



Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07F-0608
Wellbore: Hz
Design: Design #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



Azimuths to True North
Magnetic North: 7.88°
Magnetic Field
Strength: 53087.5snT
Dip Angle: 67.44°
Date: 1/5/2015
Model: IGRF2010

WELL DETAILS: Horsetail #07F-0608

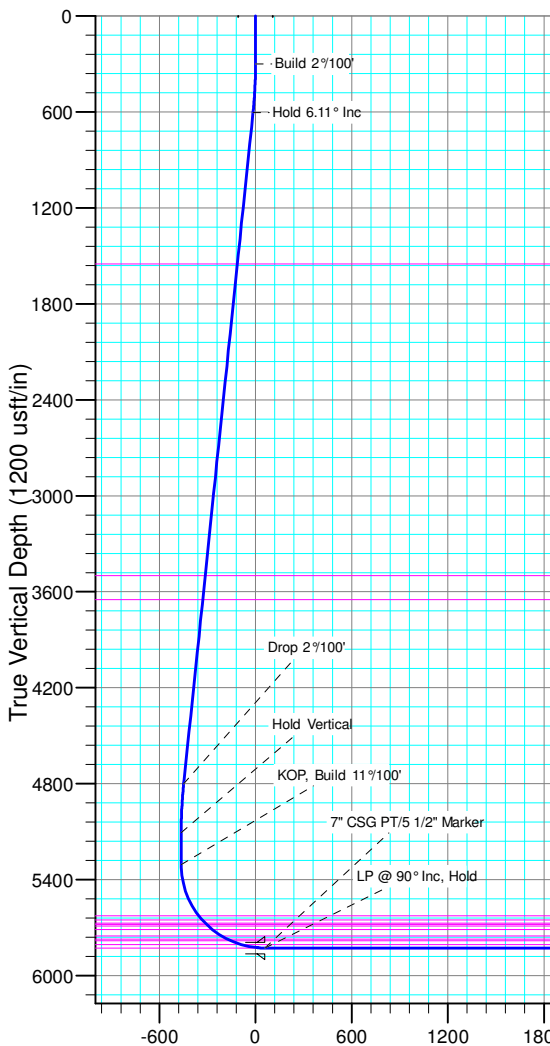
+N/-S	+E/-W	Northing	Ground Level:	4899.00	Eastings	Latitude	Longitude	Slot
0.00	0.00	1558346.57	3471480.80	40° 51' 12.960 N	103° 47' 44.250 W			

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	605.28	6.11	164.95	604.70	-15.69	4.22	2.00	164.95	-15.65	
4	4826.82	6.11	164.95	4802.30	-449.31	120.78	0.00	0.00	-448.02	
5	5132.10	0.00	0.00	5107.00	-465.00	125.00	2.00	180.00	-463.66	
6	5332.10	0.00	0.00	5307.00	-465.00	125.00	0.00	0.00	-463.66	
7	6150.49	90.00	359.55	5828.00	55.98	120.87	11.00	359.55	57.25	
8	12687.35	90.00	359.55	5828.00	6592.64	69.12	0.00	0.00	6593.01	PBHL 0608B

FORMATION TOP DETAILS

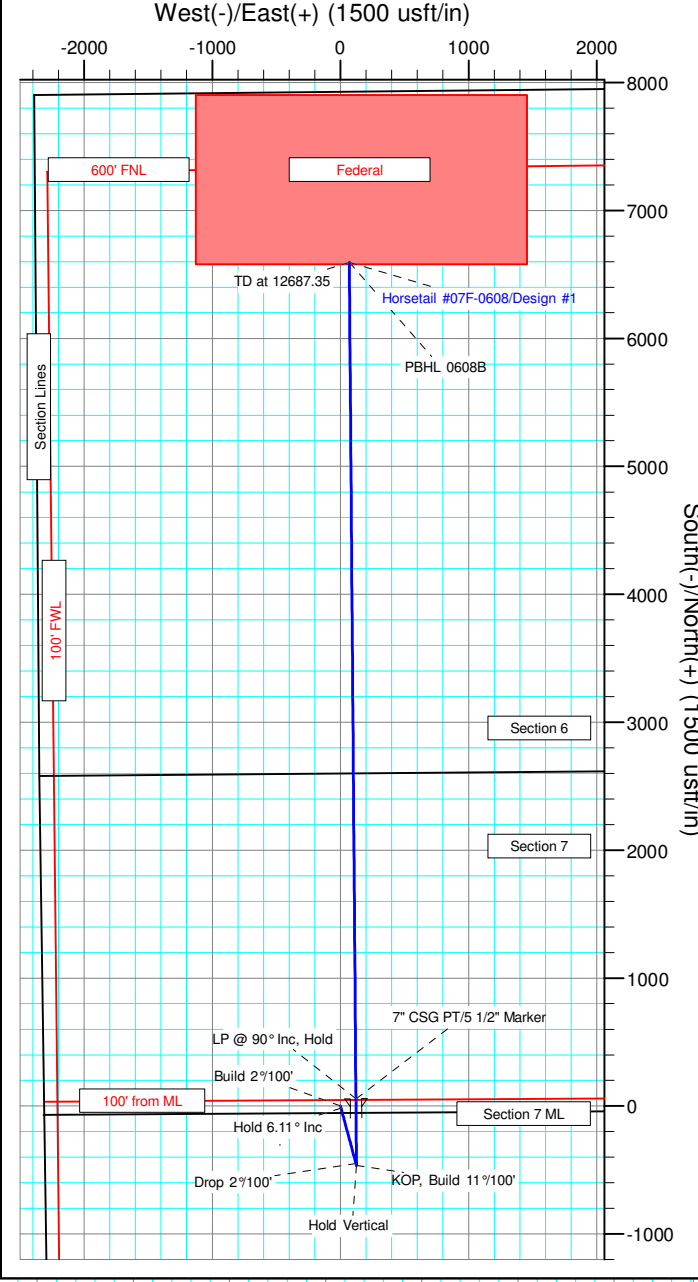
TVDPath	MDPath	Formation
1550.00	1555.97	Upper Pierre
3500.00	3517.09	Hygiene
3650.00	3667.95	Lower Pierre
5626.00	5675.41	P200 Marker
5653.00	5710.50	P300 Marker
5672.00	5736.50	P350 Marker
5681.00	5749.27	Sharon Springs
5690.00	5762.37	Niobrara
5713.00	5797.62	Top A Chalk
5752.00	5865.54	Top A Marl
5772.00	5906.71	A Marl
5783.00	5932.36	Top Upper B
5806.00	5998.54	Base Upper B
5828.00	6150.49	Top Lower B



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'
604.70	605.28	6.11	164.95	-15.69	4.22	-15.65	16.25	Hold 6.11° Inc
4802.30	4826.82	6.11	164.95	-449.31	120.78	-448.02	465.26	Drop 2°/100'
5107.00	5132.10	0.00	0.00	-465.00	125.00	-463.66	481.51	Hold Vertical
5307.00	5332.10	0.00	0.00	-465.00	125.00	-463.66	481.51	KOP, Build 11°/100'
5828.00	6150.49	90.00	359.55	55.98	120.87	57.25	1002.51	LP @ 90° Inc, Hold
5828.00	12687.35	90.00	359.55	6592.64	69.12	6593.01	7539.37	TD at 12687.35

DESIGN TARGET DETAILS							
Name	TVD	+N/-S	+E/-W	Northing	Eastings	Latitude	Longitude
PBHL 0608B	5828.00	6592.64	69.12	1564939.33	3471423.20	40° 52' 18.100 N	103° 47' 43.350 W

SHL:
2600' FNL, 2327' FWL
Sec7-T10N-R57W
BHL:
1337' FNL, 2450' FWL
Sec6-T10N-R57W
7" CSG PT/5 1/2"
Marker
2544' FNL, 2448' FWL
Sec7-T10N-R57W



Vertical Section at 0.60° (1200 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 7-T10N-R57W
Horsetail #07F-0608**

Hz

Plan: Design #1

Standard Planning Report

12 November, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #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 #07F-0608					
Well Position	+N/-S	-135.54 usft	Northing:	1,558,346.58 usft	Latitude:	40° 51' 12.960 N
	+E/-W	1,668.36 usft	Easting:	3,471,480.80 usft	Longitude:	103° 47' 44.250 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,899.00 usft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	1/5/2015	7.88	67.44	53,087

Design	Design #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	0.60

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	
605.28	6.11	164.95	604.70	-15.69	4.22	2.00	2.00	0.00	164.95	
4,826.82	6.11	164.95	4,802.30	-449.31	120.78	0.00	0.00	0.00	0.00	
5,132.10	0.00	0.00	5,107.00	-465.00	125.00	2.00	-2.00	0.00	180.00	
5,332.10	0.00	0.00	5,307.00	-465.00	125.00	0.00	0.00	0.00	0.00	
6,150.49	90.00	359.55	5,828.00	55.98	120.87	11.00	11.00	0.00	359.55	
12,687.35	90.00	359.55	5,828.00	6,592.64	69.12	0.00	0.00	0.00	0.00	PBHL 0608B



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Design #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	164.95	399.98	-1.69	0.45	-1.68	2.00	2.00	0.00
500.00	4.00	164.95	499.84	-6.74	1.81	-6.72	2.00	2.00	0.00
605.28	6.11	164.95	604.70	-15.69	4.22	-15.65	2.00	2.00	0.00
Hold 6.11° Inc									
700.00	6.11	164.95	698.89	-25.42	6.83	-25.35	0.00	0.00	0.00
800.00	6.11	164.95	798.32	-35.69	9.60	-35.59	0.00	0.00	0.00
900.00	6.11	164.95	897.75	-45.97	12.36	-45.83	0.00	0.00	0.00
1,000.00	6.11	164.95	997.18	-56.24	15.12	-56.08	0.00	0.00	0.00
1,100.00	6.11	164.95	1,096.62	-66.51	17.88	-66.32	0.00	0.00	0.00
1,200.00	6.11	164.95	1,196.05	-76.78	20.64	-76.56	0.00	0.00	0.00
1,300.00	6.11	164.95	1,295.48	-87.05	23.40	-86.80	0.00	0.00	0.00
1,400.00	6.11	164.95	1,394.91	-97.32	26.16	-97.04	0.00	0.00	0.00
1,500.00	6.11	164.95	1,494.35	-107.59	28.92	-107.28	0.00	0.00	0.00
1,555.97	6.11	164.95	1,550.00	-113.34	30.47	-113.02	0.00	0.00	0.00
Upper Pierre									
1,600.00	6.11	164.95	1,593.78	-117.87	31.68	-117.53	0.00	0.00	0.00
1,700.00	6.11	164.95	1,693.21	-128.14	34.45	-127.77	0.00	0.00	0.00
1,800.00	6.11	164.95	1,792.65	-138.41	37.21	-138.01	0.00	0.00	0.00
1,900.00	6.11	164.95	1,892.08	-148.68	39.97	-148.25	0.00	0.00	0.00
2,000.00	6.11	164.95	1,991.51	-158.95	42.73	-158.49	0.00	0.00	0.00
2,100.00	6.11	164.95	2,090.94	-169.22	45.49	-168.74	0.00	0.00	0.00
2,200.00	6.11	164.95	2,190.38	-179.49	48.25	-178.98	0.00	0.00	0.00
2,300.00	6.11	164.95	2,289.81	-189.77	51.01	-189.22	0.00	0.00	0.00
2,400.00	6.11	164.95	2,389.24	-200.04	53.77	-199.46	0.00	0.00	0.00
2,500.00	6.11	164.95	2,488.67	-210.31	56.53	-209.70	0.00	0.00	0.00
2,600.00	6.11	164.95	2,588.11	-220.58	59.30	-219.95	0.00	0.00	0.00
2,700.00	6.11	164.95	2,687.54	-230.85	62.06	-230.19	0.00	0.00	0.00
2,800.00	6.11	164.95	2,786.97	-241.12	64.82	-240.43	0.00	0.00	0.00
2,900.00	6.11	164.95	2,886.41	-251.39	67.58	-250.67	0.00	0.00	0.00
3,000.00	6.11	164.95	2,985.84	-261.67	70.34	-260.91	0.00	0.00	0.00
3,100.00	6.11	164.95	3,085.27	-271.94	73.10	-271.16	0.00	0.00	0.00
3,200.00	6.11	164.95	3,184.70	-282.21	75.86	-281.40	0.00	0.00	0.00
3,300.00	6.11	164.95	3,284.14	-292.48	78.62	-291.64	0.00	0.00	0.00
3,400.00	6.11	164.95	3,383.57	-302.75	81.38	-301.88	0.00	0.00	0.00
3,500.00	6.11	164.95	3,483.00	-313.02	84.15	-312.12	0.00	0.00	0.00
3,517.09	6.11	164.95	3,500.00	-314.78	84.62	-313.87	0.00	0.00	0.00
Hygiene									
3,600.00	6.11	164.95	3,582.44	-323.29	86.91	-322.37	0.00	0.00	0.00
3,667.95	6.11	164.95	3,650.00	-330.27	88.78	-329.32	0.00	0.00	0.00
Lower Pierre									
3,700.00	6.11	164.95	3,681.87	-333.57	89.67	-332.61	0.00	0.00	0.00
3,800.00	6.11	164.95	3,781.30	-343.84	92.43	-342.85	0.00	0.00	0.00
3,900.00	6.11	164.95	3,880.73	-354.11	95.19	-353.09	0.00	0.00	0.00
4,000.00	6.11	164.95	3,980.17	-364.38	97.95	-363.33	0.00	0.00	0.00
4,100.00	6.11	164.95	4,079.60	-374.65	100.71	-373.58	0.00	0.00	0.00
4,200.00	6.11	164.95	4,179.03	-384.92	103.47	-383.82	0.00	0.00	0.00
4,300.00	6.11	164.95	4,278.46	-395.19	106.24	-394.06	0.00	0.00	0.00
4,400.00	6.11	164.95	4,377.90	-405.47	109.00	-404.30	0.00	0.00	0.00
4,500.00	6.11	164.95	4,477.33	-415.74	111.76	-414.54	0.00	0.00	0.00



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
Design:	Design #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)
4,600.00	6.11	164.95	4,576.76	-426.01	114.52	-424.78	0.00	0.00	0.00
4,700.00	6.11	164.95	4,676.20	-436.28	117.28	-435.03	0.00	0.00	0.00
4,800.00	6.11	164.95	4,775.63	-446.55	120.04	-445.27	0.00	0.00	0.00
4,826.82	6.11	164.95	4,802.30	-449.31	120.78	-448.02	0.00	0.00	0.00
Drop 2°/100'									
4,900.00	4.64	164.95	4,875.15	-455.93	122.56	-454.62	2.00	-2.00	0.00
5,000.00	2.64	164.95	4,974.95	-462.06	124.21	-460.73	2.00	-2.00	0.00
5,100.00	0.64	164.95	5,074.90	-464.83	124.95	-463.49	2.00	-2.00	0.00
5,132.10	0.00	0.00	5,107.00	-465.00	125.00	-463.66	2.00	-2.00	-513.85
Hold Vertical									
5,200.00	0.00	0.00	5,174.90	-465.00	125.00	-463.66	0.00	0.00	0.00
5,300.00	0.00	0.00	5,274.90	-465.00	125.00	-463.66	0.00	0.00	0.00
5,332.10	0.00	0.00	5,307.00	-465.00	125.00	-463.66	0.00	0.00	0.00
KOP, Build 11°/100'									
5,350.00	1.97	359.55	5,324.90	-464.69	125.00	-463.36	11.00	11.00	0.00
5,400.00	7.47	359.55	5,374.71	-460.58	124.97	-459.25	11.00	11.00	0.00
5,450.00	12.97	359.55	5,423.90	-451.72	124.89	-450.38	11.00	11.00	0.00
5,500.00	18.46	359.55	5,472.01	-438.18	124.79	-436.85	11.00	11.00	0.00
5,550.00	23.96	359.55	5,518.60	-420.10	124.64	-418.77	11.00	11.00	0.00
5,600.00	29.46	359.55	5,563.25	-397.63	124.47	-396.30	11.00	11.00	0.00
5,650.00	34.96	359.55	5,605.54	-370.99	124.26	-369.67	11.00	11.00	0.00
5,675.41	37.75	359.55	5,626.00	-355.93	124.14	-354.60	11.00	11.00	0.00
P200 Marker									
5,700.00	40.46	359.55	5,645.08	-340.42	124.01	-339.10	11.00	11.00	0.00
5,710.50	41.61	359.55	5,653.00	-333.52	123.96	-332.21	11.00	11.00	0.00
P300 Marker									
5,736.50	44.47	359.55	5,672.00	-315.78	123.82	-314.46	11.00	11.00	0.00
P350 Marker									
5,749.27	45.88	359.55	5,681.00	-306.72	123.75	-305.41	11.00	11.00	0.00
Sharon Springs									
5,750.00	45.96	359.55	5,681.51	-306.20	123.74	-304.89	11.00	11.00	0.00
5,762.37	47.32	359.55	5,690.00	-297.21	123.67	-295.89	11.00	11.00	0.00
Niobrara									
5,797.62	51.19	359.55	5,713.00	-270.51	123.46	-269.20	11.00	11.00	0.00
Top A Chalk									
5,800.00	51.46	359.55	5,714.49	-268.65	123.45	-267.34	11.00	11.00	0.00
5,850.00	56.95	359.55	5,743.72	-228.11	123.12	-226.81	11.00	11.00	0.00
5,865.54	58.66	359.55	5,752.00	-214.96	123.02	-213.66	11.00	11.00	0.00
Top A Marl									
5,900.00	62.45	359.55	5,768.94	-184.96	122.78	-183.66	11.00	11.00	0.00
5,906.71	63.19	359.55	5,772.00	-178.99	122.74	-177.69	11.00	11.00	0.00
A Marl									
5,932.36	66.01	359.55	5,783.00	-155.82	122.55	-154.53	11.00	11.00	0.00
Top Upper B									
5,950.00	67.95	359.55	5,789.90	-139.58	122.42	-138.29	11.00	11.00	0.00
5,998.54	73.29	359.55	5,806.00	-93.81	122.06	-92.53	11.00	11.00	0.00
Base Upper B									
6,000.00	73.45	359.55	5,806.42	-92.41	122.05	-91.13	11.00	11.00	0.00
6,050.00	78.95	359.55	5,818.34	-43.88	121.67	-42.60	11.00	11.00	0.00
6,100.00	84.45	359.55	5,825.56	5.58	121.27	6.85	11.00	11.00	0.00
6,150.49	90.00	359.55	5,828.00	55.99	120.87	57.25	11.00	11.00	0.00
LP @ 90° Inc, Hold - Top Lower B - 7" CSG PT/5 1/2" Marker									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #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)
6,200.00	90.00	359.55	5,828.00	105.50	120.48	106.75	0.00	0.00	0.00
6,300.00	90.00	359.55	5,828.00	205.49	119.69	206.74	0.00	0.00	0.00
6,400.00	90.00	359.55	5,828.00	305.49	118.90	306.72	0.00	0.00	0.00
6,500.00	90.00	359.55	5,828.00	405.49	118.11	406.70	0.00	0.00	0.00
6,600.00	90.00	359.55	5,828.00	505.48	117.32	506.69	0.00	0.00	0.00
6,700.00	90.00	359.55	5,828.00	605.48	116.52	606.67	0.00	0.00	0.00
6,800.00	90.00	359.55	5,828.00	705.48	115.73	706.65	0.00	0.00	0.00
6,900.00	90.00	359.55	5,828.00	805.47	114.94	806.63	0.00	0.00	0.00
7,000.00	90.00	359.55	5,828.00	905.47	114.15	906.62	0.00	0.00	0.00
7,100.00	90.00	359.55	5,828.00	1,005.47	113.36	1,006.60	0.00	0.00	0.00
7,200.00	90.00	359.55	5,828.00	1,105.46	112.56	1,106.58	0.00	0.00	0.00
7,300.00	90.00	359.55	5,828.00	1,205.46	111.77	1,206.57	0.00	0.00	0.00
7,400.00	90.00	359.55	5,828.00	1,305.46	110.98	1,306.55	0.00	0.00	0.00
7,500.00	90.00	359.55	5,828.00	1,405.46	110.19	1,406.53	0.00	0.00	0.00
7,600.00	90.00	359.55	5,828.00	1,505.45	109.40	1,506.52	0.00	0.00	0.00
7,700.00	90.00	359.55	5,828.00	1,605.45	108.61	1,606.50	0.00	0.00	0.00
7,800.00	90.00	359.55	5,828.00	1,705.45	107.81	1,706.48	0.00	0.00	0.00
7,900.00	90.00	359.55	5,828.00	1,805.44	107.02	1,806.47	0.00	0.00	0.00
8,000.00	90.00	359.55	5,828.00	1,905.44	106.23	1,906.45	0.00	0.00	0.00
8,100.00	90.00	359.55	5,828.00	2,005.44	105.44	2,006.43	0.00	0.00	0.00
8,200.00	90.00	359.55	5,828.00	2,105.43	104.65	2,106.41	0.00	0.00	0.00
8,300.00	90.00	359.55	5,828.00	2,205.43	103.86	2,206.40	0.00	0.00	0.00
8,400.00	90.00	359.55	5,828.00	2,305.43	103.06	2,306.38	0.00	0.00	0.00
8,500.00	90.00	359.55	5,828.00	2,405.42	102.27	2,406.36	0.00	0.00	0.00
8,600.00	90.00	359.55	5,828.00	2,505.42	101.48	2,506.35	0.00	0.00	0.00
8,700.00	90.00	359.55	5,828.00	2,605.42	100.69	2,606.33	0.00	0.00	0.00
8,800.00	90.00	359.55	5,828.00	2,705.41	99.90	2,706.31	0.00	0.00	0.00
8,900.00	90.00	359.55	5,828.00	2,805.41	99.10	2,806.30	0.00	0.00	0.00
9,000.00	90.00	359.55	5,828.00	2,905.41	98.31	2,906.28	0.00	0.00	0.00
9,100.00	90.00	359.55	5,828.00	3,005.41	97.52	3,006.26	0.00	0.00	0.00
9,200.00	90.00	359.55	5,828.00	3,105.40	96.73	3,106.25	0.00	0.00	0.00
9,300.00	90.00	359.55	5,828.00	3,205.40	95.94	3,206.23	0.00	0.00	0.00
9,400.00	90.00	359.55	5,828.00	3,305.40	95.15	3,306.21	0.00	0.00	0.00
9,500.00	90.00	359.55	5,828.00	3,405.39	94.35	3,406.19	0.00	0.00	0.00
9,600.00	90.00	359.55	5,828.00	3,505.39	93.56	3,506.18	0.00	0.00	0.00
9,700.00	90.00	359.55	5,828.00	3,605.39	92.77	3,606.16	0.00	0.00	0.00
9,800.00	90.00	359.55	5,828.00	3,705.38	91.98	3,706.14	0.00	0.00	0.00
9,900.00	90.00	359.55	5,828.00	3,805.38	91.19	3,806.13	0.00	0.00	0.00
10,000.00	90.00	359.55	5,828.00	3,905.38	90.39	3,906.11	0.00	0.00	0.00
10,100.00	90.00	359.55	5,828.00	4,005.37	89.60	4,006.09	0.00	0.00	0.00
10,200.00	90.00	359.55	5,828.00	4,105.37	88.81	4,106.08	0.00	0.00	0.00
10,300.00	90.00	359.55	5,828.00	4,205.37	88.02	4,206.06	0.00	0.00	0.00
10,400.00	90.00	359.55	5,828.00	4,305.36	87.23	4,306.04	0.00	0.00	0.00
10,500.00	90.00	359.55	5,828.00	4,405.36	86.44	4,406.03	0.00	0.00	0.00
10,600.00	90.00	359.55	5,828.00	4,505.36	85.64	4,506.01	0.00	0.00	0.00
10,700.00	90.00	359.55	5,828.00	4,605.36	84.85	4,605.99	0.00	0.00	0.00
10,800.00	90.00	359.55	5,828.00	4,705.35	84.06	4,705.97	0.00	0.00	0.00
10,900.00	90.00	359.55	5,828.00	4,805.35	83.27	4,805.96	0.00	0.00	0.00
11,000.00	90.00	359.55	5,828.00	4,905.35	82.48	4,905.94	0.00	0.00	0.00
11,100.00	90.00	359.55	5,828.00	5,005.34	81.69	5,005.92	0.00	0.00	0.00
11,200.00	90.00	359.55	5,828.00	5,105.34	80.89	5,105.91	0.00	0.00	0.00
11,300.00	90.00	359.55	5,828.00	5,205.34	80.10	5,205.89	0.00	0.00	0.00
11,400.00	90.00	359.55	5,828.00	5,305.33	79.31	5,305.87	0.00	0.00	0.00
11,500.00	90.00	359.55	5,828.00	5,405.33	78.52	5,405.86	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #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)
11,600.00	90.00	359.55	5,828.00	5,505.33	77.73	5,505.84	0.00	0.00	0.00
11,700.00	90.00	359.55	5,828.00	5,605.32	76.93	5,605.82	0.00	0.00	0.00
11,800.00	90.00	359.55	5,828.00	5,705.32	76.14	5,705.81	0.00	0.00	0.00
11,900.00	90.00	359.55	5,828.00	5,805.32	75.35	5,805.79	0.00	0.00	0.00
12,000.00	90.00	359.55	5,828.00	5,905.31	74.56	5,905.77	0.00	0.00	0.00
12,100.00	90.00	359.55	5,828.00	6,005.31	73.77	6,005.75	0.00	0.00	0.00
12,200.00	90.00	359.55	5,828.00	6,105.31	72.98	6,105.74	0.00	0.00	0.00
12,300.00	90.00	359.55	5,828.00	6,205.30	72.18	6,205.72	0.00	0.00	0.00
12,400.00	90.00	359.55	5,828.00	6,305.30	71.39	6,305.70	0.00	0.00	0.00
12,500.00	90.00	359.55	5,828.00	6,405.30	70.60	6,405.69	0.00	0.00	0.00
12,600.00	90.00	359.55	5,828.00	6,505.30	69.81	6,505.67	0.00	0.00	0.00
12,687.35	90.00	359.55	5,828.00	6,592.64	69.12	6,593.01	0.00	0.00	0.00
TD at 12687.35									

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 0608B	0.00	0.00	5,828.00	6,592.64	69.12	1,564,939.33	3,471,423.20	40° 52' 18.100 N	103° 47' 43.350 W
- plan hits target center									
- Point									
Beffie #1	0.00	0.00	6,713.00	3,236.91	-1,734.37	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 2032.77usft at 9346.01usft MD (5828.00 TVD, 3251.40 N, 95.57 E)									
- Circle (radius 1,550.00)									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,150.49	5,828.00	7" CSG PT/5 1/2" Marker	7.000	8.750	



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07F-0608
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4920.00usft
Project:	Weld County, CO	MD Reference:	KBE @ 4920.00usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07F-0608	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Design #1		

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,555.97	1,550.00	Upper Pierre				
3,517.09	3,500.00	Hygiene				
3,667.95	3,650.00	Lower Pierre				
5,675.41	5,626.00	P200 Marker				
5,710.50	5,653.00	P300 Marker				
5,736.50	5,672.00	P350 Marker				
5,749.27	5,681.00	Sharon Springs				
5,762.37	5,690.00	Niobrara				
5,797.62	5,713.00	Top A Chalk				
5,865.54	5,752.00	Top A Marl				
5,906.71	5,772.00	A Marl				
5,932.36	5,783.00	Top Upper B				
5,998.54	5,806.00	Base Upper B				
6,150.49	5,828.00	Top Lower B				

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'	
605.28	604.70	-15.69	4.22	Hold 6.11° Inc	
4,826.82	4,802.30	-449.31	120.78	Drop 2°/100'	
5,132.10	5,107.00	-465.00	125.00	Hold Vertical	
5,332.10	5,307.00	-465.00	125.00	KOP, Build 11°/100'	
6,150.49	5,828.00	55.98	120.87	LP @ 90° Inc, Hold	
12,687.35	5,828.00	6,592.64	69.12	TD at 12687.35	