

# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail #07F-1840D**

**Hz**

**Plan: Design #1**

## **Standard Planning Report**

**29 January, 2015**





<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1840D
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Design #1		

<b>Project</b>	Weld County, CO		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	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-1840D					
Well Position	+N/-S	-85.95 usft	Northing:	1,558,395.61 usft	Latitude:	40° 51' 13.450 N
	+E/-W	1,639.90 usft	Easting:	3,471,451.39 usft	Longitude:	103° 47' 44.620 W
Position Uncertainty		0.00 usft	Wellhead Elevation:		Ground Level:	4,925.70 usft

<b>Wellbore</b>	Hz				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2010	1/5/2015	7.88	67.44	53,088

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	0.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	179.43

<b>Plan Sections</b>										
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	
550.00	5.00	18.00	549.68	10.37	3.37	2.00	2.00	0.00	18.00	
3,750.00	5.00	18.00	3,737.51	275.62	89.55	0.00	0.00	0.00	0.00	
4,000.00	0.00	0.00	3,987.19	285.98	92.92	2.00	-2.00	0.00	180.00	
5,540.94	0.00	0.00	5,528.13	285.98	92.92	0.00	0.00	0.00	0.00	
6,359.12	90.00	180.10	6,049.00	-234.89	92.04	11.00	11.00	0.00	180.10	PBHL 1840D
14,087.16	90.00	180.10	6,049.00	-7,962.91	79.00	0.00	0.00	0.00	0.00	PBHL 1840D



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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	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
<b>Build 2°/100'</b>									
400.00	2.00	18.00	399.98	1.66	0.54	-1.65	2.00	2.00	0.00
500.00	4.00	18.00	499.84	6.64	2.16	-6.62	2.00	2.00	0.00
550.00	5.00	18.00	549.68	10.37	3.37	-10.33	2.00	2.00	0.00
<b>Hold 5° Inc</b>									
600.00	5.00	18.00	599.49	14.51	4.72	-14.46	0.00	0.00	0.00
700.00	5.00	18.00	699.11	22.80	7.41	-22.73	0.00	0.00	0.00
800.00	5.00	18.00	798.73	31.09	10.10	-30.99	0.00	0.00	0.00
900.00	5.00	18.00	898.35	39.38	12.80	-39.25	0.00	0.00	0.00
1,000.00	5.00	18.00	997.97	47.67	15.49	-47.51	0.00	0.00	0.00
1,100.00	5.00	18.00	1,097.59	55.96	18.18	-55.77	0.00	0.00	0.00
1,200.00	5.00	18.00	1,197.21	64.25	20.87	-64.04	0.00	0.00	0.00
1,300.00	5.00	18.00	1,296.83	72.54	23.57	-72.30	0.00	0.00	0.00
1,400.00	5.00	18.00	1,396.45	80.82	26.26	-80.56	0.00	0.00	0.00
1,500.00	5.00	18.00	1,496.07	89.11	28.95	-88.82	0.00	0.00	0.00
1,554.14	5.00	18.00	1,550.00	93.60	30.41	-93.29	0.00	0.00	0.00
<b>Upper Pierre</b>									
1,600.00	5.00	18.00	1,595.69	97.40	31.65	-97.08	0.00	0.00	0.00
1,700.00	5.00	18.00	1,695.31	105.69	34.34	-105.35	0.00	0.00	0.00
1,800.00	5.00	18.00	1,794.93	113.98	37.03	-113.61	0.00	0.00	0.00
1,900.00	5.00	18.00	1,894.55	122.27	39.73	-121.87	0.00	0.00	0.00
2,000.00	5.00	18.00	1,994.17	130.56	42.42	-130.13	0.00	0.00	0.00
2,100.00	5.00	18.00	2,093.78	138.85	45.11	-138.39	0.00	0.00	0.00
2,200.00	5.00	18.00	2,193.40	147.14	47.81	-146.65	0.00	0.00	0.00
2,300.00	5.00	18.00	2,293.02	155.43	50.50	-154.92	0.00	0.00	0.00
2,400.00	5.00	18.00	2,392.64	163.71	53.19	-163.18	0.00	0.00	0.00
2,500.00	5.00	18.00	2,492.26	172.00	55.89	-171.44	0.00	0.00	0.00
2,600.00	5.00	18.00	2,591.88	180.29	58.58	-179.70	0.00	0.00	0.00
2,700.00	5.00	18.00	2,691.50	188.58	61.27	-187.96	0.00	0.00	0.00
2,800.00	5.00	18.00	2,791.12	196.87	63.97	-196.23	0.00	0.00	0.00
2,900.00	5.00	18.00	2,890.74	205.16	66.66	-204.49	0.00	0.00	0.00
3,000.00	5.00	18.00	2,990.36	213.45	69.35	-212.75	0.00	0.00	0.00
3,100.00	5.00	18.00	3,089.98	221.74	72.05	-221.01	0.00	0.00	0.00
3,200.00	5.00	18.00	3,189.60	230.03	74.74	-229.27	0.00	0.00	0.00
3,300.00	5.00	18.00	3,289.22	238.32	77.43	-237.54	0.00	0.00	0.00
3,400.00	5.00	18.00	3,388.84	246.60	80.13	-245.80	0.00	0.00	0.00
3,500.00	5.00	18.00	3,488.46	254.89	82.82	-254.06	0.00	0.00	0.00
3,511.59	5.00	18.00	3,500.00	255.85	83.13	-255.02	0.00	0.00	0.00
<b>Hygiene</b>									
3,600.00	5.00	18.00	3,588.08	263.18	85.51	-262.32	0.00	0.00	0.00
3,662.16	5.00	18.00	3,650.00	268.33	87.19	-267.46	0.00	0.00	0.00
<b>Lower Pierre</b>									
3,700.00	5.00	18.00	3,687.70	271.47	88.21	-270.58	0.00	0.00	0.00
3,750.00	5.00	18.00	3,737.51	275.62	89.55	-274.71	0.00	0.00	0.00
<b>Drop 2°/100'</b>									
3,800.00	4.00	18.00	3,787.35	279.35	90.77	-278.43	2.00	-2.00	0.00
3,900.00	2.00	18.00	3,887.21	284.32	92.38	-283.39	2.00	-2.00	0.00
4,000.00	0.00	0.00	3,987.19	285.98	92.92	-285.05	2.00	-2.00	0.00
<b>Hold Vertical</b>									

**WOG**  
Planning Report



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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<b>Design:</b>	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)
4,100.00	0.00	0.00	4,087.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,200.00	0.00	0.00	4,187.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,300.00	0.00	0.00	4,287.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,400.00	0.00	0.00	4,387.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,500.00	0.00	0.00	4,487.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,600.00	0.00	0.00	4,587.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,700.00	0.00	0.00	4,687.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,800.00	0.00	0.00	4,787.19	285.98	92.92	-285.05	0.00	0.00	0.00
4,900.00	0.00	0.00	4,887.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,000.00	0.00	0.00	4,987.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,100.00	0.00	0.00	5,087.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,200.00	0.00	0.00	5,187.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,300.00	0.00	0.00	5,287.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,400.00	0.00	0.00	5,387.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,500.00	0.00	0.00	5,487.19	285.98	92.92	-285.05	0.00	0.00	0.00
5,527.81	0.00	0.00	5,515.00	285.98	92.92	-285.05	0.00	0.00	0.00
<b>P200 Marker</b>									
5,540.94	0.00	0.00	5,528.13	285.98	92.92	-285.05	0.00	0.00	0.00
<b>KOP, Build 11°/100'</b>									
5,542.81	0.21	180.10	5,530.00	285.98	92.92	-285.04	11.00	11.00	0.00
<b>P300 Marker</b>									
5,550.00	1.00	180.10	5,537.19	285.90	92.92	-284.97	11.00	11.00	0.00
5,562.82	2.41	180.10	5,550.00	285.52	92.92	-284.59	11.00	11.00	0.00
<b>P350 Marker</b>									
5,600.00	6.50	180.10	5,587.06	282.64	92.92	-281.70	11.00	11.00	0.00
5,650.00	12.00	180.10	5,636.39	274.61	92.90	-273.67	11.00	11.00	0.00
5,700.00	17.50	180.10	5,684.73	261.89	92.88	-260.95	11.00	11.00	0.00
5,718.21	19.50	180.10	5,702.00	256.11	92.87	-255.17	11.00	11.00	0.00
<b>Sharon Springs</b>									
5,723.53	20.08	180.10	5,707.00	254.31	92.87	-253.37	11.00	11.00	0.00
<b>Niobrara</b>									
5,744.99	22.45	180.10	5,727.00	246.52	92.86	-245.59	11.00	11.00	0.00
<b>Top A Chalk</b>									
5,750.00	23.00	180.10	5,731.62	244.59	92.85	-243.66	11.00	11.00	0.00
5,785.72	26.93	180.10	5,764.00	229.52	92.83	-228.58	11.00	11.00	0.00
<b>Top A Marl</b>									
5,800.00	28.50	180.10	5,776.64	222.88	92.82	-221.95	11.00	11.00	0.00
5,807.27	29.30	180.10	5,783.00	219.37	92.81	-218.44	11.00	11.00	0.00
<b>A Marl</b>									
5,817.64	30.44	180.10	5,792.00	214.20	92.80	-213.27	11.00	11.00	0.00
<b>Top Upper B</b>									
5,850.00	34.00	180.10	5,819.37	196.95	92.77	-196.02	11.00	11.00	0.00
5,850.76	34.08	180.10	5,820.00	196.53	92.77	-195.60	11.00	11.00	0.00
<b>Base Upper B</b>									
5,871.57	36.37	180.10	5,837.00	184.52	92.75	-183.59	11.00	11.00	0.00
<b>Top Lower B</b>									
5,896.87	39.15	180.10	5,857.00	169.03	92.72	-168.10	11.00	11.00	0.00
<b>Base Lower B</b>									
5,900.00	39.50	180.10	5,859.42	167.05	92.72	-166.12	11.00	11.00	0.00
5,905.96	40.15	180.10	5,864.00	163.23	92.71	-162.30	11.00	11.00	0.00
<b>Top B Marl</b>									
5,950.00	45.00	180.10	5,896.42	133.45	92.66	-132.52	11.00	11.00	0.00
5,975.50	47.80	180.10	5,914.00	114.98	92.63	-114.06	11.00	11.00	0.00



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<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	H2		
<b>Design:</b>	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)	
Top C Chalk										
5,987.56	49.13	180.10	5,922.00	105.95	92.62	-105.03	11.00	11.00	0.00	
Middle C Chalk										
6,000.00	50.50	180.10	5,930.03	96.45	92.60	-95.53	11.00	11.00	0.00	
6,009.50	51.54	180.10	5,936.00	89.07	92.59	-88.15	11.00	11.00	0.00	
Middle C Marl										
6,041.29	55.04	180.10	5,955.00	63.59	92.55	-62.67	11.00	11.00	0.00	
Lower C Chalk										
6,050.00	56.00	180.10	5,959.93	56.41	92.53	-55.49	11.00	11.00	0.00	
6,074.21	58.66	180.10	5,973.00	36.03	92.50	-35.11	11.00	11.00	0.00	
Lower C Marl										
6,100.00	61.50	180.10	5,985.86	13.68	92.46	-12.76	11.00	11.00	0.00	
6,141.02	66.01	180.10	6,004.00	-23.10	92.40	24.02	11.00	11.00	0.00	
Lower C Marker										
6,150.00	67.00	180.10	6,007.58	-31.34	92.39	32.25	11.00	11.00	0.00	
6,153.66	67.40	180.10	6,009.00	-34.72	92.38	35.63	11.00	11.00	0.00	
Top Ft. Hays										
6,200.00	72.50	180.10	6,024.88	-78.23	92.31	79.14	11.00	11.00	0.00	
6,214.32	74.07	180.10	6,029.00	-91.94	92.28	92.85	11.00	11.00	0.00	
Ft. Hays Marker										
6,250.00	78.00	180.10	6,037.61	-126.56	92.23	127.47	11.00	11.00	0.00	
6,300.00	83.50	180.10	6,045.65	-175.89	92.14	176.80	11.00	11.00	0.00	
6,350.00	89.00	180.10	6,048.92	-225.77	92.06	226.67	11.00	11.00	0.00	
6,359.12	90.00	180.10	6,049.00	-234.89	92.04	235.79	11.00	11.00	0.00	
LP @ 90° Inc, Hold - Top Codell - 7"										
6,400.00	90.00	180.10	6,049.00	-275.76	91.97	276.66	0.00	0.00	0.00	
6,500.00	90.00	180.10	6,049.00	-375.76	91.80	376.66	0.00	0.00	0.00	
6,600.00	90.00	180.10	6,049.00	-475.76	91.64	476.65	0.00	0.00	0.00	
6,700.00	90.00	180.10	6,049.00	-575.76	91.47	576.64	0.00	0.00	0.00	
6,800.00	90.00	180.10	6,049.00	-675.76	91.30	676.64	0.00	0.00	0.00	
6,900.00	90.00	180.10	6,049.00	-775.76	91.13	776.63	0.00	0.00	0.00	
7,000.00	90.00	180.10	6,049.00	-875.76	90.96	876.62	0.00	0.00	0.00	
7,100.00	90.00	180.10	6,049.00	-975.76	90.79	976.62	0.00	0.00	0.00	
7,200.00	90.00	180.10	6,049.00	-1,075.76	90.62	1,076.61	0.00	0.00	0.00	
7,300.00	90.00	180.10	6,049.00	-1,175.76	90.45	1,176.60	0.00	0.00	0.00	
7,400.00	90.00	180.10	6,049.00	-1,275.76	90.29	1,276.60	0.00	0.00	0.00	
7,500.00	90.00	180.10	6,049.00	-1,375.76	90.12	1,376.59	0.00	0.00	0.00	
7,600.00	90.00	180.10	6,049.00	-1,475.76	89.95	1,476.58	0.00	0.00	0.00	
7,700.00	90.00	180.10	6,049.00	-1,575.76	89.78	1,576.58	0.00	0.00	0.00	
7,800.00	90.00	180.10	6,049.00	-1,675.76	89.61	1,676.57	0.00	0.00	0.00	
7,900.00	90.00	180.10	6,049.00	-1,775.76	89.44	1,776.56	0.00	0.00	0.00	
8,000.00	90.00	180.10	6,049.00	-1,875.76	89.27	1,876.56	0.00	0.00	0.00	
8,100.00	90.00	180.10	6,049.00	-1,975.76	89.10	1,976.55	0.00	0.00	0.00	
8,200.00	90.00	180.10	6,049.00	-2,075.76	88.94	2,076.54	0.00	0.00	0.00	
8,300.00	90.00	180.10	6,049.00	-2,175.76	88.77	2,176.54	0.00	0.00	0.00	
8,400.00	90.00	180.10	6,049.00	-2,275.76	88.60	2,276.53	0.00	0.00	0.00	
8,500.00	90.00	180.10	6,049.00	-2,375.76	88.43	2,376.52	0.00	0.00	0.00	
8,600.00	90.00	180.10	6,049.00	-2,475.76	88.26	2,476.52	0.00	0.00	0.00	
8,700.00	90.00	180.10	6,049.00	-2,575.76	88.09	2,576.51	0.00	0.00	0.00	
8,800.00	90.00	180.10	6,049.00	-2,675.76	87.92	2,676.50	0.00	0.00	0.00	
8,900.00	90.00	180.10	6,049.00	-2,775.76	87.75	2,776.50	0.00	0.00	0.00	
9,000.00	90.00	180.10	6,049.00	-2,875.76	87.59	2,876.49	0.00	0.00	0.00	
9,100.00	90.00	180.10	6,049.00	-2,975.76	87.42	2,976.48	0.00	0.00	0.00	



<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1840D
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	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)
9,200.00	90.00	180.10	6,049.00	-3,075.76	87.25	3,076.48	0.00	0.00	0.00
9,300.00	90.00	180.10	6,049.00	-3,175.76	87.08	3,176.47	0.00	0.00	0.00
9,400.00	90.00	180.10	6,049.00	-3,275.76	86.91	3,276.46	0.00	0.00	0.00
9,500.00	90.00	180.10	6,049.00	-3,375.76	86.74	3,376.46	0.00	0.00	0.00
9,600.00	90.00	180.10	6,049.00	-3,475.76	86.57	3,476.45	0.00	0.00	0.00
9,700.00	90.00	180.10	6,049.00	-3,575.76	86.40	3,576.44	0.00	0.00	0.00
9,800.00	90.00	180.10	6,049.00	-3,675.76	86.24	3,676.43	0.00	0.00	0.00
9,900.00	90.00	180.10	6,049.00	-3,775.76	86.07	3,776.43	0.00	0.00	0.00
10,000.00	90.00	180.10	6,049.00	-3,875.76	85.90	3,876.42	0.00	0.00	0.00
10,100.00	90.00	180.10	6,049.00	-3,975.76	85.73	3,976.41	0.00	0.00	0.00
10,200.00	90.00	180.10	6,049.00	-4,075.76	85.56	4,076.41	0.00	0.00	0.00
10,300.00	90.00	180.10	6,049.00	-4,175.76	85.39	4,176.40	0.00	0.00	0.00
10,400.00	90.00	180.10	6,049.00	-4,275.76	85.22	4,276.39	0.00	0.00	0.00
10,500.00	90.00	180.10	6,049.00	-4,375.76	85.05	4,376.39	0.00	0.00	0.00
10,600.00	90.00	180.10	6,049.00	-4,475.76	84.89	4,476.38	0.00	0.00	0.00
10,700.00	90.00	180.10	6,049.00	-4,575.76	84.72	4,576.37	0.00	0.00	0.00
10,800.00	90.00	180.10	6,049.00	-4,675.76	84.55	4,676.37	0.00	0.00	0.00
10,900.00	90.00	180.10	6,049.00	-4,775.76	84.38	4,776.36	0.00	0.00	0.00
11,000.00	90.00	180.10	6,049.00	-4,875.76	84.21	4,876.35	0.00	0.00	0.00
11,100.00	90.00	180.10	6,049.00	-4,975.76	84.04	4,976.35	0.00	0.00	0.00
11,200.00	90.00	180.10	6,049.00	-5,075.76	83.87	5,076.34	0.00	0.00	0.00
11,300.00	90.00	180.10	6,049.00	-5,175.76	83.70	5,176.33	0.00	0.00	0.00
11,400.00	90.00	180.10	6,049.00	-5,275.76	83.54	5,276.33	0.00	0.00	0.00
11,500.00	90.00	180.10	6,049.00	-5,375.76	83.37	5,376.32	0.00	0.00	0.00
11,600.00	90.00	180.10	6,049.00	-5,475.76	83.20	5,476.31	0.00	0.00	0.00
11,700.00	90.00	180.10	6,049.00	-5,575.76	83.03	5,576.31	0.00	0.00	0.00
11,800.00	90.00	180.10	6,049.00	-5,675.76	82.86	5,676.30	0.00	0.00	0.00
11,900.00	90.00	180.10	6,049.00	-5,775.76	82.69	5,776.29	0.00	0.00	0.00
12,000.00	90.00	180.10	6,049.00	-5,875.76	82.52	5,876.29	0.00	0.00	0.00
12,100.00	90.00	180.10	6,049.00	-5,975.76	82.35	5,976.28	0.00	0.00	0.00
12,200.00	90.00	180.10	6,049.00	-6,075.76	82.18	6,076.27	0.00	0.00	0.00
12,300.00	90.00	180.10	6,049.00	-6,175.76	82.02	6,176.27	0.00	0.00	0.00
12,400.00	90.00	180.10	6,049.00	-6,275.76	81.85	6,276.26	0.00	0.00	0.00
12,500.00	90.00	180.10	6,049.00	-6,375.76	81.68	6,376.25	0.00	0.00	0.00
12,600.00	90.00	180.10	6,049.00	-6,475.76	81.51	6,476.25	0.00	0.00	0.00
12,700.00	90.00	180.10	6,049.00	-6,575.76	81.34	6,576.24	0.00	0.00	0.00
12,800.00	90.00	180.10	6,049.00	-6,675.76	81.17	6,676.23	0.00	0.00	0.00
12,900.00	90.00	180.10	6,049.00	-6,775.76	81.00	6,776.23	0.00	0.00	0.00
13,000.00	90.00	180.10	6,049.00	-6,875.76	80.83	6,876.22	0.00	0.00	0.00
13,100.00	90.00	180.10	6,049.00	-6,975.76	80.67	6,976.21	0.00	0.00	0.00
13,200.00	90.00	180.10	6,049.00	-7,075.76	80.50	7,076.21	0.00	0.00	0.00
13,300.00	90.00	180.10	6,049.00	-7,175.76	80.33	7,176.20	0.00	0.00	0.00
13,400.00	90.00	180.10	6,049.00	-7,275.76	80.16	7,276.19	0.00	0.00	0.00
13,500.00	90.00	180.10	6,049.00	-7,375.76	79.99	7,376.19	0.00	0.00	0.00
13,600.00	90.00	180.10	6,049.00	-7,475.75	79.82	7,476.18	0.00	0.00	0.00
13,700.00	90.00	180.10	6,049.00	-7,575.75	79.65	7,576.17	0.00	0.00	0.00
13,800.00	90.00	180.10	6,049.00	-7,675.75	79.48	7,676.17	0.00	0.00	0.00
13,900.00	90.00	180.10	6,049.00	-7,775.75	79.32	7,776.16	0.00	0.00	0.00
14,000.00	90.00	180.10	6,049.00	-7,875.75	79.15	7,876.15	0.00	0.00	0.00
14,087.16	90.00	180.10	6,049.00	-7,962.91	79.00	7,963.30	0.00	0.00	0.00
TD at 14087.17' MD - PBHL 1840D									



<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1840D
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Design #1		

Design Targets									
Target Name	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- hit/miss target	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
- Shape									
PBHL 1840D	0.00	0.00	6,049.00	-7,962.91	79.00	1,550,435.69	3,471,683.41	40° 49' 54.770 N	103° 47' 43.592 W
- plan hits target center									
- Point									

Casing Points					
Measured Depth	Vertical Depth	Name		Casing Diameter	Hole Diameter
(usft)	(usft)			(in)	(in)
6,359.12	6,049.00	7"		7.000	8.750

Formations						
Measured Depth	Vertical Depth	Name	Lithology	Dip	Dip Direction	
(usft)	(usft)			(°)	(°)	
1,554.14	1,550.00	Upper Pierre				
3,511.59	3,500.00	Hygiene				
3,662.16	3,650.00	Lower Pierre				
5,527.81	5,515.00	P200 Marker				
5,542.81	5,530.00	P300 Marker				
5,562.82	5,550.00	P350 Marker				
5,718.21	5,702.00	Sharon Springs				
5,723.53	5,707.00	Niobrara				
5,744.99	5,727.00	Top A Chalk				
5,785.72	5,764.00	Top A Marl				
5,807.27	5,783.00	A Marl				
5,817.64	5,792.00	Top Upper B				
5,850.76	5,820.00	Base Upper B				
5,871.57	5,837.00	Top Lower B				
5,896.87	5,857.00	Base Lower B				
5,905.96	5,864.00	Top B Marl				
5,975.50	5,914.00	Top C Chalk				
5,987.56	5,922.00	Middle C Chalk				
6,009.50	5,936.00	Middle C Marl				
6,041.29	5,955.00	Lower C Chalk				
6,074.21	5,973.00	Lower C Marl				
6,141.02	6,004.00	Lower C Marker				
6,153.66	6,009.00	Top Ft. Hays				
6,214.32	6,029.00	Ft. Hays Marker				
6,359.12	6,049.00	Top Codell				



<b>Database:</b>	LandmarkEDM	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1840D
<b>Company:</b>	Whiting Petroleum Corp.	<b>TVD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Project:</b>	Weld County, CO	<b>MD Reference:</b>	KBE @ 4942.70usft (Original Well Elev)
<b>Site:</b>	Sec 7-T10N-R57W	<b>North Reference:</b>	True
<b>Well:</b>	Horsetail #07F-1840D	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Hz		
<b>Design:</b>	Design #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'
550.00	549.68	10.37	3.37	Hold 5° Inc
3,750.00	3,737.51	275.62	89.55	Drop 2°/100'
4,000.00	3,987.19	285.98	92.92	Hold Vertical
5,540.94	5,528.13	285.98	92.92	KOP, Build 11°/100'
6,359.12	6,049.00	-234.88	94.34	LP @ 90° Inc, Hold
14,087.17	6,049.00	-7,962.91	115.42	TD at 14087.17' MD