

Whiting Petroleum Corp.

Weld County, CO

Sec 7-T10N-R57W

Horsetail #07E-0634D

Hz

Plan: Plan #1

Standard Planning Report

29 January, 2015



WOG
Planning Report



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0634D
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-0634D	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-0634D					
Well Position	+N/-S	-54.63 usft	Northing:	1,558,397.59 usft	Latitude:	40° 51' 13.760 N
	+E/-W	108.35 usft	Easting:	3,469,919.53 usft	Longitude:	103° 48' 4.550 W
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	356.03

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	
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00	
1,000.00	12.00	220.00	995.62	-47.96	-40.24	2.00	2.00	0.00	220.00	
4,130.00	12.00	220.00	4,057.22	-546.47	-458.54	0.00	0.00	0.00	0.00	
4,730.00	0.00	0.00	4,652.85	-594.43	-498.78	2.00	-2.00	0.00	180.00	
5,553.00	0.00	0.00	5,475.85	-594.43	-498.78	0.00	0.00	0.00	0.00	
6,453.00	90.00	359.98	6,048.81	-21.47	-498.95	10.00	10.00	0.00	359.98	PBHL 0634D
6,479.78	90.00	359.98	6,048.81	5.31	-498.95	0.00	0.00	0.00	0.00	
13,697.64	90.00	359.98	6,049.00	7,223.17	-501.00	0.00	0.00	0.00	0.00	PBHL 0634D



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Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0634D	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
400.00	0.00	0.00	400.00	0.00	0.00	0.00	0.00	0.00	0.00
Build 2°/100'									
500.00	2.00	220.00	499.98	-1.34	-1.12	-1.26	2.00	2.00	0.00
600.00	4.00	220.00	599.84	-5.35	-4.49	-5.02	2.00	2.00	0.00
700.00	6.00	220.00	699.45	-12.02	-10.09	-11.30	2.00	2.00	0.00
800.00	8.00	220.00	798.70	-21.36	-17.92	-20.07	2.00	2.00	0.00
900.00	10.00	220.00	897.47	-33.34	-27.98	-31.32	2.00	2.00	0.00
1,000.00	12.00	220.00	995.62	-47.96	-40.24	-45.06	2.00	2.00	0.00
Hold 12° Inc									
1,100.00	12.00	220.00	1,093.44	-63.88	-53.60	-60.02	0.00	0.00	0.00
1,200.00	12.00	220.00	1,191.25	-79.81	-66.97	-74.99	0.00	0.00	0.00
1,300.00	12.00	220.00	1,289.07	-95.74	-80.33	-89.95	0.00	0.00	0.00
1,400.00	12.00	220.00	1,386.88	-111.66	-93.70	-104.91	0.00	0.00	0.00
1,500.00	12.00	220.00	1,484.70	-127.59	-107.06	-119.88	0.00	0.00	0.00
1,566.76	12.00	220.00	1,550.00	-138.22	-115.98	-129.87	0.00	0.00	0.00
Upper Pierre									
1,600.00	12.00	220.00	1,582.51	-143.52	-120.43	-134.84	0.00	0.00	0.00
1,700.00	12.00	220.00	1,680.33	-159.45	-133.79	-149.81	0.00	0.00	0.00
1,800.00	12.00	220.00	1,778.14	-175.37	-147.15	-164.77	0.00	0.00	0.00
1,900.00	12.00	220.00	1,875.96	-191.30	-160.52	-179.73	0.00	0.00	0.00
2,000.00	12.00	220.00	1,973.77	-207.23	-173.88	-194.70	0.00	0.00	0.00
2,100.00	12.00	220.00	2,071.59	-223.15	-187.25	-209.66	0.00	0.00	0.00
2,200.00	12.00	220.00	2,169.40	-239.08	-200.61	-224.63	0.00	0.00	0.00
2,300.00	12.00	220.00	2,267.22	-255.01	-213.98	-239.59	0.00	0.00	0.00
2,400.00	12.00	220.00	2,365.03	-270.93	-227.34	-254.55	0.00	0.00	0.00
2,500.00	12.00	220.00	2,462.84	-286.86	-240.70	-269.52	0.00	0.00	0.00
2,600.00	12.00	220.00	2,560.66	-302.79	-254.07	-284.48	0.00	0.00	0.00
2,700.00	12.00	220.00	2,658.47	-318.71	-267.43	-299.45	0.00	0.00	0.00
2,800.00	12.00	220.00	2,756.29	-334.64	-280.80	-314.41	0.00	0.00	0.00
2,900.00	12.00	220.00	2,854.10	-350.57	-294.16	-329.37	0.00	0.00	0.00
3,000.00	12.00	220.00	2,951.92	-366.50	-307.53	-344.34	0.00	0.00	0.00
3,100.00	12.00	220.00	3,049.73	-382.42	-320.89	-359.30	0.00	0.00	0.00
3,200.00	12.00	220.00	3,147.55	-398.35	-334.25	-374.27	0.00	0.00	0.00
3,300.00	12.00	220.00	3,245.36	-414.28	-347.62	-389.23	0.00	0.00	0.00
3,400.00	12.00	220.00	3,343.18	-430.20	-360.98	-404.19	0.00	0.00	0.00
3,500.00	12.00	220.00	3,440.99	-446.13	-374.35	-419.16	0.00	0.00	0.00
3,560.33	12.00	220.00	3,500.00	-455.74	-382.41	-428.19	0.00	0.00	0.00
Hygiene									
3,600.00	12.00	220.00	3,538.81	-462.06	-387.71	-434.12	0.00	0.00	0.00
3,700.00	12.00	220.00	3,636.62	-477.98	-401.08	-449.09	0.00	0.00	0.00
3,713.68	12.00	220.00	3,650.00	-480.16	-402.90	-451.13	0.00	0.00	0.00
Lower Pierre									
3,800.00	12.00	220.00	3,734.44	-493.91	-414.44	-464.05	0.00	0.00	0.00
3,900.00	12.00	220.00	3,832.25	-509.84	-427.81	-479.01	0.00	0.00	0.00
4,000.00	12.00	220.00	3,930.07	-525.77	-441.17	-493.98	0.00	0.00	0.00
4,100.00	12.00	220.00	4,027.88	-541.69	-454.53	-508.94	0.00	0.00	0.00
4,130.00	12.00	220.00	4,057.22	-546.47	-458.54	-513.43	0.00	0.00	0.00
Drop 2°/100'									
4,200.00	10.60	220.00	4,125.87	-556.98	-467.36	-523.30	2.00	-2.00	0.00



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Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0634D	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)
4,300.00	8.60	220.00	4,224.46	-569.75	-478.08	-535.31	2.00	-2.00	0.00
4,400.00	6.60	220.00	4,323.58	-579.88	-486.58	-544.82	2.00	-2.00	0.00
4,500.00	4.60	220.00	4,423.10	-587.36	-492.85	-551.85	2.00	-2.00	0.00
4,600.00	2.60	220.00	4,522.89	-592.17	-496.89	-556.37	2.00	-2.00	0.00
4,700.00	0.60	220.00	4,622.85	-594.31	-498.68	-558.38	2.00	-2.00	0.00
4,730.00	0.00	0.00	4,652.85	-594.43	-498.78	-558.49	2.00	-2.00	0.00
Hold Vertical									
4,800.00	0.00	0.00	4,722.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
4,900.00	0.00	0.00	4,822.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,000.00	0.00	0.00	4,922.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,100.00	0.00	0.00	5,022.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,200.00	0.00	0.00	5,122.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,300.00	0.00	0.00	5,222.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,400.00	0.00	0.00	5,322.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,500.00	0.00	0.00	5,422.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
5,553.00	0.00	0.00	5,475.85	-594.43	-498.78	-558.49	0.00	0.00	0.00
KOP, Build 10°/100'									
5,592.18	3.92	359.98	5,515.00	-593.09	-498.78	-557.15	10.00	10.00	0.00
P200 Marker									
5,600.00	4.70	359.98	5,522.80	-592.50	-498.78	-556.57	10.00	10.00	0.00
5,607.23	5.42	359.98	5,530.00	-591.86	-498.78	-555.93	10.00	10.00	0.00
P300 Marker									
5,627.36	7.44	359.98	5,550.00	-589.61	-498.78	-553.68	10.00	10.00	0.00
P350 Marker									
5,650.00	9.70	359.98	5,572.39	-586.23	-498.79	-550.32	10.00	10.00	0.00
5,700.00	14.70	359.98	5,621.24	-575.67	-498.79	-539.78	10.00	10.00	0.00
5,750.00	19.70	359.98	5,668.99	-560.89	-498.79	-525.03	10.00	10.00	0.00
5,785.48	23.25	359.98	5,702.00	-547.91	-498.80	-512.08	10.00	10.00	0.00
Sharon Springs									
5,790.93	23.79	359.98	5,707.00	-545.73	-498.80	-509.91	10.00	10.00	0.00
Niobrara									
5,800.00	24.70	359.98	5,715.27	-542.01	-498.80	-506.19	10.00	10.00	0.00
5,812.98	26.00	359.98	5,727.00	-536.45	-498.80	-500.65	10.00	10.00	0.00
Top A Chalk									
5,850.00	29.70	359.98	5,759.73	-519.16	-498.80	-483.40	10.00	10.00	0.00
5,854.93	30.19	359.98	5,764.00	-516.69	-498.80	-480.94	10.00	10.00	0.00
Top A Marl									
5,877.17	32.42	359.98	5,783.00	-505.14	-498.81	-469.41	10.00	10.00	0.00
A Marl									
5,887.90	33.49	359.98	5,792.00	-499.31	-498.81	-463.59	10.00	10.00	0.00
Top Upper B									
5,900.00	34.70	359.98	5,802.02	-492.52	-498.81	-456.83	10.00	10.00	0.00
5,922.17	36.92	359.98	5,820.00	-479.55	-498.82	-443.89	10.00	10.00	0.00
Base Upper B									
5,943.74	39.07	359.98	5,837.00	-466.27	-498.82	-430.64	10.00	10.00	0.00
Top Lower B									
5,950.00	39.70	359.98	5,841.84	-462.30	-498.82	-426.68	10.00	10.00	0.00
5,970.00	41.70	359.98	5,857.00	-449.26	-498.82	-413.67	10.00	10.00	0.00
Base Lower B									
5,979.45	42.65	359.98	5,864.00	-442.92	-498.83	-407.34	10.00	10.00	0.00
Top B Marl									
6,000.00	44.70	359.98	5,878.86	-428.73	-498.83	-393.18	10.00	10.00	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-0634D	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)	
6,050.00	49.70	359.98	5,912.82	-392.05	-498.84	-356.60	10.00	10.00	0.00	
6,051.82	49.88	359.98	5,914.00	-390.66	-498.84	-355.21	10.00	10.00	0.00	
Top C Chalk										
6,064.40	51.14	359.98	5,922.00	-380.95	-498.84	-345.52	10.00	10.00	0.00	
Middle C Chalk										
6,087.29	53.43	359.98	5,936.00	-362.85	-498.85	-327.46	10.00	10.00	0.00	
Middle C Marl										
6,100.00	54.70	359.98	5,943.46	-352.56	-498.85	-317.19	10.00	10.00	0.00	
6,120.49	56.75	359.98	5,955.00	-335.62	-498.86	-300.30	10.00	10.00	0.00	
Lower C Chalk										
6,150.00	59.70	359.98	5,970.54	-310.54	-498.86	-275.28	10.00	10.00	0.00	
6,154.92	60.19	359.98	5,973.00	-306.28	-498.86	-271.03	10.00	10.00	0.00	
Lower C Marl										
6,200.00	64.70	359.98	5,993.85	-266.33	-498.88	-231.17	10.00	10.00	0.00	
6,224.91	67.19	359.98	6,004.00	-243.58	-498.88	-208.48	10.00	10.00	0.00	
Lower C Marker										
6,238.17	68.52	359.98	6,009.00	-231.30	-498.89	-196.23	10.00	10.00	0.00	
Top Ft. Hays										
6,250.00	69.70	359.98	6,013.22	-220.25	-498.89	-185.20	10.00	10.00	0.00	
6,300.00	74.70	359.98	6,028.50	-172.66	-498.90	-137.72	10.00	10.00	0.00	
6,301.91	74.89	359.98	6,029.00	-170.81	-498.90	-135.88	10.00	10.00	0.00	
Ft. Hays Marker										
6,350.00	79.70	359.98	6,039.57	-123.91	-498.92	-89.10	10.00	10.00	0.00	
6,400.00	84.70	359.98	6,046.36	-74.39	-498.93	-39.69	10.00	10.00	0.00	
6,453.00	90.00	359.98	6,048.81	-21.47	-498.95	13.11	10.00	10.00	0.00	
LP @ 90° Inc, Hold - 7"										
6,479.78	90.00	359.98	6,048.81	5.31	-498.95	39.82	0.00	0.00	0.00	
6,500.00	90.00	359.98	6,048.81	25.53	-498.96	60.00	0.00	0.00	0.00	
6,600.00	90.00	359.98	6,048.81	125.53	-498.99	159.76	0.00	0.00	0.00	
6,700.00	90.00	359.98	6,048.81	225.53	-499.02	259.52	0.00	0.00	0.00	
6,800.00	90.00	359.98	6,048.81	325.53	-499.04	359.28	0.00	0.00	0.00	
6,900.00	90.00	359.98	6,048.81	425.53	-499.07	459.04	0.00	0.00	0.00	
7,000.00	90.00	359.98	6,048.81	525.53	-499.10	558.81	0.00	0.00	0.00	
7,100.00	90.00	359.98	6,048.81	625.53	-499.13	658.57	0.00	0.00	0.00	
7,200.00	90.00	359.98	6,048.81	725.53	-499.16	758.33	0.00	0.00	0.00	
7,300.00	90.00	359.98	6,048.81	825.53	-499.19	858.09	0.00	0.00	0.00	
7,400.00	90.00	359.98	6,048.81	925.53	-499.21	957.86	0.00	0.00	0.00	
7,500.00	90.00	359.98	6,048.81	1,025.53	-499.24	1,057.62	0.00	0.00	0.00	
7,600.00	90.00	359.98	6,048.81	1,125.53	-499.27	1,157.38	0.00	0.00	0.00	
7,700.00	90.00	359.98	6,048.81	1,225.53	-499.30	1,257.14	0.00	0.00	0.00	
7,800.00	90.00	359.98	6,048.81	1,325.53	-499.33	1,356.91	0.00	0.00	0.00	
7,900.00	90.00	359.98	6,048.81	1,425.53	-499.36	1,456.67	0.00	0.00	0.00	
8,000.00	90.00	359.98	6,048.81	1,525.53	-499.38	1,556.43	0.00	0.00	0.00	
8,100.00	90.00	359.98	6,048.81	1,625.53	-499.41	1,656.19	0.00	0.00	0.00	
8,200.00	90.00	359.98	6,048.81	1,725.53	-499.44	1,755.95	0.00	0.00	0.00	
8,300.00	90.00	359.98	6,048.81	1,825.53	-499.47	1,855.72	0.00	0.00	0.00	
8,400.00	90.00	359.98	6,048.81	1,925.53	-499.50	1,955.48	0.00	0.00	0.00	
8,500.00	90.00	359.98	6,048.81	2,025.53	-499.53	2,055.24	0.00	0.00	0.00	
8,600.00	90.00	359.98	6,048.81	2,125.53	-499.55	2,155.00	0.00	0.00	0.00	
8,700.00	90.00	359.98	6,048.81	2,225.53	-499.58	2,254.77	0.00	0.00	0.00	
8,800.00	90.00	359.98	6,048.81	2,325.53	-499.61	2,354.53	0.00	0.00	0.00	
8,900.00	90.00	359.98	6,048.81	2,425.53	-499.64	2,454.29	0.00	0.00	0.00	
9,000.00	90.00	359.98	6,048.81	2,525.53	-499.67	2,554.05	0.00	0.00	0.00	

WOG
Planning Report



Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0634D
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-0634D	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)
9,100.00	90.00	359.98	6,048.81	2,625.53	-499.70	2,653.82	0.00	0.00	0.00
9,200.00	90.00	359.98	6,048.81	2,725.53	-499.72	2,753.58	0.00	0.00	0.00
9,300.00	90.00	359.98	6,048.81	2,825.53	-499.75	2,853.34	0.00	0.00	0.00
9,400.00	90.00	359.98	6,048.81	2,925.53	-499.78	2,953.10	0.00	0.00	0.00
9,500.00	90.00	359.98	6,048.81	3,025.53	-499.81	3,052.86	0.00	0.00	0.00
9,600.00	90.00	359.98	6,048.81	3,125.53	-499.84	3,152.63	0.00	0.00	0.00
9,630.26	90.00	359.98	6,048.81	3,155.80	-499.85	3,182.82	0.00	0.00	0.00
Beffie #1									
9,700.00	90.00	359.98	6,048.81	3,225.53	-499.87	3,252.39	0.00	0.00	0.00
9,800.00	90.00	359.98	6,048.81	3,325.53	-499.89	3,352.15	0.00	0.00	0.00
9,900.00	90.00	359.98	6,048.81	3,425.53	-499.92	3,451.91	0.00	0.00	0.00
10,000.00	90.00	359.98	6,048.81	3,525.53	-499.95	3,551.68	0.00	0.00	0.00
10,100.00	90.00	359.98	6,048.81	3,625.53	-499.98	3,651.44	0.00	0.00	0.00
10,200.00	90.00	359.98	6,048.81	3,725.53	-500.01	3,751.20	0.00	0.00	0.00
10,300.00	90.00	359.98	6,048.81	3,825.53	-500.04	3,850.96	0.00	0.00	0.00
10,400.00	90.00	359.98	6,048.81	3,925.53	-500.06	3,950.72	0.00	0.00	0.00
10,500.00	90.00	359.98	6,048.81	4,025.53	-500.09	4,050.49	0.00	0.00	0.00
10,600.00	90.00	359.98	6,048.81	4,125.53	-500.12	4,150.25	0.00	0.00	0.00
10,700.00	90.00	359.98	6,048.81	4,225.53	-500.15	4,250.01	0.00	0.00	0.00
10,800.00	90.00	359.98	6,048.81	4,325.53	-500.18	4,349.77	0.00	0.00	0.00
10,900.00	90.00	359.98	6,048.81	4,425.53	-500.21	4,449.54	0.00	0.00	0.00
11,000.00	90.00	359.98	6,048.81	4,525.53	-500.23	4,549.30	0.00	0.00	0.00
11,100.00	90.00	359.98	6,048.81	4,625.53	-500.26	4,649.06	0.00	0.00	0.00
11,200.00	90.00	359.98	6,048.81	4,725.53	-500.29	4,748.82	0.00	0.00	0.00
11,300.00	90.00	359.98	6,048.81	4,825.53	-500.32	4,848.59	0.00	0.00	0.00
11,400.00	90.00	359.98	6,048.81	4,925.53	-500.35	4,948.35	0.00	0.00	0.00
11,500.00	90.00	359.98	6,048.81	5,025.53	-500.38	5,048.11	0.00	0.00	0.00
11,600.00	90.00	359.98	6,048.81	5,125.53	-500.41	5,147.87	0.00	0.00	0.00
11,700.00	90.00	359.98	6,048.81	5,225.53	-500.43	5,247.63	0.00	0.00	0.00
11,800.00	90.00	359.98	6,048.81	5,325.53	-500.46	5,347.40	0.00	0.00	0.00
11,900.00	90.00	359.98	6,048.81	5,425.53	-500.49	5,447.16	0.00	0.00	0.00
12,000.00	90.00	359.98	6,048.81	5,525.53	-500.52	5,546.92	0.00	0.00	0.00
12,100.00	90.00	359.98	6,048.81	5,625.53	-500.55	5,646.68	0.00	0.00	0.00
12,200.00	90.00	359.98	6,048.81	5,725.53	-500.58	5,746.45	0.00	0.00	0.00
12,300.00	90.00	359.98	6,048.81	5,825.53	-500.60	5,846.21	0.00	0.00	0.00
12,400.00	90.00	359.98	6,048.81	5,925.53	-500.63	5,945.97	0.00	0.00	0.00
12,500.00	90.00	359.98	6,048.81	6,025.53	-500.66	6,045.73	0.00	0.00	0.00
12,600.00	90.00	359.98	6,048.81	6,125.53	-500.69	6,145.50	0.00	0.00	0.00
12,700.00	90.00	359.98	6,048.81	6,225.53	-500.72	6,245.26	0.00	0.00	0.00
12,800.00	90.00	359.98	6,048.81	6,325.53	-500.75	6,345.02	0.00	0.00	0.00
12,900.00	90.00	359.98	6,048.81	6,425.53	-500.77	6,444.78	0.00	0.00	0.00
13,000.00	90.00	359.98	6,048.81	6,525.53	-500.80	6,544.54	0.00	0.00	0.00
13,100.00	90.00	359.98	6,048.81	6,625.53	-500.83	6,644.31	0.00	0.00	0.00
13,200.00	90.00	359.98	6,048.81	6,725.53	-500.86	6,744.07	0.00	0.00	0.00
13,300.00	90.00	359.98	6,048.81	6,825.53	-500.89	6,843.83	0.00	0.00	0.00
13,400.00	90.00	359.98	6,048.81	6,925.53	-500.92	6,943.59	0.00	0.00	0.00
13,500.00	90.00	359.98	6,048.81	7,025.53	-500.94	7,043.36	0.00	0.00	0.00
13,600.00	90.00	359.98	6,048.81	7,125.53	-500.97	7,143.12	0.00	0.00	0.00
13,697.64	90.00	359.98	6,048.81	7,223.17	-501.00	7,240.53	0.00	0.00	0.00
TD at 13697.64' MD - PBHL 0634D									



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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-0634D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Design Targets									
Target Name									
- hit/miss target	Dip Angle	Dip Dir.	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude
- Shape	(°)	(°)	(usft)	(usft)	(usft)	(usft)	(usft)		
PBHL 0634D	0.00	0.00	6,049.00	7,223.17	-501.00	1,565,609.84	3,469,280.25	40° 52' 25.130 N	103° 48' 11.071 W
- plan misses target center by 0.19usft at 13697.64usft MD (6048.81 TVD, 7223.17 N, -501.00 E)									
- Point									
Beffie #1	0.00	0.00	6,735.70	3,155.89	-174.57	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 760.02usft at 9630.26usft MD (6048.81 TVD, 3155.80 N, -499.85 E)									
- Circle (radius 1,550.00)									

Casing Points					
	Measured Depth	Vertical Depth		Casing Diameter	Hole Diameter
	(usft)	(usft)	Name	(in)	(in)
	6,453.00	6,048.81	7"	7.000	7.500

Formations						
	Measured Depth	Vertical Depth			Dip	Dip Direction
	(usft)	(usft)	Name	Lithology	(°)	(°)
	1,566.76	1,550.00	Upper Pierre			
	3,560.33	3,500.00	Hygiene			
	3,713.68	3,650.00	Lower Pierre			
	5,592.18	5,515.00	P200 Marker			
	5,607.23	5,530.00	P300 Marker			
	5,627.36	5,550.00	P350 Marker			
	5,785.48	5,702.00	Sharon Springs			
	5,790.93	5,707.00	Niobrara			
	5,812.98	5,727.00	Top A Chalk			
	5,854.93	5,764.00	Top A Marl			
	5,877.17	5,783.00	A Marl			
	5,887.90	5,792.00	Top Upper B			
	5,922.17	5,820.00	Base Upper B			
	5,943.74	5,837.00	Top Lower B			
	5,970.00	5,857.00	Base Lower B			
	5,979.45	5,864.00	Top B Marl			
	6,051.82	5,914.00	Top C Chalk			
	6,064.40	5,922.00	Middle C Chalk			
	6,087.29	5,936.00	Middle C Marl			
	6,120.49	5,955.00	Lower C Chalk			
	6,154.92	5,973.00	Lower C Marl			
	6,224.91	6,004.00	Lower C Marker			
	6,238.17	6,009.00	Top Ft. Hays			
	6,301.91	6,029.00	Ft. Hays Marker			



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Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0634D	Survey Calculation Method:	Minimum Curvature
Wellbore:	Hz		
Design:	Plan #1		

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
400.00	400.00	0.00	0.00	Build 2°/100'
1,000.00	995.62	-47.96	-40.24	Hold 12° Inc
4,130.00	4,057.22	-546.47	-458.54	Drop 2°/100'
4,730.00	4,652.85	-594.43	-498.78	Hold Vertical
5,553.00	5,475.85	-594.43	-498.78	KOP, Build 10°/100'
6,453.00	6,048.81	-21.47	-498.78	LP @ 90° Inc, Hold
13,697.64	6,048.81	7,223.17	-498.75	TD at 13697.64' MD