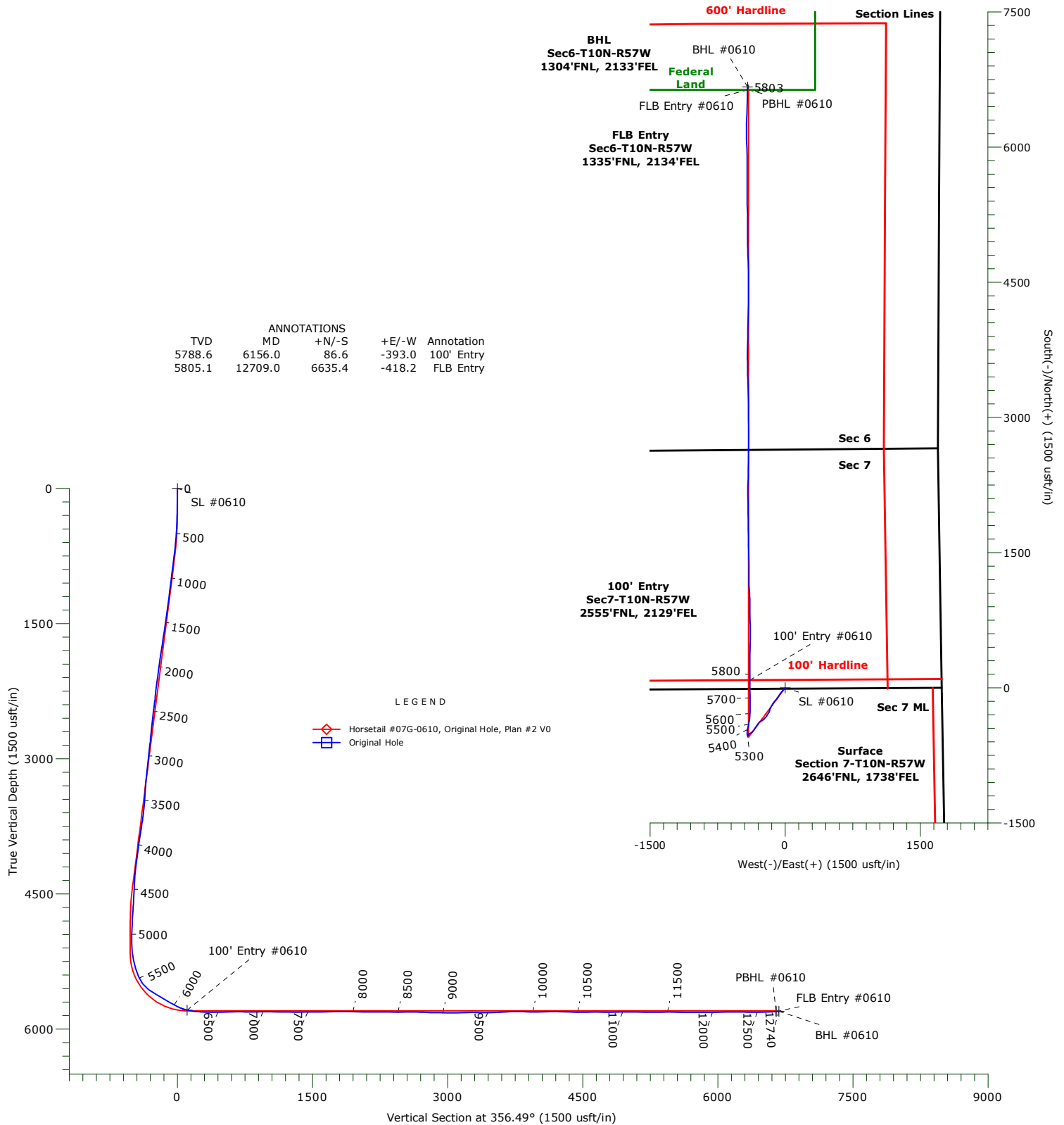




WHITING PETROLEUM CORP.

Project: Weld County, CO
Site: Sec 7-T10N-R57W
Well: Horsetail #07G-0610
Wellbore: Original Hole
Design: Original Hole



Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #07G-0610
Project:	Weld County, CO	TVD Reference:	KBE @ 4916.0usft
Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4916.0usft
Well:	Horsetail #07G-0610	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Compass_Rockies

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:	1,558,398.04	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:	13.20	in
					Grid Convergence:	1.10 °

Well		Horsetail #07G-0610				
Well Position	+N-S	0.0 usft	Northing:	1,558,331.75 usft	Latitude:	40.853500°N
	+E-W	0.0 usft	Easting:	3,472,604.76 usft	Longitude:	103.791564°W
Position Uncertainty		0.0 usft	Wellhead Elevation:	usft	Ground Level:	4,895.0 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	01/06/15	7.88	67.44	53,088

Design	Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (usft)	+N/-S (usft)	+E/-W (usft)	Direction (°)	
	0.0	0.0	0.0	356.49	

Survey Program	Date	04/12/16			
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
222.0	12,677.0	Survey #1 (Original Hole)	MWD+IFR+MS	MWD + IFR + Multi Station	
12,740.0	12,740.0	Survey #2 (Original Hole)	BLIND	OWSG BLIND	

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)
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	0.00
SL #0610									
222.0	0.57	136.16	222.0	-0.8	0.8	-0.8	0.26	0.26	0.00
314.0	1.78	215.80	314.0	-2.3	0.2	-2.3	1.92	1.32	86.57
405.0	3.19	230.07	404.9	-5.1	-2.5	-4.9	1.68	1.55	15.68
497.0	5.43	219.87	496.6	-10.0	-7.3	-9.6	2.56	2.43	-11.09
589.0	7.36	221.82	588.1	-17.8	-14.0	-16.9	2.11	2.10	2.12
681.0	9.85	222.41	679.0	-28.0	-23.2	-26.5	2.71	2.71	0.64
772.0	10.47	221.89	768.6	-39.9	-34.0	-37.7	0.69	0.68	-0.57
863.0	9.30	217.69	858.2	-51.9	-44.0	-49.1	1.51	-1.29	-4.62

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #07G-0610
Project:	Weld County, CO	TVD Reference:	KBE @ 4916.0usft
Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4916.0usft
Well:	Horsetail #07G-0610	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Compass_Rockies

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)
955.0	9.18	215.67	949.0	-63.7	-52.8	-60.3	0.38	-0.13	-2.20
1,046.0	8.97	214.24	1,038.9	-75.5	-61.1	-71.6	0.34	-0.23	-1.57
1,138.0	9.10	215.05	1,129.8	-87.3	-69.3	-82.9	0.20	0.14	0.88
1,229.0	8.98	215.36	1,219.6	-99.0	-77.5	-94.1	0.14	-0.13	0.34
1,321.0	9.45	216.47	1,310.4	-111.0	-86.2	-105.5	0.55	0.51	1.21
1,412.0	10.09	216.19	1,400.1	-123.4	-95.3	-117.3	0.71	0.70	-0.31
1,504.0	10.67	216.32	1,490.6	-136.8	-105.1	-130.1	0.63	0.63	0.14
1,596.0	11.54	218.02	1,580.9	-150.9	-115.8	-143.5	1.01	0.95	1.85
1,688.0	12.22	219.05	1,670.9	-165.7	-127.6	-157.6	0.77	0.74	1.12
1,780.0	10.75	213.24	1,761.1	-180.4	-138.5	-171.6	2.03	-1.60	-6.32
1,872.0	10.03	210.62	1,851.6	-194.5	-147.3	-185.1	0.94	-0.78	-2.85
1,964.0	9.27	210.94	1,942.3	-207.7	-155.2	-197.9	0.83	-0.83	0.35
2,058.0	8.88	206.38	2,035.1	-220.7	-162.3	-210.4	0.87	-0.41	-4.85
2,152.0	7.70	197.40	2,128.1	-233.3	-167.4	-222.6	1.86	-1.26	-9.55
2,247.0	6.99	194.35	2,222.3	-244.9	-170.7	-234.0	0.85	-0.75	-3.21
2,341.0	6.74	191.24	2,315.7	-255.9	-173.2	-244.8	0.48	-0.27	-3.31
2,435.0	8.96	213.42	2,408.8	-267.4	-178.3	-256.0	3.95	2.36	23.60
2,530.0	8.17	210.02	2,502.7	-279.4	-185.8	-267.5	0.99	-0.83	-3.58
2,624.0	7.40	210.73	2,595.9	-290.4	-192.2	-278.1	0.83	-0.82	0.76
2,719.0	6.92	208.30	2,690.1	-300.7	-198.0	-288.0	0.60	-0.51	-2.56
2,813.0	6.61	206.25	2,783.5	-310.5	-203.1	-297.5	0.42	-0.33	-2.18
2,908.0	9.73	223.63	2,877.5	-321.3	-211.1	-307.7	4.15	3.28	18.29
3,002.0	9.36	222.85	2,970.2	-332.6	-221.8	-318.4	0.42	-0.39	-0.83
3,096.0	8.84	222.27	3,063.0	-343.6	-231.8	-328.7	0.56	-0.55	-0.62
3,191.0	11.03	235.49	3,156.6	-354.1	-244.2	-338.5	3.31	2.31	13.92
3,285.0	9.32	235.68	3,249.1	-363.5	-257.9	-347.0	1.82	-1.82	0.20
3,380.0	7.87	234.47	3,343.1	-371.6	-269.6	-354.4	1.54	-1.53	-1.27
3,475.0	6.54	236.39	3,437.3	-378.4	-279.4	-360.6	1.42	-1.40	2.02
3,569.0	9.20	223.00	3,530.4	-386.9	-288.9	-368.4	3.42	2.83	-14.24
3,663.0	8.99	221.04	3,623.2	-397.9	-298.9	-378.8	0.40	-0.22	-2.09
3,758.0	11.33	214.42	3,716.7	-411.2	-309.0	-391.5	2.75	2.46	-6.97
3,853.0	10.32	213.53	3,810.0	-426.0	-319.0	-405.7	1.08	-1.06	-0.94
3,947.0	12.00	213.50	3,902.3	-441.2	-329.1	-420.2	1.79	1.79	-0.03
4,041.0	9.81	213.67	3,994.6	-456.0	-338.9	-434.4	2.33	-2.33	0.18
4,159.0	8.27	212.45	4,111.1	-471.5	-349.0	-449.2	1.32	-1.31	-1.03
4,254.0	9.34	223.48	4,205.0	-482.9	-358.0	-460.0	2.10	1.13	11.61
4,348.0	8.16	226.49	4,297.9	-493.0	-368.1	-469.5	1.35	-1.26	3.20
4,442.0	7.13	237.69	4,391.1	-500.7	-377.8	-476.6	1.92	-1.10	11.91
4,537.0	6.24	248.87	4,485.4	-505.7	-387.6	-481.0	1.66	-0.94	11.77
4,631.0	7.48	238.26	4,578.7	-510.8	-397.6	-485.5	1.88	1.32	-11.29
4,725.0	4.60	212.86	4,672.2	-517.2	-404.9	-491.4	4.11	-3.06	-27.02
4,819.0	4.64	221.21	4,765.9	-523.2	-409.4	-497.1	0.72	0.04	8.88
4,914.0	3.95	222.18	4,860.7	-528.5	-414.1	-502.2	0.73	-0.73	1.02

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #07G-0610
Project:	Weld County, CO	TVD Reference:	KBE @ 4916.0usft
Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4916.0usft
Well:	Horsetail #07G-0610	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Compass_Rockies

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)
5,008.0	0.65	239.43	4,954.6	-531.2	-416.8	-504.7	3.55	-3.51	18.35
5,102.0	0.86	191.32	5,048.6	-532.1	-417.4	-505.6	0.69	0.22	-51.18
5,196.0	5.88	348.77	5,142.4	-528.1	-418.5	-501.5	7.11	5.34	167.50
5,290.0	12.25	356.35	5,235.2	-513.4	-420.0	-486.7	6.88	6.78	8.06
5,384.0	16.91	0.79	5,326.1	-489.8	-420.5	-463.1	5.09	4.96	4.72
5,479.0	23.82	10.68	5,415.2	-457.1	-416.7	-430.7	8.10	7.27	10.41
5,573.0	38.91	15.20	5,495.2	-409.6	-405.4	-384.0	16.24	16.05	4.81
5,668.0	53.15	6.54	5,561.1	-342.7	-393.2	-318.0	16.34	14.99	-9.12
5,762.0	60.82	359.97	5,612.3	-264.1	-388.9	-239.8	10.04	8.16	-6.99
5,856.0	59.54	359.90	5,659.0	-182.5	-389.0	-158.4	1.36	-1.36	-0.07
5,950.0	60.25	359.02	5,706.2	-101.2	-389.8	-77.2	1.11	0.76	-0.94
6,045.0	63.15	358.39	5,751.2	-17.6	-391.7	6.4	3.11	3.05	-0.66
6,139.0	75.29	359.85	5,784.5	70.1	-393.0	94.0	13.00	12.91	1.55
6,156.0	76.71	0.03	5,788.6	86.6	-393.0	110.5	8.44	8.38	1.03
100' Entry - 100' Entry #0610									
6,234.0	83.25	0.81	5,802.2	163.4	-392.4	187.1	8.44	8.38	1.01
6,328.0	87.81	0.26	5,809.5	257.0	-391.5	280.5	4.89	4.85	-0.59
6,422.0	89.15	0.76	5,812.0	351.0	-390.7	374.3	1.52	1.43	0.53
6,517.0	90.60	0.96	5,812.2	446.0	-389.3	469.0	1.54	1.53	0.21
6,611.0	92.12	0.67	5,810.0	540.0	-387.9	562.7	1.65	1.62	-0.31
6,706.0	90.65	359.77	5,807.7	634.9	-387.6	657.5	1.81	-1.55	-0.95
6,800.0	88.91	358.70	5,808.0	728.9	-388.8	751.3	2.17	-1.85	-1.14
6,895.0	90.14	358.96	5,808.8	823.9	-390.8	846.3	1.32	1.29	0.27
6,989.0	91.50	0.05	5,807.5	917.9	-391.6	940.1	1.85	1.45	1.16
7,084.0	88.91	357.83	5,807.1	1,012.8	-393.3	1,035.0	3.59	-2.73	-2.34
7,178.0	88.43	355.35	5,809.3	1,106.6	-398.9	1,129.0	2.69	-0.51	-2.64
7,272.0	89.61	359.16	5,810.9	1,200.5	-403.4	1,222.9	4.24	1.26	4.05
7,366.0	90.29	0.92	5,811.0	1,294.5	-403.4	1,316.8	2.01	0.72	1.87
7,460.0	91.31	359.73	5,809.7	1,388.5	-402.8	1,410.5	1.67	1.09	-1.27
7,554.0	90.02	359.11	5,808.6	1,482.5	-403.8	1,504.4	1.52	-1.37	-0.66
7,649.0	90.20	359.24	5,808.4	1,577.5	-405.2	1,599.3	0.23	0.19	0.14
7,743.0	91.50	359.03	5,807.0	1,671.4	-406.6	1,693.2	1.40	1.38	-0.22
7,837.0	90.18	358.94	5,805.7	1,765.4	-408.2	1,787.1	1.41	-1.40	-0.10
7,931.0	89.54	358.96	5,805.9	1,859.4	-410.0	1,881.0	0.68	-0.68	0.02
8,025.0	89.30	359.70	5,806.8	1,953.4	-411.1	1,974.9	0.83	-0.26	0.79
8,120.0	89.04	358.90	5,808.2	2,048.4	-412.2	2,069.7	0.89	-0.27	-0.84
8,214.0	90.49	359.45	5,808.6	2,142.3	-413.6	2,163.6	1.65	1.54	0.59
8,308.0	89.47	1.29	5,808.6	2,236.3	-413.0	2,257.4	2.24	-1.09	1.96
8,402.0	88.96	1.39	5,809.9	2,330.3	-410.8	2,351.1	0.55	-0.54	0.11
8,496.0	89.49	0.74	5,811.2	2,424.3	-409.0	2,444.8	0.89	0.56	-0.69
8,591.0	90.85	1.15	5,810.9	2,519.3	-407.5	2,539.5	1.50	1.43	0.43
8,683.0	89.57	0.63	5,810.6	2,611.2	-406.0	2,631.2	1.50	-1.39	-0.57
8,774.0	87.48	1.01	5,812.9	2,702.2	-404.7	2,721.9	2.33	-2.30	0.42
8,866.0	88.35	359.95	5,816.3	2,794.1	-404.0	2,813.6	1.49	0.95	-1.15

Precision Drilling Corporation

Survey Report

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Project:	Weld County, CO	TVD Reference:	KBE @ 4916.0usft
Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4916.0usft
Well:	Horsetail #07G-0610	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Compass_Rockies

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)
8,957.0	88.91	359.48	5,818.4	2,885.1	-404.4	2,904.5	0.80	0.62	-0.52
9,049.0	89.79	359.43	5,819.5	2,977.1	-405.3	2,996.3	0.96	0.96	-0.05
9,140.0	91.09	359.86	5,818.8	3,068.1	-405.8	3,087.2	1.50	1.43	0.47
9,232.0	91.97	359.23	5,816.3	3,160.0	-406.6	3,179.0	1.18	0.96	-0.68
9,324.0	89.82	358.28	5,814.9	3,252.0	-408.6	3,270.9	2.55	-2.34	-1.03
9,415.0	89.29	357.91	5,815.6	3,343.0	-411.6	3,361.9	0.71	-0.58	-0.41
9,506.0	90.30	357.79	5,815.9	3,433.9	-415.0	3,452.9	1.12	1.11	-0.13
9,598.0	91.89	359.44	5,814.2	3,525.8	-417.2	3,544.8	2.49	1.73	1.79
9,689.0	93.47	359.16	5,809.9	3,616.7	-418.3	3,635.6	1.76	1.74	-0.31
9,781.0	91.19	0.12	5,806.2	3,708.6	-418.9	3,727.3	2.69	-2.48	1.04
9,873.0	88.76	1.67	5,806.2	3,800.6	-417.5	3,819.1	3.13	-2.64	1.68
9,964.0	88.69	1.43	5,808.2	3,891.6	-415.0	3,909.7	0.27	-0.08	-0.26
10,056.0	89.92	0.61	5,809.3	3,983.5	-413.4	4,001.4	1.61	1.34	-0.89
10,148.0	91.83	1.61	5,807.9	4,075.5	-411.6	4,093.1	2.34	2.08	1.09
10,240.0	90.28	1.97	5,806.2	4,167.4	-408.7	4,184.7	1.73	-1.68	0.39
10,332.0	88.29	0.84	5,807.4	4,259.4	-406.5	4,276.3	2.49	-2.16	-1.23
10,424.0	88.37	0.07	5,810.1	4,351.4	-405.7	4,368.0	0.84	0.09	-0.84
10,516.0	89.62	359.96	5,811.7	4,443.3	-405.7	4,459.9	1.36	1.36	-0.12
10,607.0	90.96	359.79	5,811.2	4,534.3	-405.9	4,550.7	1.48	1.47	-0.19
10,699.0	89.48	358.62	5,810.9	4,626.3	-407.2	4,642.6	2.05	-1.61	-1.27
10,790.0	89.69	357.98	5,811.5	4,717.3	-409.9	4,733.5	0.74	0.23	-0.70
10,882.0	90.79	357.52	5,811.1	4,809.2	-413.5	4,825.5	1.30	1.20	-0.50
10,972.0	90.05	359.72	5,810.5	4,899.2	-415.7	4,915.4	2.58	-0.82	2.44
11,064.0	91.22	359.88	5,809.5	4,991.2	-416.0	5,007.3	1.28	1.27	0.17
11,153.0	88.57	359.72	5,809.6	5,080.2	-416.3	5,096.1	2.98	-2.98	-0.18
11,244.0	88.97	359.40	5,811.6	5,171.1	-417.0	5,187.0	0.56	0.44	-0.35
11,335.0	90.10	358.92	5,812.3	5,262.1	-418.3	5,277.9	1.35	1.24	-0.53
11,426.0	91.50	358.64	5,811.1	5,353.1	-420.3	5,368.8	1.57	1.54	-0.31
11,516.0	88.89	359.45	5,810.7	5,443.1	-421.8	5,458.7	3.04	-2.90	0.90
11,608.0	88.77	359.33	5,812.6	5,535.0	-422.8	5,550.5	0.18	-0.13	-0.13
11,699.0	89.13	0.96	5,814.3	5,626.0	-422.5	5,641.3	1.83	0.40	1.79
11,790.0	89.66	0.67	5,815.3	5,717.0	-421.2	5,732.1	0.66	0.58	-0.32
11,882.0	90.32	359.78	5,815.3	5,809.0	-420.9	5,823.9	1.20	0.72	-0.97
11,973.0	90.98	358.20	5,814.2	5,900.0	-422.5	5,914.8	1.88	0.73	-1.74
12,065.0	92.43	357.81	5,811.5	5,991.9	-425.7	6,006.7	1.63	1.58	-0.42
12,156.0	90.72	357.98	5,809.0	6,082.8	-429.0	6,097.6	1.89	-1.88	0.19
12,247.0	89.67	0.31	5,808.7	6,173.8	-430.4	6,188.5	2.81	-1.15	2.56
12,341.0	88.22	2.44	5,810.4	6,267.7	-428.1	6,282.2	2.74	-1.54	2.27
12,436.0	89.30	2.13	5,812.5	6,362.6	-424.3	6,376.7	1.18	1.14	-0.33
12,530.0	90.88	1.48	5,812.3	6,456.6	-421.4	6,470.3	1.82	1.68	-0.69
12,624.0	92.38	0.87	5,809.7	6,550.5	-419.4	6,563.9	1.72	1.60	-0.65
12,677.0	93.35	0.84	5,807.0	6,603.4	-418.7	6,616.7	1.83	1.83	-0.06
12,709.0	93.35	0.84	5,805.1	6,635.4	-418.2	6,648.5	0.00	0.00	0.00

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #07G-0610
Project:	Weld County, CO	TVD Reference:	KBE @ 4916.0usft
Site:	Sec 7-T10N-R57W	MD Reference:	KBE @ 4916.0usft
Well:	Horsetail #07G-0610	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	Compass_Rockies

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)
FLB Entry - PBHL #0610 - FLB Entry #0610									
12,740.0	93.35	0.84	5,803.3	6,666.3	-417.7	6,679.4	0.00	0.00	0.00
BHL #0610									

Design Targets

Target Name	- hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL #0610	- actual wellpath hits target center	0.00	0.00	0.0	0.0	0.0	1,558,331.76	3,472,604.76	40.853500°N	103.791564°W
- Point										
100' Entry #0610	- actual wellpath hits target center	0.00	0.00	5,788.6	86.6	-393.0	1,558,410.76	3,472,210.18	40.853738°N	103.792985°W
- Point										
PBHL #0610	- actual wellpath misses target center by 13.7usft at 12709.0usft MD (5805.1 TVD, 6635.4 N, -418.2 E)	0.00	0.00	5,797.0	6,635.2	-407.2	1,564,957.84	3,472,069.83	40.871711°N	103.793036°W
- Point										
BHL #0610	- actual wellpath hits target center	0.00	0.00	5,803.3	6,666.3	-417.7	1,564,988.79	3,472,058.68	40.871797°N	103.793075°W
- Point										
FLB Entry #0610	- actual wellpath hits target center	0.00	0.00	5,805.1	6,635.4	-418.2	1,564,957.85	3,472,058.81	40.871712°N	103.793076°W
- Point										

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates	
		+N/-S (usft)	+E/-W (usft)
			Comment
6,156.0	5,788.6	86.6	-393.0 100' Entry
12,709.0	5,805.1	6,635.4	-418.2 FLB Entry