



# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

<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:	1,558,398.04	usft	Latitude:	40.853825°N	
From:	Lat/Long	Easting:	3,469,889.54	usft	Longitude:	103.801372°W	
Position Uncertainty:		0.0	usft	Slot Radius:	13-3/16 "	Grid Convergence:	1.10 °

Well		Horsetail #07E-0604				
Well Position	+N-S	0.0 usft	Northing:	1,558,399.90 usft	Latitude:	40.853822°N
	+E-W	0.0 usft	Easting:	3,470,039.54 usft	Longitude:	103.800830°W
Position Uncertainty		0.0 usft	Wellhead Elevation:	0.0 usft	Ground Level:	4,925.6 usft

<b>Wellbore</b>	Original Hole				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	IGRF2015	01/17/16	7.87	67.40	52,885

<b>Design</b>	Original Hole				
<b>Audit Notes:</b>					
<b>Version:</b>	1.0	<b>Phase:</b>	ACTUAL	<b>Tie On Depth:</b>	0.0
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Direction (°)</b>	
	0.0	0.0	0.0	359.75	

<b>Survey</b>										
<b>Measured Depth (usft)</b>	<b>Inclination (°)</b>	<b>Azimuth (°)</b>	<b>Vertical Depth (usft)</b>	<b>+N-S (usft)</b>	<b>+E-W (usft)</b>	<b>Vertical Section (usft)</b>	<b>Dogleg Rate (°/100usft)</b>	<b>Build Rate (°/100usft)</b>	<b>Turn Rate (°/100usft)</b>	
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00	
<b>Beffie #1 #0604 - SL #0604</b>										
130.0	0.39	186.97	130.0	-0.4	-0.1	-0.4	0.30	0.30	0.00	
222.0	0.78	195.53	222.0	-1.4	-0.3	-1.4	0.43	0.42	9.30	
313.0	2.05	176.11	313.0	-3.6	-0.3	-3.6	1.47	1.40	-21.34	
405.0	2.11	178.11	404.9	-6.9	-0.1	-6.9	0.10	0.07	2.17	
496.0	3.87	160.65	495.8	-11.5	0.9	-11.5	2.16	1.93	-19.19	
588.0	4.26	166.45	587.5	-17.7	2.8	-17.7	0.62	0.42	6.30	
680.0	5.85	168.69	679.2	-25.7	4.5	-25.7	1.74	1.73	2.43	
771.0	6.73	165.91	769.6	-35.4	6.7	-35.4	1.02	0.97	-3.05	
863.0	8.40	163.78	860.8	-47.1	9.9	-47.1	1.84	1.82	-2.32	
954.0	10.07	161.79	950.7	-61.0	14.2	-61.1	1.87	1.84	-2.19	
1,046.0	9.71	162.42	1,041.3	-76.0	19.1	-76.1	0.41	-0.39	0.68	
1,137.0	11.63	162.52	1,130.7	-92.1	24.1	-92.2	2.11	2.11	0.11	
1,234.0	11.74	161.44	1,225.7	-110.8	30.2	-110.9	0.25	0.11	-1.11	
1,322.0	11.46	162.63	1,311.9	-127.6	35.7	-127.8	0.42	-0.32	1.35	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
1,413.0	11.47	162.78	1,401.1	-144.9	41.1	-145.1	0.03	0.01	0.16
1,506.0	11.76	164.97	1,492.2	-162.9	46.3	-163.1	0.57	0.31	2.35
1,598.0	12.08	165.40	1,582.2	-181.2	51.1	-181.5	0.36	0.35	0.47
1,689.0	12.19	166.09	1,671.2	-199.8	55.8	-200.0	0.20	0.12	0.76
1,780.0	11.01	166.60	1,760.3	-217.6	60.1	-217.8	1.30	-1.30	0.56
1,872.0	9.41	166.20	1,850.8	-233.4	64.0	-233.7	1.74	-1.74	-0.43
1,963.0	7.99	161.63	1,940.8	-246.6	67.7	-246.9	1.73	-1.56	-5.02
1,977.0	7.80	161.36	1,954.7	-248.5	68.4	-248.8	1.38	-1.36	-1.93
2,025.0	6.77	166.79	2,002.3	-254.3	70.0	-254.6	2.58	-2.15	11.31
2,214.0	9.76	152.39	2,189.3	-279.3	80.0	-279.7	1.91	1.58	-7.62
2,308.0	10.10	149.52	2,281.9	-293.5	87.9	-293.9	0.64	0.36	-3.05
2,402.0	9.76	149.96	2,374.5	-307.5	96.1	-307.9	0.37	-0.36	0.47
2,497.0	8.77	145.46	2,468.3	-320.4	104.2	-320.9	1.29	-1.04	-4.74
2,686.0	12.82	150.79	2,653.9	-350.6	122.6	-351.2	2.20	2.14	2.82
2,780.0	12.54	150.67	2,745.6	-368.6	132.7	-369.2	0.30	-0.30	-0.13
2,874.0	11.98	149.92	2,837.4	-386.0	142.6	-386.6	0.62	-0.60	-0.80
2,968.0	10.83	159.24	2,929.6	-402.7	150.6	-403.3	2.31	-1.22	9.91
3,063.0	10.52	158.68	3,022.9	-419.1	156.9	-419.8	0.34	-0.33	-0.59
3,157.0	9.49	158.05	3,115.5	-434.3	162.9	-435.0	1.10	-1.10	-0.67
3,250.0	7.85	158.84	3,207.4	-447.3	168.1	-448.0	1.77	-1.76	0.85
3,345.0	8.75	158.11	3,301.5	-460.1	173.1	-460.8	0.95	0.95	-0.77
3,439.0	10.86	162.18	3,394.1	-475.1	178.5	-475.9	2.36	2.24	4.33
3,628.0	11.68	160.65	3,579.4	-510.1	190.3	-511.0	0.46	0.43	-0.81
3,722.0	11.26	160.58	3,671.6	-527.8	196.5	-528.6	0.45	-0.45	-0.07
3,816.0	11.15	161.24	3,763.8	-545.0	202.5	-545.9	0.18	-0.12	0.70
3,910.0	10.97	159.85	3,856.0	-562.0	208.5	-562.9	0.34	-0.19	-1.48
4,005.0	10.23	161.78	3,949.4	-578.5	214.2	-579.5	0.86	-0.78	2.03
4,123.0	9.54	161.89	4,065.6	-597.8	220.5	-598.7	0.58	-0.58	0.09
4,216.0	9.05	161.18	4,157.4	-612.0	225.3	-613.0	0.54	-0.53	-0.76
4,310.0	8.94	158.72	4,250.3	-625.8	230.3	-626.8	0.43	-0.12	-2.62
4,405.0	8.46	159.39	4,344.2	-639.2	235.5	-640.3	0.52	-0.51	0.71
4,499.0	7.72	158.18	4,437.2	-651.6	240.3	-652.6	0.81	-0.79	-1.29
4,593.0	6.44	157.47	4,530.5	-662.3	244.6	-663.4	1.36	-1.36	-0.76
4,687.0	4.77	183.71	4,624.1	-671.1	246.4	-672.2	3.21	-1.78	27.91
4,782.0	3.63	226.22	4,718.8	-677.1	244.0	-678.2	3.39	-1.20	44.75
4,876.0	3.47	220.97	4,812.7	-681.3	239.9	-682.4	0.39	-0.17	-5.59
4,970.0	2.58	237.40	4,906.5	-684.6	236.3	-685.6	1.31	-0.95	17.48
5,065.0	1.69	287.70	5,001.5	-685.3	233.2	-686.3	2.09	-0.94	52.95
5,159.0	1.03	273.90	5,095.4	-684.8	231.0	-685.9	0.78	-0.70	-14.68
5,253.0	2.05	328.64	5,189.4	-683.4	229.3	-684.4	1.79	1.09	58.23
5,348.0	14.07	355.32	5,283.3	-670.3	227.5	-671.3	12.92	12.65	28.08
5,442.0	23.59	1.71	5,372.2	-640.1	227.1	-641.1	10.35	10.13	6.80
5,537.0	30.25	4.64	5,456.9	-597.2	229.6	-598.2	7.15	7.01	3.08

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/S (usft)	+E/W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,632.0	34.05	2.74	5,537.3	-546.7	232.8	-547.8	4.14	4.00	-2.00
5,726.0	42.71	359.22	5,610.9	-488.5	233.6	-489.5	9.50	9.21	-3.74
5,820.0	50.88	358.50	5,675.2	-420.0	232.2	-421.0	8.71	8.69	-0.77
5,915.0	56.62	357.04	5,731.4	-343.5	229.2	-344.5	6.17	6.04	-1.54
6,009.0	60.80	355.25	5,780.2	-263.4	223.8	-264.4	4.73	4.45	-1.90
6,103.0	71.20	356.44	5,818.3	-177.9	217.6	-178.8	11.12	11.06	1.27
6,198.0	80.16	357.65	5,841.8	-86.0	212.9	-87.0	9.51	9.43	1.27
6,242.5	82.20	357.80	5,848.6	-42.1	211.1	-43.0	4.61	4.60	0.33
<b>100' Entry - 100' Entry</b>									
6,292.0	84.48	357.96	5,854.4	7.0	209.3	6.1	4.61	4.60	0.33
6,386.0	88.61	358.35	5,860.0	100.8	206.3	99.9	4.41	4.39	0.41
6,481.0	91.60	1.41	5,859.9	195.8	206.1	194.9	4.50	3.15	3.22
6,575.0	93.15	0.91	5,856.0	289.7	208.0	288.8	1.73	1.65	-0.53
6,670.0	92.16	2.41	5,851.6	384.5	210.8	383.6	1.89	-1.04	1.58
6,764.0	89.78	3.14	5,850.0	478.4	215.3	477.5	2.65	-2.53	0.78
6,858.0	87.62	2.03	5,852.1	572.3	219.5	571.3	2.58	-2.30	-1.18
6,953.0	88.19	1.85	5,855.6	667.2	222.8	666.2	0.63	0.60	-0.19
7,047.0	89.52	1.91	5,857.5	761.1	225.8	760.1	1.42	1.41	0.06
7,140.0	87.90	0.60	5,859.6	854.0	227.9	853.0	2.24	-1.74	-1.41
7,235.0	88.32	359.93	5,862.7	949.0	228.3	948.0	0.83	0.44	-0.71
7,329.0	89.83	359.49	5,864.2	1,043.0	227.8	1,042.0	1.67	1.61	-0.47
7,424.0	91.35	359.59	5,863.2	1,138.0	227.1	1,137.0	1.60	1.60	0.11
7,518.0	89.64	359.97	5,862.4	1,231.9	226.7	1,230.9	1.86	-1.82	0.40
7,612.0	87.00	0.66	5,865.2	1,325.9	227.2	1,324.9	2.90	-2.81	0.73
7,706.0	87.36	0.22	5,869.8	1,419.8	228.0	1,418.8	0.60	0.38	-0.47
7,801.0	88.22	0.43	5,873.5	1,514.7	228.5	1,513.7	0.93	0.91	0.22
7,895.0	89.13	0.24	5,875.6	1,608.7	229.0	1,607.7	0.99	0.97	-0.20
7,984.0	90.20	1.24	5,876.2	1,697.7	230.2	1,696.6	1.65	1.20	1.13
<b>Beffie #1 Entry - Beffie #1 #0604 Entry</b>									
7,990.0	90.27	1.31	5,876.1	1,703.7	230.3	1,702.6	1.65	1.20	1.13
8,083.0	91.30	2.09	5,874.9	1,796.6	233.1	1,795.6	1.39	1.11	0.84
8,177.0	90.59	359.97	5,873.3	1,890.6	234.8	1,889.5	2.38	-0.76	-2.26
8,272.0	89.86	359.70	5,872.9	1,985.6	234.5	1,984.5	0.82	-0.77	-0.28
8,366.0	90.50	0.28	5,872.6	2,079.6	234.5	2,078.5	0.92	0.68	0.62
8,460.0	90.95	359.94	5,871.5	2,173.6	234.7	2,172.5	0.60	0.48	-0.36
8,555.0	90.93	0.36	5,869.9	2,268.6	234.9	2,267.5	0.44	-0.02	0.44
8,649.0	88.44	359.98	5,870.4	2,362.5	235.2	2,361.5	2.68	-2.65	-0.40
8,742.0	88.60	359.39	5,872.8	2,455.5	234.7	2,454.5	0.66	0.17	-0.63
8,834.0	89.36	359.32	5,874.5	2,547.5	233.6	2,546.4	0.83	0.83	-0.08
8,925.0	90.50	359.44	5,874.6	2,638.5	232.7	2,637.4	1.26	1.25	0.13
9,017.0	91.04	358.92	5,873.3	2,730.5	231.3	2,729.4	0.81	0.59	-0.57
9,109.0	90.58	358.03	5,872.0	2,822.4	228.9	2,821.4	1.09	-0.50	-0.97
9,200.0	90.58	358.20	5,871.9	2,913.4	225.9	2,912.4	1.11	-1.10	0.19
9,292.0	88.10	357.33	5,873.8	3,005.3	222.3	3,004.3	1.87	-1.61	-0.95

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
9,383.0	88.89	356.94	5,876.2	3,096.1	217.8	3,095.2	0.97	0.87	-0.43
9,474.0	90.33	357.57	5,876.8	3,187.0	213.4	3,186.1	1.73	1.58	0.69
9,566.0	91.96	357.59	5,874.9	3,278.9	209.5	3,278.0	1.77	1.77	0.02
9,658.0	90.65	359.08	5,872.8	3,370.9	206.9	3,369.9	2.16	-1.42	1.62
9,750.0	90.64	358.72	5,871.8	3,462.8	205.1	3,461.9	0.39	-0.01	-0.39
9,841.0	89.33	0.61	5,871.8	3,553.8	204.6	3,552.9	2.53	-1.44	2.08
9,933.0	89.89	1.44	5,872.5	3,645.8	206.2	3,644.9	1.09	0.61	0.90
10,025.0	89.86	2.10	5,872.7	3,737.8	209.0	3,736.8	0.72	-0.03	0.72
10,118.0	87.20	0.86	5,875.0	3,830.7	211.4	3,829.7	3.16	-2.86	-1.33
10,210.0	86.53	0.21	5,880.1	3,922.5	212.3	3,921.6	1.01	-0.73	-0.71
10,301.0	89.53	0.16	5,883.2	4,013.5	212.6	4,012.5	3.30	3.30	-0.05
10,393.0	90.45	0.99	5,883.2	4,105.5	213.5	4,104.5	1.35	1.00	0.90
10,484.0	90.50	1.44	5,882.5	4,196.5	215.5	4,195.5	0.50	0.05	0.49
10,575.0	90.44	0.67	5,881.7	4,287.4	217.1	4,286.4	0.85	-0.07	-0.85
10,666.0	90.94	359.95	5,880.6	4,378.4	217.6	4,377.4	0.96	0.55	-0.79
10,758.0	90.82	359.92	5,879.2	4,470.4	217.5	4,469.4	0.13	-0.13	-0.03
10,850.0	91.18	0.58	5,877.6	4,562.4	217.9	4,561.4	0.82	0.39	0.72
10,906.0	91.45	0.37	5,876.3	4,618.4	218.4	4,617.4	0.60	0.48	-0.37
<b>Beffie #1 Exit - Beffie #1 #0604 Exit</b>									
10,940.0	91.61	0.25	5,875.4	4,652.4	218.6	4,651.4	0.60	0.48	-0.37
11,032.0	92.29	359.90	5,872.3	4,744.3	218.7	4,743.3	0.83	0.74	-0.38
11,124.0	91.44	0.47	5,869.3	4,836.3	219.0	4,835.3	1.11	-0.92	0.62
11,215.0	92.24	0.32	5,866.4	4,927.2	219.6	4,926.2	0.89	0.88	-0.16
11,307.0	90.83	0.81	5,863.9	5,019.2	220.5	5,018.2	1.62	-1.53	0.53
11,398.0	89.36	1.22	5,863.7	5,110.2	222.1	5,109.1	1.68	-1.62	0.45
11,490.0	89.69	0.01	5,864.5	5,202.1	223.1	5,201.1	1.36	0.36	-1.32
11,582.0	91.31	359.54	5,863.7	5,294.1	222.8	5,293.1	1.83	1.76	-0.51
11,673.0	91.64	359.22	5,861.4	5,385.1	221.8	5,384.1	0.51	0.36	-0.35
11,765.0	89.52	358.33	5,860.4	5,477.1	219.8	5,476.1	2.50	-2.30	-0.97
11,857.0	89.68	357.97	5,861.1	5,569.0	216.8	5,568.0	0.43	0.17	-0.39
11,949.0	91.36	357.82	5,860.2	5,660.9	213.5	5,660.0	1.83	1.83	-0.16
12,040.0	88.95	358.27	5,860.0	5,751.9	210.4	5,750.9	2.69	-2.65	0.49
12,132.0	89.85	358.26	5,861.0	5,843.8	207.6	5,842.9	0.98	0.98	-0.01
12,223.0	91.10	357.75	5,860.2	5,934.8	204.4	5,933.8	1.48	1.37	-0.56
12,315.0	87.47	358.54	5,861.4	6,026.7	201.4	6,025.8	4.04	-3.95	0.86
12,405.0	87.51	358.60	5,865.3	6,116.6	199.2	6,115.7	0.08	0.04	0.07
12,497.0	89.03	358.61	5,868.1	6,208.5	196.9	6,207.6	1.65	1.65	0.01
12,590.0	90.13	358.40	5,868.8	6,301.5	194.5	6,300.6	1.20	1.18	-0.23
12,681.0	91.42	358.02	5,867.5	6,392.4	191.7	6,391.5	1.48	1.42	-0.42
12,772.0	93.34	357.99	5,863.7	6,483.3	188.5	6,482.4	2.11	2.11	-0.03
12,864.0	90.91	358.65	5,860.3	6,575.2	185.8	6,574.3	2.74	-2.64	0.72
12,956.0	89.34	359.68	5,860.1	6,667.2	184.5	6,666.3	2.04	-1.71	1.12
13,046.0	87.91	359.79	5,862.3	6,757.1	184.1	6,756.3	1.59	-1.59	0.12

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

### Survey

Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
13,138.0	88.07	359.42	5,865.5	6,849.1	183.4	6,848.2	0.44	0.17	-0.40
13,229.0	88.96	358.94	5,867.9	6,940.0	182.1	6,939.2	1.11	0.98	-0.53
13,320.0	90.04	358.53	5,868.7	7,031.0	180.1	7,030.2	1.27	1.19	-0.45
13,411.0	91.16	358.13	5,867.7	7,122.0	177.5	7,121.1	1.31	1.23	-0.44
13,502.0	92.85	357.81	5,864.5	7,212.9	174.2	7,212.0	1.89	1.86	-0.35
13,522.4	92.85	357.81	5,863.5	7,233.2	173.5	7,232.4	0.00	0.00	0.00
<b>PBHL #0604</b>									
13,522.5	92.85	357.81	5,863.5	7,233.3	173.5	7,232.5	0.00	0.00	0.00
<b>600' Exit - 600' Exit</b>									
13,585.0	92.85	357.81	5,860.4	7,295.7	171.1	7,294.9	0.00	0.00	0.00
<b>BHL #0604</b>									

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
<b>- hit/miss target</b>									
<b>- Shape</b>									
Beffie #1 #0604	0.00	0.00	0.0	3,155.9	-294.5	1,561,549.56	3,469,684.57	40.862484°N	103.801895°W
- actual wellpath misses target center by 3169.6usft at 0.0usft MD (0.0 TVD, 0.0 N, 0.0 E)									
- Circle (radius 1,550.0)									
SL #0604	0.00	0.00	0.0	0.0	0.0	1,558,399.90	3,470,039.54	40.853822°N	103.800830°W
- actual wellpath hits target center									
- Point									
PBHL #0604	0.00	0.00	5,848.0	7,233.3	196.5	1,565,635.62	3,470,097.46	40.873675°N	103.800120°W
- actual wellpath misses target center by 27.8usft at 13522.4usft MD (5863.5 TVD, 7233.2 N, 173.5 E)									
- Point									
100' Entry	0.00	0.00	5,848.6	-42.1	211.1	1,558,361.86	3,470,251.45	40.853707°N	103.800067°W
- actual wellpath hits target center									
- Point									
BHL #0604	0.00	0.00	5,860.4	7,295.7	171.1	1,565,697.52	3,470,070.79	40.873846°N	103.800212°W
- actual wellpath hits target center									
- Point									
600' Exit	0.00	0.00	5,863.5	7,233.3	173.4	1,565,635.20	3,470,074.36	40.873675°N	103.800203°W
- actual wellpath hits target center									
- Point									
Beffie #1 #0604 Entry	0.00	0.00	5,876.2	1,697.7	230.2	1,560,101.67	3,470,237.16	40.858482°N	103.799998°W
- actual wellpath hits target center									
- Point									
Beffie #1 #0604 Exit	0.00	0.00	5,876.3	4,618.4	218.4	1,563,021.61	3,470,169.39	40.866498°N	103.800041°W
- actual wellpath hits target center									
- Point									

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07E-0604
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4925.6'GL+21'KB @ 4946.6usft (Unit 409)
<b>Well:</b>	Horsetail #07E-0604	<b>North Reference:</b>	True
<b>Wellbore:</b>	Original Hole	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Design:</b>	Original Hole	<b>Database:</b>	Single User

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
6,242.5	5,848.6	-42.1	211.1	100' Entry
7,984.0	5,876.2	1,697.7	230.2	Beffie #1 Entry
10,906.0	5,876.3	4,618.4	218.4	Beffie #1 Exit
13,522.5	5,863.5	7,233.3	173.5	600' Exit