00
11,800.00	90.00	180.00	6,020.00	-5,688.07	246.76	5,692.37	0.00	0.00	0.00
11,900.00	90.00	180.00	6,020.00	-5,788.07	246.76	5,792.34	0.00	0.00	0.00
12,000.00	90.00	180.00	6,020.00	-5,888.07	246.76	5,892.31	0.00	0.00	0.00
12,100.00	90.00	180.00	6,020.00	-5,988.07	246.76	5,992.28	0.00	0.00	0.00
12,200.00	90.00	180.00	6,020.00	-6,088.07	246.76	6,092.26	0.00	0.00	0.00
12,300.00	90.00	180.00	6,020.00	-6,188.07	246.76	6,192.23	0.00	0.00	0.00
12,400.00	90.00	180.00	6,020.00	-6,288.07	246.76	6,292.20	0.00	0.00	0.00
12,500.00	90.00	180.00	6,020.00	-6,388.07	246.76	6,392.17	0.00	0.00	0.00
12,600.00	90.00	180.00	6,020.00	-6,488.07	246.76	6,492.14	0.00	0.00	0.00
12,700.00	90.00	180.00	6,020.00	-6,588.07	246.76	6,592.11	0.00	0.00	0.00
12,800.00	90.00	180.00	6,020.00	-6,688.07	246.76	6,692.08	0.00	0.00	0.00
12,900.00	90.00	180.00	6,020.00	-6,788.07	246.76	6,792.05	0.00	0.00	0.00
13,000.00	90.00	180.00	6,020.00	-6,888.07	246.76	6,892.02	0.00	0.00	0.00
13,100.00	90.00	180.00	6,020.00	-6,988.07	246.76	6,991.99	0.00	0.00	0.00
13,200.00	90.00	180.00	6,020.00	-7,088.07	246.76	7,091.96	0.00	0.00	0.00
13,300.00	90.00	180.00	6,020.00	-7,188.07	246.76	7,191.93	0.00	0.00	0.00
13,400.00	90.00	180.00	6,020.00	-7,288.07	246.76	7,291.90	0.00	0.00	0.00
13,500.00	90.00	180.00	6,020.00	-7,388.07	246.76	7,391.87	0.00	0.00	0.00
13,600.00	90.00	180.00	6,020.00	-7,488.07	246.76	7,491.85	0.00	0.00	0.00
13,700.00	90.00	180.00	6,020.00	-7,588.07	246.76	7,591.82	0.00	0.00	0.00
13,800.00	90.00	180.00	6,020.00	-7,688.07	246.76	7,691.79	0.00	0.00	0.00
13,900.00	90.00	180.00	6,020.00	-7,788.07	246.76	7,791.76	0.00	0.00	0.00
14,000.00	90.00	180.00	6,020.00	-7,888.07	246.76	7,891.73	0.00	0.00	0.00
14,100.00	90.00	180.00	6,020.00	-7,988.07	246.76	7,991.70	0.00	0.00	0.00
14,200.00	90.00	180.00	6,020.00	-8,088.07	246.76	8,091.67	0.00	0.00	0.00
14,300.00	90.00	180.00	6,020.00	-8,188.07	246.76	8,191.64	0.00	0.00	0.00
14,400.00	90.00	180.00	6,020.00	-8,288.07	246.76	8,291.61	0.00	0.00	0.00
14,500.00	90.00	180.00	6,020.00	-8,388.07	246.76	8,391.58	0.00	0.00	0.00
14,600.00	90.00	180.00	6,020.00	-8,488.07	246.76	8,491.55	0.00	0.00	0.00
14,700.00	90.00	180.00	6,020.00	-8,588.07	246.76	8,591.52	0.00	0.00	0.00
14,800.00	90.00	180.00	6,020.00	-8,688.07	246.76	8,691.49	0.00	0.00	0.00
14,900.00	90.00	180.00	6,020.00	-8,788.07	246.76	8,791.47	0.00	0.00	0.00
15,000.00	90.00	180.00	6,020.00	-8,888.07	246.76	8,891.44	0.00	0.00	0.00
15,100.00	90.00	180.00	6,020.00	-8,988.07	246.76	8,991.41	0.00	0.00	0.00
15,200.00	90.00	180.00	6,020.00	-9,088.07	246.76	9,091.38	0.00	0.00	0.00
15,300.00	90.00	180.00	6,020.00	-9,188.07	246.76	9,191.35	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	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	6,020.00	-9,288.07	246.76	9,291.32	0.00	0.00	0.00	
15,500.00	90.00	180.00	6,020.00	-9,388.07	246.76	9,391.29	0.00	0.00	0.00	
15,600.00	90.00	180.00	6,020.00	-9,488.07	246.76	9,491.26	0.00	0.00	0.00	
15,700.00	90.00	180.00	6,020.00	-9,588.07	246.76	9,591.23	0.00	0.00	0.00	
15,800.00	90.00	180.00	6,020.00	-9,688.07	246.76	9,691.20	0.00	0.00	0.00	
15,900.00	90.00	180.00	6,020.00	-9,788.07	246.76	9,791.17	0.00	0.00	0.00	
16,000.00	90.00	180.00	6,020.00	-9,888.07	246.76	9,891.14	0.00	0.00	0.00	
16,100.00	90.00	180.00	6,020.00	-9,988.07	246.76	9,991.11	0.00	0.00	0.00	
16,200.00	90.00	180.00	6,020.00	-10,088.07	246.76	10,091.09	0.00	0.00	0.00	
16,300.00	90.00	180.00	6,020.00	-10,188.07	246.76	10,191.06	0.00	0.00	0.00	
16,313.54	90.00	180.00	6,020.00	-10,201.61	246.76	10,204.59	0.00	0.00	0.00	
TD at 16313.54										

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 1735	0.00	0.00	6,020.00	-10,201.61	246.76	1,550,511.89	3,475,264.97	40° 49' 54.840 N	103° 46' 56.990 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,332.93	6,020.00	5 1/2" Marker / 7" CSG	7.000	8.750	



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #08D-1735
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4976.50usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4976.50usft (Original Well Elev)
Site:	Sec 8-T10N-R57W	North Reference:	True
Well:	Horsetail #08D-1735	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	APD		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,704.13	1,702.20	Upper Pierre				
3,510.10	3,502.20	Hygiene				
3,660.59	3,652.20	Lower Pierre				
5,648.00	5,633.20	P200 Marker				
5,676.12	5,660.20	P300 Marker				
5,690.90	5,674.20	P350 Marker				
5,699.40	5,682.20	Sharon Springs				
5,714.41	5,696.20	Niobrara				
5,728.51	5,709.20	Top A Chalk				
5,770.75	5,747.20	Top A Marl				
5,791.39	5,765.20	A Marl				
5,801.89	5,774.20	Top Upper B				
5,825.72	5,794.20	Base Upper B				
5,854.07	5,817.20	Top Lower B				
5,886.30	5,842.20	Base Lower B				
5,898.32	5,851.20	Top B Marl				
5,958.28	5,893.20	Top C Chalk				
5,973.73	5,903.20	Middle C Chalk				
5,998.00	5,918.20	Middle C Marl				
6,034.80	5,939.20	Lower C Chalk				
6,069.90	5,957.20	Lower C Marl				
6,130.06	5,983.20	Lower C Marker				
6,143.67	5,988.20	Top Ft. Hays				
6,191.80	6,003.20	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'	
532.98	532.72	7.31	6.01	Hold 4.66° Inc	
5,081.57	5,066.28	292.69	240.74	Drop 2°/100'	
5,314.55	5,299.00	300.00	246.76	Hold Vertical	
5,514.55	5,499.00	300.00	246.76	KOP, Build 11°/100'	
6,332.93	6,020.00	-221.00	246.76	LP @ 90° Inc, Hold	
16,313.54	6,020.00	-10,201.61	246.76	TD at 16313.54	