

Vertical Section at 354.98° (1000 usft/in)



Whiting Petroleum Corp.

**Weld County, CO
Sec 7-T10N-R57W
Horsetail #07E-0601**

Hz

Plan: Plan #1

Standard Planning Report

02 November, 2015



WOG

Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0601
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-0601	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-0601					
Well Position	+N/-S	-53.63 usft	Northing:	1,558,398.02 usft	Latitude:	40° 51' 13.770 N
	+E/-W	78.38 usft	Easting:	3,469,889.54 usft	Longitude:	103° 48' 4.940 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	354.98

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	
837.04	10.74	225.00	833.90	-35.49	-35.49	2.00	2.00	0.00	225.00	
4,570.65	10.74	225.00	4,502.10	-527.51	-527.51	0.00	0.00	0.00	0.00	
5,107.69	0.00	0.00	5,036.00	-563.00	-563.00	2.00	-2.00	0.00	180.00	
5,307.69	0.00	0.00	5,236.00	-563.00	-563.00	0.00	0.00	0.00	0.00	
6,126.08	90.00	359.47	5,757.00	-42.02	-567.79	11.00	11.00	0.00	359.47	
13,389.57	90.00	359.47	5,757.00	7,221.16	-634.56	0.00	0.00	0.00	0.00	0601 PBHL



WOG

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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-0601	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)
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	225.00	399.98	-1.23	-1.23	-1.12	2.00	2.00	0.00
500.00	4.00	225.00	499.84	-4.93	-4.93	-4.48	2.00	2.00	0.00
600.00	6.00	225.00	599.45	-11.10	-11.10	-10.08	2.00	2.00	0.00
700.00	8.00	225.00	698.70	-19.71	-19.71	-17.91	2.00	2.00	0.00
800.00	10.00	225.00	797.47	-30.78	-30.78	-27.96	2.00	2.00	0.00
837.04	10.74	225.00	833.90	-35.49	-35.49	-32.25	2.00	2.00	0.00
Hold 10.74° Inc									
900.00	10.74	225.00	895.76	-43.79	-43.79	-39.79	0.00	0.00	0.00
1,000.00	10.74	225.00	994.01	-56.96	-56.96	-51.76	0.00	0.00	0.00
1,100.00	10.74	225.00	1,092.25	-70.14	-70.14	-63.73	0.00	0.00	0.00
1,200.00	10.74	225.00	1,190.50	-83.32	-83.32	-75.71	0.00	0.00	0.00
1,300.00	10.74	225.00	1,288.75	-96.50	-96.50	-87.68	0.00	0.00	0.00
1,400.00	10.74	225.00	1,387.00	-109.68	-109.68	-99.66	0.00	0.00	0.00
1,500.00	10.74	225.00	1,485.25	-122.86	-122.86	-111.63	0.00	0.00	0.00
1,565.91	10.74	225.00	1,550.00	-131.54	-131.54	-119.52	0.00	0.00	0.00
Upper Pierre									
1,600.00	10.74	225.00	1,583.49	-136.03	-136.03	-123.60	0.00	0.00	0.00
1,700.00	10.74	225.00	1,681.74	-149.21	-149.21	-135.58	0.00	0.00	0.00
1,800.00	10.74	225.00	1,779.99	-162.39	-162.39	-147.55	0.00	0.00	0.00
1,900.00	10.74	225.00	1,878.24	-175.57	-175.57	-159.53	0.00	0.00	0.00
2,000.00	10.74	225.00	1,976.49	-188.75	-188.75	-171.50	0.00	0.00	0.00
2,100.00	10.74	225.00	2,074.73	-201.92	-201.92	-183.47	0.00	0.00	0.00
2,200.00	10.74	225.00	2,172.98	-215.10	-215.10	-195.45	0.00	0.00	0.00
2,300.00	10.74	225.00	2,271.23	-228.28	-228.28	-207.42	0.00	0.00	0.00
2,400.00	10.74	225.00	2,369.48	-241.46	-241.46	-219.40	0.00	0.00	0.00
2,500.00	10.74	225.00	2,467.73	-254.64	-254.64	-231.37	0.00	0.00	0.00
2,600.00	10.74	225.00	2,565.97	-267.82	-267.82	-243.34	0.00	0.00	0.00
2,700.00	10.74	225.00	2,664.22	-280.99	-280.99	-255.32	0.00	0.00	0.00
2,800.00	10.74	225.00	2,762.47	-294.17	-294.17	-267.29	0.00	0.00	0.00
2,900.00	10.74	225.00	2,860.72	-307.35	-307.35	-279.26	0.00	0.00	0.00
3,000.00	10.74	225.00	2,958.97	-320.53	-320.53	-291.24	0.00	0.00	0.00
3,100.00	10.74	225.00	3,057.21	-333.71	-333.71	-303.21	0.00	0.00	0.00
3,200.00	10.74	225.00	3,155.46	-346.88	-346.88	-315.19	0.00	0.00	0.00
3,300.00	10.74	225.00	3,253.71	-360.06	-360.06	-327.16	0.00	0.00	0.00
3,400.00	10.74	225.00	3,351.96	-373.24	-373.24	-339.13	0.00	0.00	0.00
3,500.00	10.74	225.00	3,450.21	-386.42	-386.42	-351.11	0.00	0.00	0.00
3,550.68	10.74	225.00	3,500.00	-393.10	-393.10	-357.18	0.00	0.00	0.00
Hygiene									
3,600.00	10.74	225.00	3,548.45	-399.60	-399.60	-363.08	0.00	0.00	0.00
3,700.00	10.74	225.00	3,646.70	-412.77	-412.77	-375.06	0.00	0.00	0.00
3,703.36	10.74	225.00	3,650.00	-413.22	-413.22	-375.46	0.00	0.00	0.00
Lower Pierre									
3,800.00	10.74	225.00	3,744.95	-425.95	-425.95	-387.03	0.00	0.00	0.00
3,900.00	10.74	225.00	3,843.20	-439.13	-439.13	-399.00	0.00	0.00	0.00
4,000.00	10.74	225.00	3,941.45	-452.31	-452.31	-410.98	0.00	0.00	0.00
4,100.00	10.74	225.00	4,039.69	-465.49	-465.49	-422.95	0.00	0.00	0.00
4,200.00	10.74	225.00	4,137.94	-478.67	-478.67	-434.93	0.00	0.00	0.00
4,300.00	10.74	225.00	4,236.19	-491.84	-491.84	-446.90	0.00	0.00	0.00
4,400.00	10.74	225.00	4,334.44	-505.02	-505.02	-458.87	0.00	0.00	0.00



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Site:	Sec 7-T10N-R57W	North Reference:	True
Well:	Horsetail #07E-0601	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	10.74	225.00	4,432.69	-518.20	-518.20	-470.85	0.00	0.00	0.00
4,570.65	10.74	225.00	4,502.10	-527.51	-527.51	-479.31	0.00	0.00	0.00
Drop 2°/100'									
4,600.00	10.15	225.00	4,530.96	-531.27	-531.27	-482.73	2.00	-2.00	0.00
4,700.00	8.15	225.00	4,629.68	-542.52	-542.52	-492.95	2.00	-2.00	0.00
4,800.00	6.15	225.00	4,728.90	-551.33	-551.33	-500.95	2.00	-2.00	0.00
4,900.00	4.15	225.00	4,828.49	-557.68	-557.68	-506.72	2.00	-2.00	0.00
5,000.00	2.15	225.00	4,928.33	-561.57	-561.57	-510.25	2.00	-2.00	0.00
5,107.69	0.00	0.00	5,036.00	-563.00	-563.00	-511.55	2.00	-2.00	0.00
Hold Vertical									
5,200.00	0.00	0.00	5,128.31	-563.00	-563.00	-511.55	0.00	0.00	0.00
5,307.69	0.00	0.00	5,236.00	-563.00	-563.00	-511.55	0.00	0.00	0.00
KOP, Build 11°/100'									
5,350.00	4.65	359.47	5,278.26	-561.28	-563.02	-509.84	11.00	11.00	0.00
5,400.00	10.15	359.47	5,327.83	-554.84	-563.07	-503.42	11.00	11.00	0.00
5,450.00	15.65	359.47	5,376.55	-543.69	-563.18	-492.30	11.00	11.00	0.00
5,500.00	21.15	359.47	5,423.97	-527.91	-563.32	-476.57	11.00	11.00	0.00
5,550.00	26.65	359.47	5,469.67	-507.66	-563.51	-456.39	11.00	11.00	0.00
5,600.00	32.15	359.47	5,513.21	-483.13	-563.73	-431.93	11.00	11.00	0.00
5,602.11	32.38	359.47	5,515.00	-482.00	-563.74	-430.80	11.00	11.00	0.00
P200 Marker									
5,620.08	34.35	359.47	5,530.00	-472.13	-563.84	-420.96	11.00	11.00	0.00
P300 Marker									
5,644.71	37.06	359.47	5,550.00	-457.75	-563.97	-406.62	11.00	11.00	0.00
P350 Marker									
5,650.00	37.64	359.47	5,554.21	-454.54	-564.00	-403.42	11.00	11.00	0.00
5,700.00	43.14	359.47	5,592.27	-422.15	-564.29	-371.13	11.00	11.00	0.00
5,750.00	48.64	359.47	5,627.06	-386.27	-564.62	-335.36	11.00	11.00	0.00
5,800.00	54.14	359.47	5,658.25	-347.21	-564.98	-296.42	11.00	11.00	0.00
5,850.00	59.64	359.47	5,685.55	-305.35	-565.37	-254.68	11.00	11.00	0.00
5,884.52	63.44	359.47	5,702.00	-275.00	-565.65	-224.43	11.00	11.00	0.00
Sharon Springs									
5,895.96	64.69	359.47	5,707.00	-264.72	-565.74	-214.18	11.00	11.00	0.00
Niobrara									
5,900.00	65.14	359.47	5,708.71	-261.06	-565.78	-210.53	11.00	11.00	0.00
5,950.00	70.64	359.47	5,727.53	-214.76	-566.20	-164.37	11.00	11.00	0.00
5,967.32	72.54	359.47	5,733.00	-198.32	-566.35	-147.98	11.00	11.00	0.00
Top A Chalk									
6,000.00	76.13	359.47	5,741.82	-166.87	-566.64	-116.62	11.00	11.00	0.00
6,050.00	81.63	359.47	5,751.46	-117.83	-567.09	-67.73	11.00	11.00	0.00
6,100.00	87.13	359.47	5,756.35	-68.09	-567.55	-18.14	11.00	11.00	0.00
6,126.08	90.00	359.47	5,757.00	-42.02	-567.79	7.84	11.00	11.00	0.00
LP @ 90° Inc, 5 1/2" Marker Joint									
6,200.00	90.00	359.47	5,757.00	31.90	-568.47	81.54	0.00	0.00	0.00
6,300.00	90.00	359.47	5,757.00	131.89	-569.39	181.23	0.00	0.00	0.00
6,400.00	90.00	359.47	5,757.00	231.89	-570.31	280.92	0.00	0.00	0.00
6,500.00	90.00	359.47	5,757.00	331.89	-571.23	380.62	0.00	0.00	0.00
6,600.00	90.00	359.47	5,757.00	431.88	-572.15	480.31	0.00	0.00	0.00
6,700.00	90.00	359.47	5,757.00	531.88	-573.07	580.00	0.00	0.00	0.00
6,800.00	90.00	359.47	5,757.00	631.87	-573.98	679.69	0.00	0.00	0.00
6,900.00	90.00	359.47	5,757.00	731.87	-574.90	779.38	0.00	0.00	0.00
7,000.00	90.00	359.47	5,757.00	831.86	-575.82	879.08	0.00	0.00	0.00



WOG

Planning Report

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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-0601	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)
7,100.00	90.00	359.47	5,757.00	931.86	-576.74	978.77	0.00	0.00	0.00
7,200.00	90.00	359.47	5,757.00	1,031.86	-577.66	1,078.46	0.00	0.00	0.00
7,300.00	90.00	359.47	5,757.00	1,131.85	-578.58	1,178.15	0.00	0.00	0.00
7,400.00	90.00	359.47	5,757.00	1,231.85	-579.50	1,277.85	0.00	0.00	0.00
7,500.00	90.00	359.47	5,757.00	1,331.84	-580.42	1,377.54	0.00	0.00	0.00
7,600.00	90.00	359.47	5,757.00	1,431.84	-581.34	1,477.23	0.00	0.00	0.00
7,700.00	90.00	359.47	5,757.00	1,531.83	-582.26	1,576.92	0.00	0.00	0.00
7,800.00	90.00	359.47	5,757.00	1,631.83	-583.18	1,676.62	0.00	0.00	0.00
7,900.00	90.00	359.47	5,757.00	1,731.83	-584.10	1,776.31	0.00	0.00	0.00
8,000.00	90.00	359.47	5,757.00	1,831.82	-585.02	1,876.00	0.00	0.00	0.00
8,100.00	90.00	359.47	5,757.00	1,931.82	-585.94	1,975.69	0.00	0.00	0.00
8,200.00	90.00	359.47	5,757.00	2,031.81	-586.85	2,075.39	0.00	0.00	0.00
8,300.00	90.00	359.47	5,757.00	2,131.81	-587.77	2,175.08	0.00	0.00	0.00
8,400.00	90.00	359.47	5,757.00	2,231.81	-588.69	2,274.77	0.00	0.00	0.00
8,500.00	90.00	359.47	5,757.00	2,331.80	-589.61	2,374.46	0.00	0.00	0.00
8,600.00	90.00	359.47	5,757.00	2,431.80	-590.53	2,474.16	0.00	0.00	0.00
8,700.00	90.00	359.47	5,757.00	2,531.79	-591.45	2,573.85	0.00	0.00	0.00
8,800.00	90.00	359.47	5,757.00	2,631.79	-592.37	2,673.54	0.00	0.00	0.00
8,900.00	90.00	359.47	5,757.00	2,731.78	-593.29	2,773.23	0.00	0.00	0.00
9,000.00	90.00	359.47	5,757.00	2,831.78	-594.21	2,872.92	0.00	0.00	0.00
9,100.00	90.00	359.47	5,757.00	2,931.78	-595.13	2,972.62	0.00	0.00	0.00
9,200.00	90.00	359.47	5,757.00	3,031.77	-596.05	3,072.31	0.00	0.00	0.00
9,300.00	90.00	359.47	5,757.00	3,131.77	-596.97	3,172.00	0.00	0.00	0.00
9,400.00	90.00	359.47	5,757.00	3,231.76	-597.89	3,271.69	0.00	0.00	0.00
9,500.00	90.00	359.47	5,757.00	3,331.76	-598.81	3,371.39	0.00	0.00	0.00
9,600.00	90.00	359.47	5,757.00	3,431.75	-599.72	3,471.08	0.00	0.00	0.00
9,700.00	90.00	359.47	5,757.00	3,531.75	-600.64	3,570.77	0.00	0.00	0.00
9,800.00	90.00	359.47	5,757.00	3,631.75	-601.56	3,670.46	0.00	0.00	0.00
9,900.00	90.00	359.47	5,757.00	3,731.74	-602.48	3,770.16	0.00	0.00	0.00
10,000.00	90.00	359.47	5,757.00	3,831.74	-603.40	3,869.85	0.00	0.00	0.00
10,100.00	90.00	359.47	5,757.00	3,931.73	-604.32	3,969.54	0.00	0.00	0.00
10,200.00	90.00	359.47	5,757.00	4,031.73	-605.24	4,069.23	0.00	0.00	0.00
10,300.00	90.00	359.47	5,757.00	4,131.72	-606.16	4,168.93	0.00	0.00	0.00
10,400.00	90.00	359.47	5,757.00	4,231.72	-607.08	4,268.62	0.00	0.00	0.00
10,500.00	90.00	359.47	5,757.00	4,331.72	-608.00	4,368.31	0.00	0.00	0.00
10,600.00	90.00	359.47	5,757.00	4,431.71	-608.92	4,468.00	0.00	0.00	0.00
10,700.00	90.00	359.47	5,757.00	4,531.71	-609.84	4,567.70	0.00	0.00	0.00
10,800.00	90.00	359.47	5,757.00	4,631.70	-610.76	4,667.39	0.00	0.00	0.00
10,900.00	90.00	359.47	5,757.00	4,731.70	-611.68	4,767.08	0.00	0.00	0.00
11,000.00	90.00	359.47	5,757.00	4,831.70	-612.59	4,866.77	0.00	0.00	0.00
11,100.00	90.00	359.47	5,757.00	4,931.69	-613.51	4,966.46	0.00	0.00	0.00
11,200.00	90.00	359.47	5,757.00	5,031.69	-614.43	5,066.16	0.00	0.00	0.00
11,300.00	90.00	359.47	5,757.00	5,131.68	-615.35	5,165.85	0.00	0.00	0.00
11,400.00	90.00	359.47	5,757.00	5,231.68	-616.27	5,265.54	0.00	0.00	0.00
11,500.00	90.00	359.47	5,757.00	5,331.67	-617.19	5,365.23	0.00	0.00	0.00
11,600.00	90.00	359.47	5,757.00	5,431.67	-618.11	5,464.93	0.00	0.00	0.00
11,700.00	90.00	359.47	5,757.00	5,531.67	-619.03	5,564.62	0.00	0.00	0.00
11,800.00	90.00	359.47	5,757.00	5,631.66	-619.95	5,664.31	0.00	0.00	0.00
11,900.00	90.00	359.47	5,757.00	5,731.66	-620.87	5,764.00	0.00	0.00	0.00
12,000.00	90.00	359.47	5,757.00	5,831.65	-621.79	5,863.70	0.00	0.00	0.00
12,100.00	90.00	359.47	5,757.00	5,931.65	-622.71	5,963.39	0.00	0.00	0.00
12,200.00	90.00	359.47	5,757.00	6,031.64	-623.63	6,063.08	0.00	0.00	0.00
12,300.00	90.00	359.47	5,757.00	6,131.64	-624.55	6,162.77	0.00	0.00	0.00
12,400.00	90.00	359.47	5,757.00	6,231.64	-625.46	6,262.47	0.00	0.00	0.00



WOG Planning Report

Database:	LandmarkEDM	Local Co-ordinate Reference:	Well Horsetail #07E-0601
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-0601	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)
12,500.00	90.00	359.47	5,757.00	6,331.63	-626.38	6,362.16	0.00	0.00	0.00
12,600.00	90.00	359.47	5,757.00	6,431.63	-627.30	6,461.85	0.00	0.00	0.00
12,700.00	90.00	359.47	5,757.00	6,531.62	-628.22	6,561.54	0.00	0.00	0.00
12,800.00	90.00	359.47	5,757.00	6,631.62	-629.14	6,661.24	0.00	0.00	0.00
12,900.00	90.00	359.47	5,757.00	6,731.62	-630.06	6,760.93	0.00	0.00	0.00
13,000.00	90.00	359.47	5,757.00	6,831.61	-630.98	6,860.62	0.00	0.00	0.00
13,100.00	90.00	359.47	5,757.00	6,931.61	-631.90	6,960.31	0.00	0.00	0.00
13,200.00	90.00	359.47	5,757.00	7,031.60	-632.82	7,060.01	0.00	0.00	0.00
13,300.00	90.00	359.47	5,757.00	7,131.60	-633.74	7,159.70	0.00	0.00	0.00
13,389.57	90.00	359.47	5,757.00	7,221.16	-634.56	7,248.99	0.00	0.00	0.00
TD at 13389.57									

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
0601 PBHL	0.00	0.00	5,757.00	7,221.16	-634.56	1,565,605.70	3,469,116.78	40° 52' 25.120 N	103° 48' 13.200 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									
Beffie #1	0.00	0.00	6,739.60	3,154.88	-144.61	1,561,549.56	3,469,684.53	40° 51' 44.942 N	103° 48' 6.822 W
- plan misses target center by 1081.81usft at 9318.96usft MD (5757.00 TVD, 3150.72 N, -597.14 E)									
- Circle (radius 1,550.00)									

Formations						
Measured Depth (usft)	Vertical Depth (usft)	Name	Lithology	Dip (°)	Dip Direction (°)	
1,565.91	1,550.00	Upper Pierre				
3,550.68	3,500.00	Hygiene				
3,703.36	3,650.00	Lower Pierre				
5,602.11	5,515.00	P200 Marker				
5,620.08	5,530.00	P300 Marker				
5,644.71	5,550.00	P350 Marker				
5,884.52	5,702.00	Sharon Springs				
5,895.96	5,707.00	Niobrara				
5,967.32	5,733.00	Top A Chalk				

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Comment
300.00	300.00	0.00	0.00	Build 2°/100'
837.04	833.90	-35.49	-35.49	Hold 10.74° Inc
4,570.65	4,502.10	-527.51	-527.51	Drop 2°/100'
5,107.69	5,036.00	-563.00	-563.00	Hold Vertical
5,307.69	5,236.00	-563.00	-563.00	KOP, Build 11°/100'
6,126.08	5,757.00	-42.02	-567.79	LP @ 90° Inc, 5 1/2" Marker Joint
13,389.57	5,757.00	7,221.16	-634.56	TD at 13389.57