



Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07E-0636
Wellbore: Hz
Design: Plan #1

PROJECT DETAILS: Weld County, CO

Geodetic System: US State Plane 1983
Datum: North American Datum 1983
Ellipsoid: GRS 1980
Zone: Colorado Northern Zone
System Datum: Mean Sea Level

FORMATION TOP DETAILS

	TVDPath	MDPath	Formation
	1553.90	1561.61	Upper Pierre
	3503.90	3526.36	Hygiene
	3653.90	3677.49	Lower Pierre
	5518.90	5553.00	P200 Marker
	5533.90	5568.16	P300 Marker
	5553.90	5588.50	P350 Marker
	5705.90	5751.39	Sharon Springs
	5710.90	5757.15	Niobrara
	5736.90	5787.73	Top A Chalk
	5775.90	5835.99	Top A Marl
	5795.90	5862.16	A Marl
	5806.90	5877.06	Top Upper B
	5829.90	5909.61	Base Upper B
	5851.90	5942.92	Top Lower B
	5885.90	6000.29	Base Lower B
	5893.90	6015.22	Top B Marl
	5922.90	6076.65	Top C Chalk
	5934.90	6107.19	Middle C Chalk
	5950.90	6157.09	Middle C Marl

WELL DETAILS: Horsetail #07E-0636

	+N/-S	+E/-W	Northing	Ground Level:	4925.60	Easting	3470009.46	Latitude	40° 51' 13.740 N	Longitude	103° 48' 3.380 W	Slot
	0.00	0.00	1558397.29									

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	651.22	7.02	173.54	650.34	-21.37	2.42	2.00	173.54	-21.34	
4	4832.67	7.02	173.54	4899.66	-541.63	61.34	0.00	0.00	-541.07	
5	5283.89	0.00	0.00	5250.00	-563.00	63.76	2.00	180.00	-562.42	
6	5483.89	0.00	0.00	5450.00	-563.00	63.76	0.00	0.00	-562.42	
7	6302.28	90.00	0.00	5971.00	-42.00	63.76	11.00	0.00	-41.44	
8	13578.58	90.00	0.00	5971.00	7234.30	63.76	0.00	0.00	7234.58	0636 PBHL

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'
650.34	651.22	7.02	173.54	-21.37	2.42	-21.34	21.50	Hold 7.02° Inc
4899.66	4932.67	7.02	173.54	-541.63	61.34	-541.07	545.10	Drop 2°/100'
5250.00	5283.89	0.00	0.00	-563.00	63.76	-562.42	566.60	Hold Vertical
5450.00	5483.89	0.00	0.00	-563.00	63.76	-562.42	566.60	KOP, Build 11°/100'
5971.00	6302.28	90.00	0.00	-42.00	63.76	-41.44	1087.60	LP @ 90° Inc, Hold
5971.00	13578.58	90.00	0.00	7234.30	63.76	7234.58	8363.90	TD at 13578.58

DESIGN TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
0636 PBHL	5971.00	7234.30	63.76	1565631.48	3469934.61	40° 52' 25.220 N 103° 48' 2.550 W	
Beflie #1	6739.60	3157.91	-264.47	1561549.55	3469684.54	40° 51' 44.942 N 103° 48' 6.822 W	

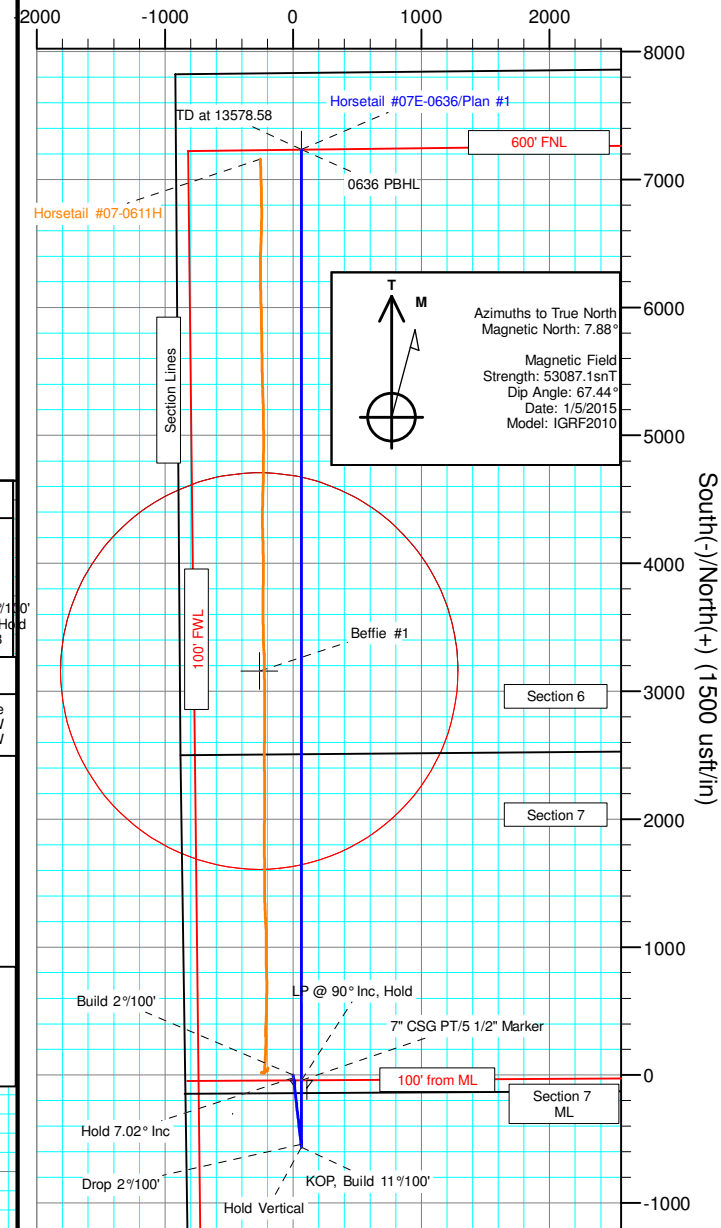
SHL:
2509' FNL, 858' FWL
Sec7-T10N-R57W

BHL:
600' FNL, 979' FWL
Sec6-T10N-R57W

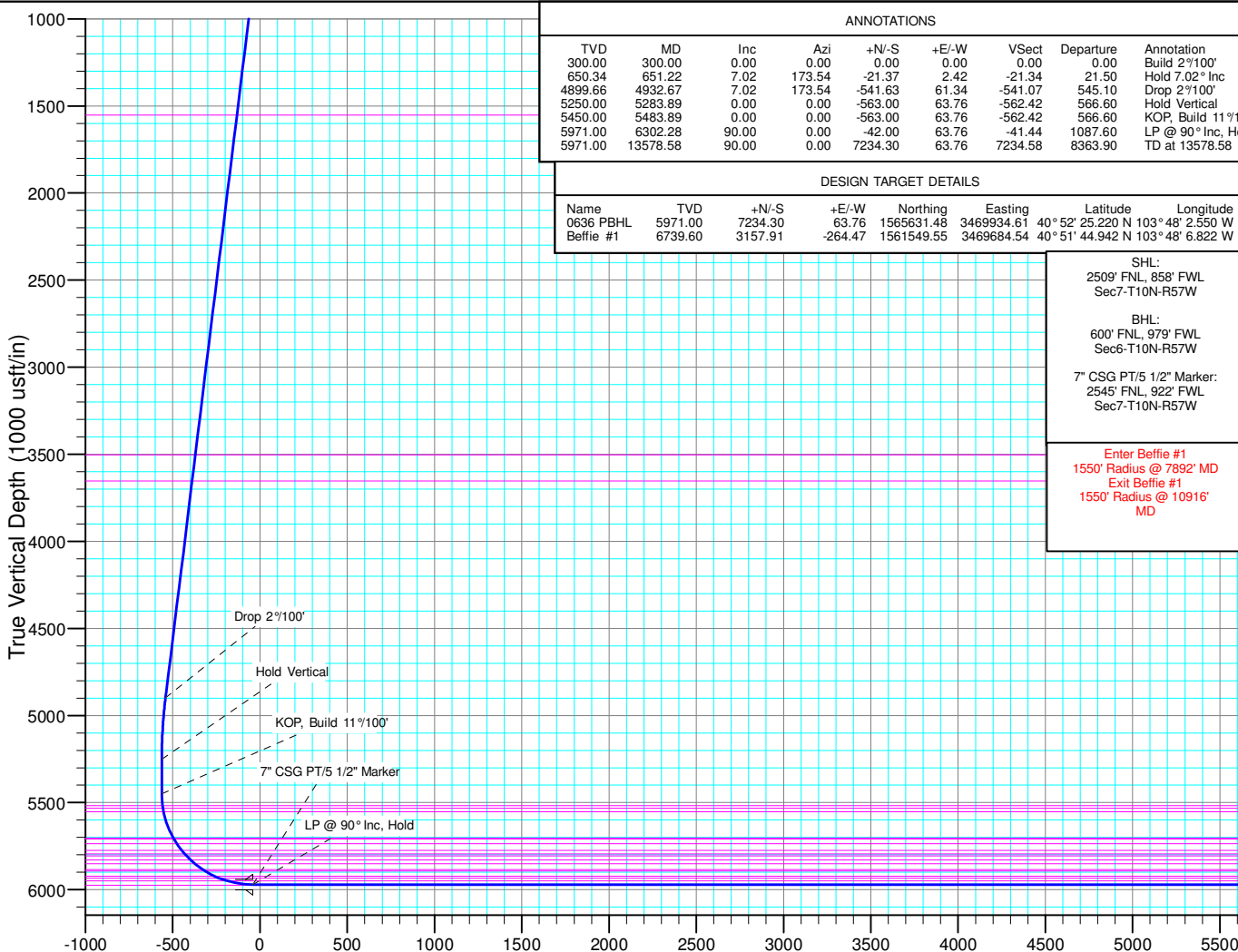
7" CSG PT/5 1/2" Marker:
2545' FNL, 922' FWL
Sec7-T10N-R57W

Enter Beflie #1
1550' Radius @ 7892' MD
Exit Beflie #1
1550' Radius @ 10916' MD

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



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



Vertical Section at 0.50° (1000 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 7-T10N-R57W
Horsetail #07E-0636**

Hz

Plan: Plan #1

Standard Planning Report

09 November, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0636
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Project	Weld County, CO		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	Colorado Northern Zone		

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

Well	Horsetail #07E-0636					
Well Position	+N/-S	-56.65 usft	Northing:	1,558,397.30 usft	Latitude:	40° 51' 13.740 N
	+E/-W	198.26 usft	Easting:	3,470,009.46 usft	Longitude:	103° 48' 3.380 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,925.60 usft

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

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PROTOTYPE	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)
	0.00	0.00	0.00	0.50

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	
651.22	7.02	173.54	650.34	-21.37	2.42	2.00	2.00	0.00	173.54	
4,932.67	7.02	173.54	4,899.66	-541.63	61.34	0.00	0.00	0.00	0.00	
5,283.90	0.00	0.00	5,250.00	-563.00	63.76	2.00	-2.00	0.00	180.00	
5,483.90	0.00	0.00	5,450.00	-563.00	63.76	0.00	0.00	0.00	0.00	
6,302.28	90.00	0.00	5,971.00	-42.00	63.76	11.00	11.00	0.00	0.00	
13,578.58	90.00	0.00	5,971.00	7,234.30	63.76	0.00	0.00	0.00	0.00	0636 PBHL



WOG

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Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
100.00	0.00	0.00	100.00	0.00	0.00	0.00	0.00	0.00	0.00
200.00	0.00	0.00	200.00	0.00	0.00	0.00	0.00	0.00	0.00
300.00	0.00	0.00	300.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 2°/100'									
400.00	2.00	173.54	399.98	-1.73	0.20	-1.73	2.00	2.00	0.00
500.00	4.00	173.54	499.84	-6.93	0.79	-6.93	2.00	2.00	0.00
600.00	6.00	173.54	599.45	-15.59	1.77	-15.58	2.00	2.00	0.00
651.22	7.02	173.54	650.34	-21.37	2.42	-21.34	2.00	2.00	0.00
Hold 7.02° Inc									
700.00	7.02	173.54	698.75	-27.29	3.09	-27.27	0.00	0.00	0.00
800.00	7.02	173.54	798.00	-39.45	4.47	-39.40	0.00	0.00	0.00
900.00	7.02	173.54	897.25	-51.60	5.84	-51.54	0.00	0.00	0.00
1,000.00	7.02	173.54	996.50	-63.75	7.22	-63.68	0.00	0.00	0.00
1,100.00	7.02	173.54	1,095.75	-75.90	8.60	-75.82	0.00	0.00	0.00
1,200.00	7.02	173.54	1,195.00	-88.05	9.97	-87.96	0.00	0.00	0.00
1,300.00	7.02	173.54	1,294.25	-100.20	11.35	-100.10	0.00	0.00	0.00
1,400.00	7.02	173.54	1,393.50	-112.36	12.72	-112.24	0.00	0.00	0.00
1,500.00	7.02	173.54	1,492.75	-124.51	14.10	-124.38	0.00	0.00	0.00
1,561.61	7.02	173.54	1,553.90	-131.99	14.95	-131.86	0.00	0.00	0.00
Upper Pierre									
1,600.00	7.02	173.54	1,592.00	-136.66	15.48	-136.52	0.00	0.00	0.00
1,700.00	7.02	173.54	1,691.25	-148.81	16.85	-148.66	0.00	0.00	0.00
1,800.00	7.02	173.54	1,790.50	-160.96	18.23	-160.80	0.00	0.00	0.00
1,900.00	7.02	173.54	1,889.75	-173.11	19.61	-172.93	0.00	0.00	0.00
2,000.00	7.02	173.54	1,989.00	-185.27	20.98	-185.07	0.00	0.00	0.00
2,100.00	7.02	173.54	2,088.25	-197.42	22.36	-197.21	0.00	0.00	0.00
2,200.00	7.02	173.54	2,187.50	-209.57	23.73	-209.35	0.00	0.00	0.00
2,300.00	7.02	173.54	2,286.75	-221.72	25.11	-221.49	0.00	0.00	0.00
2,400.00	7.02	173.54	2,385.99	-233.87	26.49	-233.63	0.00	0.00	0.00
2,500.00	7.02	173.54	2,485.24	-246.02	27.86	-245.77	0.00	0.00	0.00
2,600.00	7.02	173.54	2,584.49	-258.18	29.24	-257.91	0.00	0.00	0.00
2,700.00	7.02	173.54	2,683.74	-270.33	30.61	-270.05	0.00	0.00	0.00
2,800.00	7.02	173.54	2,782.99	-282.48	31.99	-282.19	0.00	0.00	0.00
2,900.00	7.02	173.54	2,882.24	-294.63	33.37	-294.32	0.00	0.00	0.00
3,000.00	7.02	173.54	2,981.49	-306.78	34.74	-306.46	0.00	0.00	0.00
3,100.00	7.02	173.54	3,080.74	-318.93	36.12	-318.60	0.00	0.00	0.00
3,200.00	7.02	173.54	3,179.99	-331.09	37.50	-330.74	0.00	0.00	0.00
3,300.00	7.02	173.54	3,279.24	-343.24	38.87	-342.88	0.00	0.00	0.00
3,400.00	7.02	173.54	3,378.49	-355.39	40.25	-355.02	0.00	0.00	0.00
3,500.00	7.02	173.54	3,477.74	-367.54	41.62	-367.16	0.00	0.00	0.00
3,526.36	7.02	173.54	3,503.90	-370.74	41.99	-370.36	0.00	0.00	0.00
Hygiene									
3,600.00	7.02	173.54	3,576.99	-379.69	43.00	-379.30	0.00	0.00	0.00
3,677.49	7.02	173.54	3,653.90	-389.11	44.07	-388.71	0.00	0.00	0.00
Lower Pierre									
3,700.00	7.02	173.54	3,676.24	-391.84	44.38	-391.44	0.00	0.00	0.00
3,800.00	7.02	173.54	3,775.49	-404.00	45.75	-403.58	0.00	0.00	0.00
3,900.00	7.02	173.54	3,874.74	-416.15	47.13	-415.72	0.00	0.00	0.00
4,000.00	7.02	173.54	3,973.98	-428.30	48.50	-427.85	0.00	0.00	0.00
4,100.00	7.02	173.54	4,073.23	-440.45	49.88	-439.99	0.00	0.00	0.00
4,200.00	7.02	173.54	4,172.48	-452.60	51.26	-452.13	0.00	0.00	0.00
4,300.00	7.02	173.54	4,271.73	-464.75	52.63	-464.27	0.00	0.00	0.00
4,400.00	7.02	173.54	4,370.98	-476.91	54.01	-476.41	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0636
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
4,500.00	7.02	173.54	4,470.23	-489.06	55.39	-488.55	0.00	0.00	0.00
4,600.00	7.02	173.54	4,569.48	-501.21	56.76	-500.69	0.00	0.00	0.00
4,700.00	7.02	173.54	4,668.73	-513.36	58.14	-512.83	0.00	0.00	0.00
4,800.00	7.02	173.54	4,767.98	-525.51	59.51	-524.97	0.00	0.00	0.00
4,900.00	7.02	173.54	4,867.23	-537.66	60.89	-537.11	0.00	0.00	0.00
4,932.67	7.02	173.54	4,899.66	-541.63	61.34	-541.07	0.00	0.00	0.00
Drop 2°/100'									
5,000.00	5.68	173.54	4,966.57	-549.03	62.18	-548.46	2.00	-2.00	0.00
5,100.00	3.68	173.54	5,066.23	-557.14	63.10	-556.56	2.00	-2.00	0.00
5,200.00	1.68	173.54	5,166.12	-561.78	63.62	-561.20	2.00	-2.00	0.00
5,283.90	0.00	0.00	5,250.00	-563.00	63.76	-562.42	2.00	-2.00	0.00
Hold Vertical									
5,300.00	0.00	0.00	5,266.11	-563.00	63.76	-562.42	0.00	0.00	0.00
5,400.00	0.00	0.00	5,366.11	-563.00	63.76	-562.42	0.00	0.00	0.00
5,483.90	0.00	0.00	5,450.00	-563.00	63.76	-562.42	0.00	0.00	0.00
KOP, Build 11°/100'									
5,500.00	1.77	0.00	5,466.10	-562.75	63.76	-562.17	11.00	11.00	0.00
5,550.00	7.27	0.00	5,515.93	-558.81	63.76	-558.23	11.00	11.00	0.00
5,553.00	7.60	0.00	5,518.90	-558.42	63.76	-557.84	11.00	11.00	0.00
P200 Marker									
5,568.16	9.27	0.00	5,533.90	-556.20	63.76	-555.62	11.00	11.00	0.00
P300 Marker									
5,588.50	11.50	0.00	5,553.90	-552.53	63.76	-551.95	11.00	11.00	0.00
P350 Marker									
5,600.00	12.77	0.00	5,565.15	-550.12	63.76	-549.53	11.00	11.00	0.00
5,650.00	18.27	0.00	5,613.31	-536.74	63.76	-536.16	11.00	11.00	0.00
5,700.00	23.77	0.00	5,659.96	-518.82	63.76	-518.24	11.00	11.00	0.00
5,750.00	29.26	0.00	5,704.69	-496.51	63.76	-495.93	11.00	11.00	0.00
5,751.39	29.42	0.00	5,705.90	-495.82	63.76	-495.24	11.00	11.00	0.00
Sharon Springs									
5,757.15	30.05	0.00	5,710.90	-492.97	63.76	-492.39	11.00	11.00	0.00
Niobrara									
5,787.73	33.41	0.00	5,736.90	-476.89	63.76	-476.31	11.00	11.00	0.00
Top A Chalk									
5,800.00	34.76	0.00	5,747.07	-470.01	63.76	-469.43	11.00	11.00	0.00
5,835.99	38.72	0.00	5,775.90	-448.49	63.76	-447.91	11.00	11.00	0.00
Top A Marl									
5,850.00	40.26	0.00	5,786.71	-439.58	63.76	-439.00	11.00	11.00	0.00
5,862.16	41.60	0.00	5,795.90	-431.61	63.76	-431.03	11.00	11.00	0.00
A Marl									
5,877.06	43.24	0.00	5,806.90	-421.56	63.76	-420.98	11.00	11.00	0.00
Top Upper B									
5,900.00	45.76	0.00	5,823.26	-405.48	63.76	-404.90	11.00	11.00	0.00
5,909.61	46.82	0.00	5,829.90	-398.53	63.76	-397.96	11.00	11.00	0.00
Base Upper B									
5,942.92	50.48	0.00	5,851.90	-373.54	63.76	-372.96	11.00	11.00	0.00
Top Lower B									
5,950.00	51.26	0.00	5,856.37	-368.04	63.76	-367.47	11.00	11.00	0.00
6,000.00	56.76	0.00	5,885.74	-327.60	63.76	-327.03	11.00	11.00	0.00
6,000.29	56.79	0.00	5,885.90	-327.36	63.76	-326.79	11.00	11.00	0.00
Base Lower B									
6,015.22	58.43	0.00	5,893.90	-314.75	63.76	-314.18	11.00	11.00	0.00



WOG
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Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
Top B Marl									
6,050.00	62.26	0.00	5,911.10	-284.54	63.76	-283.96	11.00	11.00	0.00
6,076.65	65.19	0.00	5,922.90	-260.65	63.76	-260.08	11.00	11.00	0.00
Top C Chalk									
6,100.00	67.75	0.00	5,932.22	-239.24	63.76	-238.66	11.00	11.00	0.00
6,107.19	68.55	0.00	5,934.90	-232.56	63.76	-231.99	11.00	11.00	0.00
Middle C Chalk									
6,150.00	73.25	0.00	5,948.90	-192.12	63.76	-191.55	11.00	11.00	0.00
6,157.09	74.03	0.00	5,950.90	-185.32	63.76	-184.75	11.00	11.00	0.00
Middle C Marl									
6,200.00	78.75	0.00	5,960.99	-143.62	63.76	-143.06	11.00	11.00	0.00
6,250.00	84.25	0.00	5,968.38	-94.19	63.76	-93.63	11.00	11.00	0.00
6,302.28	90.00	0.00	5,971.00	-42.00	63.76	-41.44	11.00	11.00	0.00
LP @ 90° Inc, Hold - 7" CSG PT/5 1/2" Marker									
6,400.00	90.00	0.00	5,971.00	55.72	63.76	56.28	0.00	0.00	0.00
6,500.00	90.00	0.00	5,971.00	155.72	63.76	156.28	0.00	0.00	0.00
6,600.00	90.00	0.00	5,971.00	255.72	63.76	256.27	0.00	0.00	0.00
6,700.00	90.00	0.00	5,971.00	355.72	63.76	356.27	0.00	0.00	0.00
6,800.00	90.00	0.00	5,971.00	455.72	63.76	456.26	0.00	0.00	0.00
6,900.00	90.00	0.00	5,971.00	555.72	63.76	556.26	0.00	0.00	0.00
7,000.00	90.00	0.00	5,971.00	655.72	63.76	656.26	0.00	0.00	0.00
7,100.00	90.00	0.00	5,971.00	755.72	63.76	756.25	0.00	0.00	0.00
7,200.00	90.00	0.00	5,971.00	855.72	63.76	856.25	0.00	0.00	0.00
7,300.00	90.00	0.00	5,971.00	955.72	63.76	956.25	0.00	0.00	0.00
7,400.00	90.00	0.00	5,971.00	1,055.72	63.76	1,056.24	0.00	0.00	0.00
7,500.00	90.00	0.00	5,971.00	1,155.72	63.76	1,156.24	0.00	0.00	0.00
7,600.00	90.00	0.00	5,971.00	1,255.72	63.76	1,256.23	0.00	0.00	0.00
7,700.00	90.00	0.00	5,971.00	1,355.72	63.76	1,356.23	0.00	0.00	0.00
7,800.00	90.00	0.00	5,971.00	1,455.72	63.76	1,456.23	0.00	0.00	0.00
7,900.00	90.00	0.00	5,971.00	1,555.72	63.76	1,556.22	0.00	0.00	0.00
8,000.00	90.00	0.00	5,971.00	1,655.72	63.76	1,656.22	0.00	0.00	0.00
8,100.00	90.00	0.00	5,971.00	1,755.72	63.76	1,756.21	0.00	0.00	0.00
8,200.00	90.00	0.00	5,971.00	1,855.72	63.76	1,856.21	0.00	0.00	0.00
8,300.00	90.00	0.00	5,971.00	1,955.72	63.76	1,956.21	0.00	0.00	0.00
8,400.00	90.00	0.00	5,971.00	2,055.72	63.76	2,056.20	0.00	0.00	0.00
8,500.00	90.00	0.00	5,971.00	2,155.72	63.76	2,156.20	0.00	0.00	0.00
8,600.00	90.00	0.00	5,971.00	2,255.72	63.76	2,256.19	0.00	0.00	0.00
8,700.00	90.00	0.00	5,971.00	2,355.72	63.76	2,356.19	0.00	0.00	0.00
8,800.00	90.00	0.00	5,971.00	2,455.72	63.76	2,456.19	0.00	0.00	0.00
8,900.00	90.00	0.00	5,971.00	2,555.72	63.76	2,556.18	0.00	0.00	0.00
9,000.00	90.00	0.00	5,971.00	2,655.72	63.76	2,656.18	0.00	0.00	0.00
9,100.00	90.00	0.00	5,971.00	2,755.72	63.76	2,756.18	0.00	0.00	0.00
9,200.00	90.00	0.00	5,971.00	2,855.72	63.76	2,856.17	0.00	0.00	0.00
9,300.00	90.00	0.00	5,971.00	2,955.72	63.76	2,956.17	0.00	0.00	0.00
9,400.00	90.00	0.00	5,971.00	3,055.72	63.76	3,056.16	0.00	0.00	0.00
9,500.00	90.00	0.00	5,971.00	3,155.72	63.76	3,156.16	0.00	0.00	0.00
9,600.00	90.00	0.00	5,971.00	3,255.72	63.76	3,256.16	0.00	0.00	0.00
9,700.00	90.00	0.00	5,971.00	3,355.72	63.76	3,356.15	0.00	0.00	0.00
9,800.00	90.00	0.00	5,971.00	3,455.72	63.76	3,456.15	0.00	0.00	0.00
9,900.00	90.00	0.00	5,971.00	3,555.72	63.76	3,556.14	0.00	0.00	0.00
10,000.00	90.00	0.00	5,971.00	3,655.72	63.76	3,656.14	0.00	0.00	0.00
10,100.00	90.00	0.00	5,971.00	3,755.72	63.76	3,756.14	0.00	0.00	0.00
10,200.00	90.00	0.00	5,971.00	3,855.72	63.76	3,856.13	0.00	0.00	0.00
10,300.00	90.00	0.00	5,971.00	3,955.72	63.76	3,956.13	0.00	0.00	0.00



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0636
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)
10,400.00	90.00	0.00	5,971.00	4,055.72	63.76	4,056.12	0.00	0.00	0.00
10,500.00	90.00	0.00	5,971.00	4,155.72	63.76	4,156.12	0.00	0.00	0.00
10,600.00	90.00	0.00	5,971.00	4,255.72	63.76	4,256.12	0.00	0.00	0.00
10,700.00	90.00	0.00	5,971.00	4,355.72	63.76	4,356.11	0.00	0.00	0.00
10,800.00	90.00	0.00	5,971.00	4,455.72	63.76	4,456.11	0.00	0.00	0.00
10,900.00	90.00	0.00	5,971.00	4,555.72	63.76	4,556.11	0.00	0.00	0.00
11,000.00	90.00	0.00	5,971.00	4,655.72	63.76	4,656.10	0.00	0.00	0.00
11,100.00	90.00	0.00	5,971.00	4,755.72	63.76	4,756.10	0.00	0.00	0.00
11,200.00	90.00	0.00	5,971.00	4,855.72	63.76	4,856.09	0.00	0.00	0.00
11,300.00	90.00	0.00	5,971.00	4,955.72	63.76	4,956.09	0.00	0.00	0.00
11,400.00	90.00	0.00	5,971.00	5,055.72	63.76	5,056.09	0.00	0.00	0.00
11,500.00	90.00	0.00	5,971.00	5,155.72	63.76	5,156.08	0.00	0.00	0.00
11,600.00	90.00	0.00	5,971.00	5,255.72	63.76	5,256.08	0.00	0.00	0.00
11,700.00	90.00	0.00	5,971.00	5,355.72	63.76	5,356.07	0.00	0.00	0.00
11,800.00	90.00	0.00	5,971.00	5,455.72	63.76	5,456.07	0.00	0.00	0.00
11,900.00	90.00	0.00	5,971.00	5,555.72	63.76	5,556.07	0.00	0.00	0.00
12,000.00	90.00	0.00	5,971.00	5,655.72	63.76	5,656.06	0.00	0.00	0.00
12,100.00	90.00	0.00	5,971.00	5,755.72	63.76	5,756.06	0.00	0.00	0.00
12,200.00	90.00	0.00	5,971.00	5,855.72	63.76	5,856.05	0.00	0.00	0.00
12,300.00	90.00	0.00	5,971.00	5,955.72	63.76	5,956.05	0.00	0.00	0.00
12,400.00	90.00	0.00	5,971.00	6,055.72	63.76	6,056.05	0.00	0.00	0.00
12,500.00	90.00	0.00	5,971.00	6,155.72	63.76	6,156.04	0.00	0.00	0.00
12,600.00	90.00	0.00	5,971.00	6,255.72	63.76	6,256.04	0.00	0.00	0.00
12,700.00	90.00	0.00	5,971.00	6,355.72	63.76	6,356.04	0.00	0.00	0.00
12,800.00	90.00	0.00	5,971.00	6,455.72	63.76	6,456.03	0.00	0.00	0.00
12,900.00	90.00	0.00	5,971.00	6,555.72	63.76	6,556.03	0.00	0.00	0.00
13,000.00	90.00	0.00	5,971.00	6,655.72	63.76	6,656.02	0.00	0.00	0.00
13,100.00	90.00	0.00	5,971.00	6,755.72	63.76	6,756.02	0.00	0.00	0.00
13,200.00	90.00	0.00	5,971.00	6,855.72	63.76	6,856.02	0.00	0.00	0.00
13,300.00	90.00	0.00	5,971.00	6,955.72	63.76	6,956.01	0.00	0.00	0.00
13,400.00	90.00	0.00	5,971.00	7,055.72	63.76	7,056.01	0.00	0.00	0.00
13,500.00	90.00	0.00	5,971.00	7,155.72	63.76	7,156.00	0.00	0.00	0.00
13,578.58	90.00	0.00	5,971.00	7,234.30	63.76	7,234.58	0.00	0.00	0.00
TD at 13578.58									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
0636 PBHL	0.00	0.00	5,971.00	7,234.30	63.76	1,565,631.49	3,469,934.61	40° 52' 25.220 N	103° 48' 2.550 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									
Beffie #1	0.00	0.00	6,739.60	3,157.91	-264.47	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 835.75usft at 9502.19usft MD (5971.00 TVD, 3157.91 N, 63.76 E)									
- Circle (radius 1,550.00)									



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0636
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4946.60usft
Project:	Weld County, CO	MD Reference:	KBE @ 4946.60usft
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0636	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,302.28	5,971.00	7" CSG PT/5 1/2" Marker	7.000	8.750	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,561.61	1,553.90	Upper Pierre				
3,526.36	3,503.90	Hygiene				
3,677.49	3,653.90	Lower Pierre				
5,553.00	5,518.90	P200 Marker				
5,568.16	5,533.90	P300 Marker				
5,588.50	5,553.90	P350 Marker				
5,751.39	5,705.90	Sharon Springs				
5,757.15	5,710.90	Niobrara				
5,787.73	5,736.90	Top A Chalk				
5,835.99	5,775.90	Top A Marl				
5,862.16	5,795.90	A Marl				
5,877.06	5,806.90	Top Upper B				
5,909.61	5,829.90	Base Upper B				
5,942.92	5,851.90	Top Lower B				
6,000.29	5,885.90	Base Lower B				
6,015.22	5,893.90	Top B Marl				
6,076.65	5,922.90	Top C Chalk				
6,107.19	5,934.90	Middle C Chalk				
6,157.09	5,950.90	Middle C Marl				

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'	
651.22	650.34	-21.37	2.42	Hold 7.02° Inc	
4,932.67	4,899.66	-541.63	61.34	Drop 2°/100'	
5,283.90	5,250.00	-563.00	63.76	Hold Vertical	
5,483.90	5,450.00	-563.00	63.76	KOP, Build 11°/100'	
6,302.28	5,971.00	-42.00	63.76	LP @ 90° Inc, Hold	
13,578.58	5,971.00	7,234.30	63.76	TD at 13578.58	