

Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07E-1801A

Hz

Plan: Plan #1

Standard Planning Report

29 January, 2015



WOG
Planning Report



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1801A
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	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-1801A			
Well Position	+N/-S	-3.02 usft	Northing:	1,558,448.65 usft
	+E/-W	79.92 usft	Easting:	3,469,890.11 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:		Ground Level: 4,925.70 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	183.36

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	
900.00	12.00	290.00	895.62	21.41	-58.83	2.00	2.00	0.00	290.00	
2,965.00	12.00	290.00	2,915.50	168.25	-462.27	0.00	0.00	0.00	0.00	
3,565.00	0.00	0.00	3,511.12	189.66	-521.10	2.00	-2.00	0.00	180.00	
5,282.80	0.00	0.00	5,228.92	189.66	-521.10	0.00	0.00	0.00	0.00	
6,100.98	90.00	179.67	5,749.79	-331.20	-518.06	11.00	11.00	0.00	179.67	PBHL 1801A
6,127.96	90.00	179.67	5,749.79	-358.18	-517.90	0.00	0.00	0.00	0.00	
13,816.82	90.00	179.67	5,750.00	-8,046.91	-473.00	0.00	0.00	0.00	0.00	PBHL 1801A



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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	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	290.00	399.98	0.60	-1.64	-0.50	2.00	2.00	0.00
500.00	4.00	290.00	499.84	2.39	-6.56	-2.00	2.00	2.00	0.00
600.00	6.00	290.00	599.45	5.37	-14.75	-4.49	2.00	2.00	0.00
700.00	8.00	290.00	698.70	9.54	-26.20	-7.98	2.00	2.00	0.00
800.00	10.00	290.00	797.47	14.89	-40.90	-12.46	2.00	2.00	0.00
900.00	12.00	290.00	895.62	21.41	-58.83	-17.92	2.00	2.00	0.00
Hold 12° Inc, 290° Azm									
1,000.00	12.00	290.00	993.44	28.52	-78.36	-23.87	0.00	0.00	0.00
1,100.00	12.00	290.00	1,091.25	35.63	-97.90	-29.83	0.00	0.00	0.00
1,200.00	12.00	290.00	1,189.07	42.74	-117.44	-35.78	0.00	0.00	0.00
1,300.00	12.00	290.00	1,286.88	49.86	-136.98	-41.73	0.00	0.00	0.00
1,400.00	12.00	290.00	1,384.70	56.97	-156.51	-47.68	0.00	0.00	0.00
1,500.00	12.00	290.00	1,482.51	64.08	-176.05	-53.64	0.00	0.00	0.00
1,569.00	12.00	290.00	1,550.00	68.98	-189.53	-57.74	0.00	0.00	0.00
Upper Pierre									
1,600.00	12.00	290.00	1,580.33	71.19	-195.59	-59.59	0.00	0.00	0.00
1,700.00	12.00	290.00	1,678.14	78.30	-215.13	-65.54	0.00	0.00	0.00
1,800.00	12.00	290.00	1,775.96	85.41	-234.66	-71.49	0.00	0.00	0.00
1,900.00	12.00	290.00	1,873.77	92.52	-254.20	-77.45	0.00	0.00	0.00
2,000.00	12.00	290.00	1,971.59	99.63	-273.74	-83.40	0.00	0.00	0.00
2,100.00	12.00	290.00	2,069.40	106.74	-293.27	-89.35	0.00	0.00	0.00
2,200.00	12.00	290.00	2,167.22	113.85	-312.81	-95.30	0.00	0.00	0.00
2,300.00	12.00	290.00	2,265.03	120.97	-332.35	-101.25	0.00	0.00	0.00
2,400.00	12.00	290.00	2,362.84	128.08	-351.89	-107.21	0.00	0.00	0.00
2,500.00	12.00	290.00	2,460.66	135.19	-371.42	-113.16	0.00	0.00	0.00
2,600.00	12.00	290.00	2,558.47	142.30	-390.96	-119.11	0.00	0.00	0.00
2,700.00	12.00	290.00	2,656.29	149.41	-410.50	-125.06	0.00	0.00	0.00
2,800.00	12.00	290.00	2,754.10	156.52	-430.04	-131.02	0.00	0.00	0.00
2,900.00	12.00	290.00	2,851.92	163.63	-449.57	-136.97	0.00	0.00	0.00
2,965.00	12.00	290.00	2,915.50	168.25	-462.27	-140.84	0.00	0.00	0.00
Drop 2°/100'									
3,000.00	11.30	290.00	2,949.78	170.67	-468.91	-142.86	2.00	-2.00	0.00
3,100.00	9.30	290.00	3,048.16	176.79	-485.72	-147.98	2.00	-2.00	0.00
3,200.00	7.30	290.00	3,147.11	181.72	-499.28	-152.11	2.00	-2.00	0.00
3,300.00	5.30	290.00	3,246.50	185.48	-509.59	-155.25	2.00	-2.00	0.00
3,400.00	3.30	290.00	3,346.21	188.04	-516.64	-157.40	2.00	-2.00	0.00
3,500.00	1.30	290.00	3,446.13	189.41	-520.41	-158.55	2.00	-2.00	0.00
3,553.88	0.22	290.00	3,500.00	189.66	-521.08	-158.75	2.00	-2.00	0.00
Hygiene									
3,565.00	0.00	0.00	3,511.12	189.66	-521.10	-158.76	2.00	-2.00	0.00
Hold Vertical									
3,600.00	0.00	0.00	3,546.12	189.66	-521.10	-158.76	0.00	0.00	0.00
3,700.00	0.00	0.00	3,646.12	189.66	-521.10	-158.76	0.00	0.00	0.00
3,703.88	0.00	0.00	3,650.00	189.66	-521.10	-158.76	0.00	0.00	0.00
Lower Pierre									
3,800.00	0.00	0.00	3,746.12	189.66	-521.10	-158.76	0.00	0.00	0.00
3,900.00	0.00	0.00	3,846.12	189.66	-521.10	-158.76	0.00	0.00	0.00
4,000.00	0.00	0.00	3,946.12	189.66	-521.10	-158.76	0.00	0.00	0.00

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Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	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)	
4,100.00	0.00	0.00	4,046.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,200.00	0.00	0.00	4,146.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,300.00	0.00	0.00	4,246.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,400.00	0.00	0.00	4,346.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,500.00	0.00	0.00	4,446.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,600.00	0.00	0.00	4,546.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,700.00	0.00	0.00	4,646.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,800.00	0.00	0.00	4,746.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
4,900.00	0.00	0.00	4,846.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
5,000.00	0.00	0.00	4,946.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
5,100.00	0.00	0.00	5,046.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
5,200.00	0.00	0.00	5,146.12	189.66	-521.10	-158.76	0.00	0.00	0.00	
5,282.80	0.00	0.00	5,228.92	189.66	-521.10	-158.76	0.00	0.00	0.00	
KOP, Build 11°/100'										
5,300.00	1.89	179.67	5,246.12	189.38	-521.10	-158.48	11.00	11.00	0.00	
5,350.00	7.39	179.67	5,295.93	185.34	-521.07	-154.44	11.00	11.00	0.00	
5,400.00	12.89	179.67	5,345.13	176.53	-521.02	-145.66	11.00	11.00	0.00	
5,450.00	18.39	179.67	5,393.26	163.06	-520.94	-132.21	11.00	11.00	0.00	
5,500.00	23.89	179.67	5,439.88	145.03	-520.84	-114.22	11.00	11.00	0.00	
5,550.00	29.39	179.67	5,484.56	122.62	-520.71	-91.85	11.00	11.00	0.00	
5,585.66	33.31	179.67	5,515.00	104.07	-520.60	-73.34	11.00	11.00	0.00	
P200 Marker										
5,600.00	34.89	179.67	5,526.88	96.03	-520.55	-65.32	11.00	11.00	0.00	
5,603.82	35.31	179.67	5,530.00	93.83	-520.54	-63.13	11.00	11.00	0.00	
P300 Marker										
5,628.76	38.06	179.67	5,550.00	78.94	-520.45	-48.26	11.00	11.00	0.00	
P350 Marker										
5,650.00	40.39	179.67	5,566.45	65.51	-520.37	-34.86	11.00	11.00	0.00	
5,700.00	45.89	179.67	5,602.92	31.33	-520.17	-0.75	11.00	11.00	0.00	
5,750.00	51.39	179.67	5,635.95	-6.19	-519.96	36.69	11.00	11.00	0.00	
5,800.00	56.89	179.67	5,665.22	-46.69	-519.72	77.11	11.00	11.00	0.00	
5,850.00	62.39	179.67	5,690.48	-89.82	-519.47	120.15	11.00	11.00	0.00	
5,876.11	65.26	179.67	5,702.00	-113.25	-519.33	143.53	11.00	11.00	0.00	
Sharon Springs										
5,888.38	66.61	179.67	5,707.00	-124.45	-519.27	154.70	11.00	11.00	0.00	
Niobrara										
5,900.00	67.89	179.67	5,711.49	-135.17	-519.20	165.40	11.00	11.00	0.00	
5,946.33	72.99	179.67	5,727.00	-178.81	-518.95	208.95	11.00	11.00	0.00	
Top A Chalk										
5,950.00	73.39	179.67	5,728.06	-182.32	-518.93	212.46	11.00	11.00	0.00	
6,000.00	78.89	179.67	5,740.03	-230.85	-518.64	260.88	11.00	11.00	0.00	
6,050.00	84.39	179.67	5,747.30	-280.30	-518.35	310.23	11.00	11.00	0.00	
6,100.98	90.00	179.67	5,749.79	-331.20	-518.06	361.02	11.00	11.00	0.00	
LP @ 90° Inc, Hold - 7"										
6,127.96	90.00	179.67	5,749.79	-358.18	-517.90	387.95	0.00	0.00	0.00	
6,200.00	90.00	179.67	5,749.79	-430.21	-517.48	459.84	0.00	0.00	0.00	
6,300.00	90.00	179.67	5,749.79	-530.21	-516.90	559.63	0.00	0.00	0.00	
6,400.00	90.00	179.67	5,749.79	-630.21	-516.31	659.42	0.00	0.00	0.00	
6,500.00	90.00	179.67	5,749.79	-730.21	-515.73	759.21	0.00	0.00	0.00	
6,600.00	90.00	179.67	5,749.79	-830.21	-515.14	859.01	0.00	0.00	0.00	
6,700.00	90.00	179.67	5,749.79	-930.21	-514.56	958.80	0.00	0.00	0.00	
6,800.00	90.00	179.67	5,749.79	-1,030.20	-513.98	1,058.59	0.00	0.00	0.00	
6,900.00	90.00	179.67	5,749.79	-1,130.20	-513.39	1,158.38	0.00	0.00	0.00	

WOG
Planning Report



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Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	H2		
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)
7,000.00	90.00	179.67	5,749.79	-1,230.20	-512.81	1,258.17	0.00	0.00	0.00
7,100.00	90.00	179.67	5,749.79	-1,330.20	-512.22	1,357.96	0.00	0.00	0.00
7,200.00	90.00	179.67	5,749.79	-1,430.20	-511.64	1,457.76	0.00	0.00	0.00
7,300.00	90.00	179.67	5,749.79	-1,530.20	-511.06	1,557.55	0.00	0.00	0.00
7,400.00	90.00	179.67	5,749.79	-1,630.19	-510.47	1,657.34	0.00	0.00	0.00
7,500.00	90.00	179.67	5,749.79	-1,730.19	-509.89	1,757.13	0.00	0.00	0.00
7,600.00	90.00	179.67	5,749.79	-1,830.19	-509.30	1,856.92	0.00	0.00	0.00
7,700.00	90.00	179.67	5,749.79	-1,930.19	-508.72	1,956.71	0.00	0.00	0.00
7,800.00	90.00	179.67	5,749.79	-2,030.19	-508.14	2,056.51	0.00	0.00	0.00
7,900.00	90.00	179.67	5,749.79	-2,130.19	-507.55	2,156.30	0.00	0.00	0.00
8,000.00	90.00	179.67	5,749.79	-2,230.18	-506.97	2,256.09	0.00	0.00	0.00
8,100.00	90.00	179.67	5,749.79	-2,330.18	-506.38	2,355.88	0.00	0.00	0.00
8,200.00	90.00	179.67	5,749.79	-2,430.18	-505.80	2,455.67	0.00	0.00	0.00
8,300.00	90.00	179.67	5,749.79	-2,530.18	-505.22	2,555.46	0.00	0.00	0.00
8,400.00	90.00	179.67	5,749.79	-2,630.18	-504.63	2,655.26	0.00	0.00	0.00
8,500.00	90.00	179.67	5,749.79	-2,730.18	-504.05	2,755.05	0.00	0.00	0.00
8,600.00	90.00	179.67	5,749.79	-2,830.17	-503.46	2,854.84	0.00	0.00	0.00
8,700.00	90.00	179.67	5,749.79	-2,930.17	-502.88	2,954.63	0.00	0.00	0.00
8,800.00	90.00	179.67	5,749.79	-3,030.17	-502.30	3,054.42	0.00	0.00	0.00
8,900.00	90.00	179.67	5,749.79	-3,130.17	-501.71	3,154.21	0.00	0.00	0.00
9,000.00	90.00	179.67	5,749.79	-3,230.17	-501.13	3,254.01	0.00	0.00	0.00
9,100.00	90.00	179.67	5,749.79	-3,330.16	-500.54	3,353.80	0.00	0.00	0.00
9,200.00	90.00	179.67	5,749.79	-3,430.16	-499.96	3,453.59	0.00	0.00	0.00
9,300.00	90.00	179.67	5,749.79	-3,530.16	-499.38	3,553.38	0.00	0.00	0.00
9,400.00	90.00	179.67	5,749.79	-3,630.16	-498.79	3,653.17	0.00	0.00	0.00
9,500.00	90.00	179.67	5,749.79	-3,730.16	-498.21	3,752.97	0.00	0.00	0.00
9,600.00	90.00	179.67	5,749.79	-3,830.16	-497.62	3,852.76	0.00	0.00	0.00
9,700.00	90.00	179.67	5,749.79	-3,930.15	-497.04	3,952.55	0.00	0.00	0.00
9,800.00	90.00	179.67	5,749.79	-4,030.15	-496.46	4,052.34	0.00	0.00	0.00
9,900.00	90.00	179.67	5,749.79	-4,130.15	-495.87	4,152.13	0.00	0.00	0.00
10,000.00	90.00	179.67	5,749.79	-4,230.15	-495.29	4,251.92	0.00	0.00	0.00
10,100.00	90.00	179.67	5,749.79	-4,330.15	-494.70	4,351.72	0.00	0.00	0.00
10,200.00	90.00	179.67	5,749.79	-4,430.15	-494.12	4,451.51	0.00	0.00	0.00
10,300.00	90.00	179.67	5,749.79	-4,530.14	-493.54	4,551.30	0.00	0.00	0.00
10,400.00	90.00	179.67	5,749.79	-4,630.14	-492.95	4,651.09	0.00	0.00	0.00
10,500.00	90.00	179.67	5,749.79	-4,730.14	-492.37	4,750.88	0.00	0.00	0.00
10,600.00	90.00	179.67	5,749.79	-4,830.14	-491.79	4,850.67	0.00	0.00	0.00
10,700.00	90.00	179.67	5,749.79	-4,930.14	-491.20	4,950.47	0.00	0.00	0.00
10,800.00	90.00	179.67	5,749.79	-5,030.14	-490.62	5,050.26	0.00	0.00	0.00
10,900.00	90.00	179.67	5,749.79	-5,130.13	-490.03	5,150.05	0.00	0.00	0.00
11,000.00	90.00	179.67	5,749.79	-5,230.13	-489.45	5,249.84	0.00	0.00	0.00
11,100.00	90.00	179.67	5,749.79	-5,330.13	-488.87	5,349.63	0.00	0.00	0.00
11,200.00	90.00	179.67	5,749.79	-5,430.13	-488.28	5,449.42	0.00	0.00	0.00
11,300.00	90.00	179.67	5,749.79	-5,530.13	-487.70	5,549.22	0.00	0.00	0.00
11,400.00	90.00	179.67	5,749.79	-5,630.13	-487.11	5,649.01	0.00	0.00	0.00
11,500.00	90.00	179.67	5,749.79	-5,730.12	-486.53	5,748.80	0.00	0.00	0.00
11,600.00	90.00	179.67	5,749.79	-5,830.12	-485.95	5,848.59	0.00	0.00	0.00
11,700.00	90.00	179.67	5,749.79	-5,930.12	-485.36	5,948.38	0.00	0.00	0.00
11,800.00	90.00	179.67	5,749.79	-6,030.12	-484.78	6,048.17	0.00	0.00	0.00
11,900.00	90.00	179.67	5,749.79	-6,130.12	-484.19	6,147.97	0.00	0.00	0.00
12,000.00	90.00	179.67	5,749.79	-6,230.12	-483.61	6,247.76	0.00	0.00	0.00
12,100.00	90.00	179.67	5,749.79	-6,330.11	-483.03	6,347.55	0.00	0.00	0.00
12,200.00	90.00	179.67	5,749.79	-6,430.11	-482.44	6,447.34	0.00	0.00	0.00
12,300.00	90.00	179.67	5,749.79	-6,530.11	-481.86	6,547.13	0.00	0.00	0.00



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1801A
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	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)
12,400.00	90.00	179.67	5,749.79	-6,630.11	-481.27	6,646.93	0.00	0.00	0.00
12,500.00	90.00	179.67	5,749.79	-6,730.11	-480.69	6,746.72	0.00	0.00	0.00
12,600.00	90.00	179.67	5,749.79	-6,830.11	-480.11	6,846.51	0.00	0.00	0.00
12,700.00	90.00	179.67	5,749.79	-6,930.10	-479.52	6,946.30	0.00	0.00	0.00
12,800.00	90.00	179.67	5,749.79	-7,030.10	-478.94	7,046.09	0.00	0.00	0.00
12,900.00	90.00	179.67	5,749.79	-7,130.10	-478.35	7,145.88	0.00	0.00	0.00
13,000.00	90.00	179.67	5,749.79	-7,230.10	-477.77	7,245.68	0.00	0.00	0.00
13,100.00	90.00	179.67	5,749.79	-7,330.10	-477.19	7,345.47	0.00	0.00	0.00
13,200.00	90.00	179.67	5,749.79	-7,430.10	-476.60	7,445.26	0.00	0.00	0.00
13,300.00	90.00	179.67	5,749.79	-7,530.09	-476.02	7,545.05	0.00	0.00	0.00
13,400.00	90.00	179.67	5,749.79	-7,630.09	-475.43	7,644.84	0.00	0.00	0.00
13,500.00	90.00	179.67	5,749.79	-7,730.09	-474.85	7,744.63	0.00	0.00	0.00
13,600.00	90.00	179.67	5,749.79	-7,830.09	-474.27	7,844.43	0.00	0.00	0.00
13,700.00	90.00	179.67	5,749.79	-7,930.09	-473.68	7,944.22	0.00	0.00	0.00
13,800.00	90.00	179.67	5,749.79	-8,030.08	-473.10	8,044.01	0.00	0.00	0.00
13,816.82	90.00	179.67	5,750.00	-8,046.91	-473.00	8,060.80	0.00	0.00	0.00
TD at 13816.85' MD - PBHL 1801A									

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 1801A	0.00	0.00	5,750.00	-8,046.91	-473.00	1,550,394.16	3,469,571.33	40° 49' 54.760 N	103° 48' 11.073 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth (usft)	Vertical Depth (usft)	Name	Casing Diameter (in)	Hole Diameter (in)	
6,100.98	5,749.79	7"	7.000	7.500	

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,569.00	1,550.00	Upper Pierre				
3,553.88	3,500.00	Hygiene				
3,703.88	3,650.00	Lower Pierre				
5,585.66	5,515.00	P200 Marker				
5,603.82	5,530.00	P300 Marker				
5,628.76	5,550.00	P350 Marker				
5,876.11	5,702.00	Sharon Springs				
5,888.38	5,707.00	Niobrara				
5,946.33	5,727.00	Top A Chalk				



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-1801A
Company:	Whiting Petroleum Corp.	TVD Reference:	KBE @ 4942.70usft (Original Well Elev)
Project:	Weld County, CO	MD Reference:	KBE @ 4942.70usft (Original Well Elev)
Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-1801A	Survey Calculation Method:	Minimum Curvature
Wellbore:	H _z		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
300.00	300.00	0.00	0.00	Build 2°/100'
900.00	895.62	21.41	-58.83	Hold 12° Inc, 290° Azm
2,965.00	2,915.50	168.25	-462.27	Drop 2°/100'
3,565.00	3,511.12	189.66	-521.10	Hold Vertical
5,282.80	5,228.92	189.66	-521.10	KOP, Build 11°/100'
6,100.98	5,749.79	-331.19	-517.80	LP @ 90° Inc, Hold
13,816.85	5,749.79	-8,046.91	-468.91	TD at 13816.85' MD