



# **WHITING PETROLEUM CORP.**

**Weld County, CO**

**Sec 8-T10N-R57W**

**Horsetail #08C-1739**

**Original Hole**

**Design: Original Hole**

## **Standard Survey Report**

**30 May, 2016**

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #08C-1739
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Site:</b>	Sec 8-T10N-R57W	<b>MD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

<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		

<b>Site</b>	Sec 8-T10N-R57W		
<b>Site Position:</b>		<b>Northing:</b>	1,561,022.64 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,474,249.13 usft
<b>Position Uncertainty:</b>	0.0 usft	<b>Slot Radius:</b>	13.20 in
		<b>Latitude:</b>	40.860797°N
		<b>Longitude:</b>	103.785433°W
		<b>Grid Convergence:</b>	1.11 °

<b>Well</b>	Horsetail #08C-1739		
<b>Well Position</b>	<b>+N/-S</b>	0.0 usft	<b>Northing:</b>
	<b>+E/-W</b>	0.0 usft	<b>Easting:</b>
<b>Position Uncertainty</b>	0.0 usft	<b>Wellhead Elevation:</b>	usft
		<b>Latitude:</b>	40.859925°N
		<b>Longitude:</b>	103.777136°W
		<b>Ground Level:</b>	4,913.3 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	4/25/2016	7.83	67.40	52,860

<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	180.00	

<b>Survey Program</b>	<b>Date</b> 5/30/2016			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
222.0	16,121.0	Survey #1 (Original Hole)	MWD+IFR1+MS+sag	Fixed:v2:crustal dec & 3-axis correction + sag
16,200.0	16,200.0	Survey #2 (Original Hole)	BLIND	OWSG BLIND

<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
222.0	0.40	120.81	222.0	-0.4	0.7	0.4	0.18	0.18	0.00
313.0	1.76	11.73	313.0	0.8	1.2	-0.8	2.12	1.49	-119.87
405.0	3.60	4.69	404.9	5.1	1.7	-5.1	2.03	2.00	-7.65
496.0	4.56	1.05	495.6	11.5	2.0	-11.5	1.09	1.05	-4.00
588.0	4.31	0.46	587.4	18.6	2.1	-18.6	0.28	-0.27	-0.64
678.0	4.29	6.01	677.1	25.4	2.5	-25.4	0.46	-0.02	6.17
769.0	3.89	0.05	767.9	31.9	2.9	-31.9	0.64	-0.44	-6.55
860.0	5.52	344.67	858.6	39.2	1.7	-39.2	2.25	1.79	-16.90
951.0	5.11	347.67	949.2	47.3	-0.3	-47.3	0.54	-0.45	3.30

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<b>Site:</b>	Sec 8-T10N-R57W	<b>MD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

### 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)
1,042.0	4.75	349.17	1,039.9	55.0	-1.9	-55.0	0.42	-0.40	1.65
1,134.0	4.78	334.18	1,131.5	62.2	-4.3	-62.2	1.35	0.03	-16.29
1,226.0	4.71	332.58	1,223.2	69.0	-7.7	-69.0	0.16	-0.08	-1.74
1,317.0	4.66	336.11	1,313.9	75.7	-10.9	-75.7	0.32	-0.05	3.88
1,409.0	5.03	338.69	1,405.6	82.9	-13.9	-82.9	0.47	0.40	2.80
1,500.0	5.06	329.16	1,496.2	90.0	-17.4	-90.0	0.92	0.03	-10.47
1,591.0	5.20	330.18	1,586.9	97.1	-21.5	-97.1	0.18	0.15	1.12
1,683.0	5.58	331.21	1,678.5	104.6	-25.7	-104.6	0.43	0.41	1.12
1,774.0	5.42	330.72	1,769.1	112.2	-29.9	-112.2	0.18	-0.18	-0.54
1,866.0	5.34	333.99	1,860.6	119.9	-33.9	-119.9	0.34	-0.09	3.55
1,958.0	5.31	333.14	1,952.2	127.5	-37.7	-127.5	0.09	-0.03	-0.92
2,022.0	5.15	333.26	2,016.0	132.7	-40.4	-132.7	0.25	-0.25	0.19
2,116.0	4.99	332.35	2,109.6	140.1	-44.2	-140.1	0.19	-0.17	-0.97
2,211.0	4.79	327.37	2,204.3	147.1	-48.2	-147.1	0.49	-0.21	-5.24
2,305.0	5.01	326.90	2,297.9	153.8	-52.6	-153.8	0.24	0.23	-0.50
2,400.0	4.90	325.57	2,392.6	160.7	-57.1	-160.7	0.17	-0.12	-1.40
2,494.0	4.46	322.86	2,486.3	166.9	-61.6	-166.9	0.52	-0.47	-2.88
2,588.0	4.21	322.90	2,580.0	172.5	-65.9	-172.5	0.27	-0.27	0.04
2,682.0	3.99	325.13	2,673.7	178.0	-69.9	-178.0	0.29	-0.23	2.37
2,775.0	3.91	323.50	2,766.5	183.2	-73.6	-183.2	0.15	-0.09	-1.75
2,870.0	4.19	322.38	2,861.3	188.5	-77.6	-188.5	0.31	0.29	-1.18
2,965.0	4.10	320.18	2,956.0	193.9	-81.9	-193.9	0.19	-0.09	-2.32
3,059.0	4.03	317.31	3,049.8	198.9	-86.3	-198.9	0.23	-0.07	-3.05
3,153.0	3.75	317.46	3,143.6	203.6	-90.6	-203.6	0.30	-0.30	0.16
3,248.0	3.36	322.61	3,238.4	208.1	-94.4	-208.1	0.53	-0.41	5.42
3,342.0	2.86	322.53	3,332.3	212.1	-97.5	-212.1	0.53	-0.53	-0.09
3,436.0	2.63	322.55	3,426.2	215.7	-100.3	-215.7	0.24	-0.24	0.02
3,530.0	4.87	337.66	3,520.0	221.1	-103.1	-221.1	2.58	2.38	16.07
3,625.0	4.99	335.87	3,614.6	228.6	-106.3	-228.6	0.21	0.13	-1.88
3,719.0	4.93	335.50	3,708.2	236.0	-109.7	-236.0	0.07	-0.06	-0.39
3,814.0	4.84	337.34	3,802.9	243.4	-112.9	-243.4	0.19	-0.09	1.94
3,908.0	4.58	340.34	3,896.6	250.6	-115.7	-250.6	0.38	-0.28	3.19
4,002.0	4.11	344.23	3,990.3	257.4	-117.9	-257.4	0.59	-0.50	4.14
4,120.0	3.50	344.54	4,108.1	265.0	-120.0	-265.0	0.52	-0.52	0.26
4,215.0	3.30	350.15	4,202.9	270.4	-121.2	-270.4	0.41	-0.21	5.91
4,309.0	4.17	314.64	4,296.7	275.5	-124.1	-275.5	2.58	0.93	-37.78
4,404.0	3.93	303.18	4,391.5	279.7	-129.3	-279.7	0.89	-0.25	-12.06
4,498.0	3.91	304.23	4,485.2	283.3	-134.6	-283.3	0.08	-0.02	1.12
4,592.0	3.50	302.66	4,579.0	286.6	-139.7	-286.6	0.45	-0.44	-1.67
4,686.0	2.77	297.88	4,672.9	289.2	-144.1	-289.2	0.82	-0.78	-5.09
4,780.0	2.89	301.51	4,766.8	291.6	-148.2	-291.6	0.23	0.13	3.86
4,874.0	2.27	305.62	4,860.7	293.9	-151.7	-293.9	0.69	-0.66	4.37
4,969.0	2.14	299.35	4,955.6	295.8	-154.8	-295.8	0.29	-0.14	-6.60

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<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

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)	
5,063.0	2.31	299.33	5,049.6	297.6	-157.9	-297.6	0.18	0.18	-0.02	
5,157.0	2.26	298.73	5,143.5	299.4	-161.2	-299.4	0.06	-0.05	-0.64	
5,251.0	0.28	299.30	5,237.5	300.4	-163.1	-300.4	2.11	-2.11	0.61	
5,346.0	0.74	148.04	5,332.5	300.0	-162.9	-300.0	1.05	0.48	-159.22	
5,440.0	12.05	176.05	5,425.7	289.7	-161.9	-289.7	12.13	12.03	29.80	
5,534.0	22.20	181.09	5,515.4	262.1	-161.6	-262.1	10.90	10.80	5.36	
5,629.0	31.10	181.97	5,600.3	219.5	-162.8	-219.5	9.38	9.37	0.93	
5,723.0	37.24	185.42	5,678.0	166.9	-166.3	-166.9	6.85	6.53	3.67	
5,818.0	38.68	181.02	5,752.9	108.6	-169.5	-108.6	3.23	1.52	-4.63	
5,912.0	47.16	179.10	5,821.7	44.6	-169.5	-44.6	9.13	9.02	-2.04	
6,007.0	59.03	178.45	5,878.6	-31.2	-167.9	31.2	12.51	12.49	-0.68	
6,101.0	67.30	178.17	5,921.0	-114.9	-165.4	114.9	8.80	8.80	-0.30	
6,195.0	74.20	179.43	5,952.0	-203.6	-163.6	203.6	7.45	7.34	1.34	
6,290.0	80.74	181.84	5,972.6	-296.3	-164.6	296.3	7.32	6.88	2.54	
6,384.0	86.44	181.52	5,983.1	-389.6	-167.3	389.6	6.07	6.06	-0.34	
6,478.0	89.11	180.77	5,986.8	-483.5	-169.2	483.5	2.95	2.84	-0.80	
6,573.0	89.88	179.96	5,987.6	-578.5	-169.8	578.5	1.18	0.81	-0.85	
6,667.0	90.73	179.61	5,987.1	-672.5	-169.5	672.5	0.98	0.90	-0.37	
6,762.0	88.46	178.37	5,987.8	-767.5	-167.8	767.5	2.72	-2.39	-1.31	
6,856.0	87.95	177.44	5,990.7	-861.4	-164.4	861.4	1.13	-0.54	-0.99	
6,950.0	90.44	180.27	5,992.0	-955.3	-162.5	955.3	4.01	2.65	3.01	
7,045.0	91.53	180.35	5,990.4	-1,050.3	-163.0	1,050.3	1.15	1.15	0.08	
7,139.0	90.30	181.45	5,988.9	-1,144.3	-164.5	1,144.3	1.76	-1.31	1.17	
7,233.0	90.68	182.41	5,988.1	-1,238.2	-167.6	1,238.2	1.10	0.40	1.02	
7,328.0	89.11	181.12	5,988.3	-1,333.2	-170.6	1,333.2	2.14	-1.65	-1.36	
7,422.0	89.04	180.93	5,989.8	-1,427.1	-172.3	1,427.1	0.22	-0.07	-0.20	
7,517.0	89.90	180.92	5,990.7	-1,522.1	-173.8	1,522.1	0.91	0.91	-0.01	
7,611.0	89.14	178.11	5,991.4	-1,616.1	-173.0	1,616.1	3.10	-0.81	-2.99	
7,705.0	88.24	177.19	5,993.6	-1,710.0	-169.1	1,710.0	1.37	-0.96	-0.98	
7,799.0	89.89	179.49	5,995.1	-1,803.9	-166.4	1,803.9	3.01	1.76	2.45	
7,893.0	90.84	179.11	5,994.5	-1,897.9	-165.3	1,897.9	1.09	1.01	-0.40	
7,988.0	90.78	177.52	5,993.2	-1,992.9	-162.5	1,992.9	1.67	-0.06	-1.67	
8,082.0	89.56	179.58	5,992.9	-2,086.8	-160.1	2,086.8	2.55	-1.30	2.19	
8,177.0	89.39	179.17	5,993.8	-2,181.8	-159.1	2,181.8	0.47	-0.18	-0.43	
8,271.0	91.01	179.79	5,993.5	-2,275.8	-158.2	2,275.8	1.85	1.72	0.66	
8,365.0	91.58	179.42	5,991.3	-2,369.8	-157.6	2,369.8	0.72	0.61	-0.39	
8,460.0	91.65	179.02	5,988.6	-2,464.7	-156.3	2,464.7	0.43	0.07	-0.42	
8,554.0	90.88	181.07	5,986.6	-2,558.7	-156.3	2,558.7	2.33	-0.82	2.18	
8,649.0	91.32	180.82	5,984.7	-2,653.7	-157.9	2,653.7	0.53	0.46	-0.26	
8,743.0	92.13	180.07	5,981.9	-2,747.6	-158.6	2,747.6	1.17	0.86	-0.80	
8,837.0	90.02	179.20	5,980.2	-2,841.6	-158.0	2,841.6	2.43	-2.24	-0.93	
8,931.0	89.80	179.21	5,980.3	-2,935.6	-156.7	2,935.6	0.23	-0.23	0.01	
9,026.0	89.19	179.01	5,981.1	-3,030.6	-155.3	3,030.6	0.68	-0.64	-0.21	

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<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

### 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)
9,120.0	88.82	179.03	5,982.8	-3,124.6	-153.6	3,124.6	0.39	-0.39	0.02
9,214.0	89.45	180.54	5,984.2	-3,218.6	-153.3	3,218.6	1.74	0.67	1.61
9,308.0	90.02	178.84	5,984.6	-3,312.5	-152.8	3,312.5	1.91	0.61	-1.81
9,403.0	91.29	178.13	5,983.5	-3,407.5	-150.3	3,407.5	1.53	1.34	-0.75
9,497.0	91.03	180.51	5,981.6	-3,501.5	-149.2	3,501.5	2.55	-0.28	2.53
9,591.0	91.48	179.80	5,979.6	-3,595.4	-149.4	3,595.4	0.89	0.48	-0.76
9,686.0	89.81	179.86	5,978.5	-3,690.4	-149.1	3,690.4	1.76	-1.76	0.06
9,780.0	89.27	179.12	5,979.3	-3,784.4	-148.3	3,784.4	0.97	-0.57	-0.79
9,874.0	90.27	181.02	5,979.6	-3,878.4	-148.4	3,878.4	2.28	1.06	2.02
9,969.0	91.43	180.54	5,978.2	-3,973.4	-149.7	3,973.4	1.32	1.22	-0.51
10,064.0	88.92	180.71	5,977.9	-4,068.4	-150.7	4,068.4	2.65	-2.64	0.18
10,158.0	90.02	180.67	5,978.8	-4,162.4	-151.9	4,162.4	1.17	1.17	-0.04
10,252.0	90.98	180.25	5,978.0	-4,256.4	-152.6	4,256.4	1.11	1.02	-0.45
10,347.0	91.53	179.00	5,975.9	-4,351.3	-152.0	4,351.3	1.44	0.58	-1.32
10,441.0	92.71	178.10	5,972.4	-4,445.2	-149.6	4,445.2	1.58	1.26	-0.96
10,535.0	90.12	179.50	5,970.1	-4,539.2	-147.7	4,539.2	3.13	-2.76	1.49
10,630.0	87.62	180.46	5,972.0	-4,634.2	-147.6	4,634.2	2.82	-2.63	1.01
10,724.0	86.52	180.32	5,976.8	-4,728.0	-148.3	4,728.0	1.18	-1.17	-0.15
10,818.0	88.81	181.80	5,980.6	-4,821.9	-150.0	4,821.9	2.90	2.44	1.57
10,910.0	91.20	182.00	5,980.6	-4,913.9	-153.1	4,913.9	2.61	2.60	0.22
11,002.0	90.97	180.26	5,978.9	-5,005.8	-154.9	5,005.8	1.91	-0.25	-1.89
11,093.0	89.95	177.34	5,978.1	-5,096.8	-153.0	5,096.8	3.40	-1.12	-3.21
11,184.0	91.02	178.90	5,977.4	-5,187.7	-150.0	5,187.7	2.08	1.18	1.71
11,276.0	91.30	179.33	5,975.5	-5,279.7	-148.6	5,279.7	0.56	0.30	0.47
11,367.0	92.63	181.12	5,972.4	-5,370.7	-148.9	5,370.7	2.45	1.46	1.97
11,457.0	93.66	181.13	5,967.4	-5,460.5	-150.7	5,460.5	1.14	1.14	0.01
11,548.0	91.48	182.38	5,963.4	-5,551.4	-153.5	5,551.4	2.76	-2.40	1.37
11,639.0	92.42	182.45	5,960.3	-5,642.2	-157.3	5,642.2	1.04	1.03	0.08
11,730.0	90.41	182.37	5,958.0	-5,733.1	-161.1	5,733.1	2.21	-2.21	-0.09
11,822.0	89.81	180.54	5,957.8	-5,825.1	-163.5	5,825.1	2.09	-0.65	-1.99
11,913.0	89.68	180.88	5,958.3	-5,916.1	-164.6	5,916.1	0.40	-0.14	0.37
12,005.0	90.70	182.97	5,957.9	-6,008.0	-167.7	6,008.0	2.53	1.11	2.27
12,096.0	89.56	180.03	5,957.7	-6,099.0	-170.1	6,099.0	3.47	-1.25	-3.23
12,188.0	89.45	179.31	5,958.5	-6,191.0	-169.5	6,191.0	0.79	-0.12	-0.78
12,280.0	89.81	181.39	5,959.1	-6,282.9	-170.1	6,282.9	2.29	0.39	2.26
12,371.0	89.73	179.17	5,959.5	-6,373.9	-170.5	6,373.9	2.44	-0.09	-2.44
12,462.0	90.80	178.99	5,959.1	-6,464.9	-169.1	6,464.9	1.19	1.18	-0.20
12,553.0	89.98	177.48	5,958.5	-6,555.9	-166.3	6,555.9	1.89	-0.90	-1.66
12,645.0	90.48	178.83	5,958.1	-6,647.8	-163.3	6,647.8	1.56	0.54	1.47
12,737.0	90.47	178.79	5,957.3	-6,739.8	-161.4	6,739.8	0.04	-0.01	-0.04
12,829.0	89.46	179.96	5,957.4	-6,831.8	-160.4	6,831.8	1.68	-1.10	1.27
12,921.0	89.51	180.06	5,958.2	-6,923.8	-160.4	6,923.8	0.12	0.05	0.11
13,013.0	90.32	179.41	5,958.3	-7,015.8	-160.0	7,015.8	1.13	0.88	-0.71
13,105.0	88.97	179.49	5,958.9	-7,107.8	-159.1	7,107.8	1.47	-1.47	0.09

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #08C-1739
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Site:</b>	Sec 8-T10N-R57W	<b>MD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

### 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)
13,196.0	89.07	178.08	5,960.5	-7,198.7	-157.2	7,198.7	1.55	0.11	-1.55
13,288.0	88.90	179.47	5,962.1	-7,290.7	-155.2	7,290.7	1.52	-0.18	1.51
13,380.0	89.92	179.82	5,963.0	-7,382.7	-154.6	7,382.7	1.17	1.11	0.38
13,472.0	90.29	180.05	5,962.9	-7,474.7	-154.5	7,474.7	0.47	0.40	0.25
13,563.0	89.82	179.76	5,962.8	-7,565.7	-154.4	7,565.7	0.61	-0.52	-0.32
13,655.0	89.58	179.59	5,963.3	-7,657.7	-153.9	7,657.7	0.32	-0.26	-0.18
13,747.0	89.35	179.71	5,964.1	-7,749.7	-153.3	7,749.7	0.28	-0.25	0.13
13,839.0	90.47	178.93	5,964.3	-7,841.7	-152.2	7,841.7	1.48	1.22	-0.85
13,930.0	89.92	179.66	5,964.0	-7,932.7	-151.1	7,932.7	1.00	-0.60	0.80
14,022.0	90.35	178.71	5,963.7	-8,024.7	-149.8	8,024.7	1.13	0.47	-1.03
14,113.0	88.91	180.93	5,964.3	-8,115.7	-149.5	8,115.7	2.91	-1.58	2.44
14,203.0	88.40	180.46	5,966.5	-8,205.6	-150.6	8,205.6	0.77	-0.57	-0.52
14,294.0	88.32	180.43	5,969.1	-8,296.6	-151.3	8,296.6	0.09	-0.09	-0.03
14,385.0	88.56	182.34	5,971.5	-8,387.5	-153.5	8,387.5	2.11	0.26	2.10
14,476.0	89.51	182.14	5,973.1	-8,478.4	-157.0	8,478.4	1.07	1.04	-0.22
14,568.0	89.20	182.25	5,974.1	-8,570.4	-160.6	8,570.4	0.36	-0.34	0.12
14,659.0	90.07	182.43	5,974.7	-8,661.3	-164.3	8,661.3	0.98	0.96	0.20
14,751.0	90.33	181.87	5,974.4	-8,753.2	-167.7	8,753.2	0.67	0.28	-0.61
14,843.0	90.60	181.10	5,973.6	-8,845.2	-170.1	8,845.2	0.89	0.29	-0.84
14,934.0	90.49	180.40	5,972.7	-8,936.2	-171.3	8,936.2	0.78	-0.12	-0.77
15,026.0	90.23	179.62	5,972.2	-9,028.2	-171.3	9,028.2	0.89	-0.28	-0.85
15,117.0	90.29	178.72	5,971.8	-9,119.2	-170.0	9,119.2	0.99	0.07	-0.99
15,207.0	90.32	180.10	5,971.3	-9,209.1	-169.1	9,209.1	1.53	0.03	1.53
15,298.0	90.14	179.46	5,970.9	-9,300.1	-168.7	9,300.1	0.73	-0.20	-0.70
15,389.0	89.76	179.66	5,971.0	-9,391.1	-168.0	9,391.1	0.47	-0.42	0.22
15,480.0	89.97	179.22	5,971.2	-9,482.1	-167.1	9,482.1	0.54	0.23	-0.48
15,571.0	87.93	180.22	5,972.9	-9,573.1	-166.7	9,573.1	2.50	-2.24	1.10
15,663.0	87.93	178.97	5,976.2	-9,665.0	-166.0	9,665.0	1.36	0.00	-1.36
15,755.0	89.20	178.77	5,978.5	-9,757.0	-164.2	9,757.0	1.40	1.38	-0.22
15,847.0	89.74	178.54	5,979.4	-9,849.0	-162.1	9,849.0	0.64	0.59	-0.25
15,938.0	89.82	177.81	5,979.7	-9,939.9	-159.2	9,939.9	0.81	0.09	-0.80
16,029.0	89.97	177.42	5,979.9	-10,030.8	-155.4	10,030.8	0.46	0.16	-0.43
16,121.0	89.51	177.43	5,980.3	-10,122.8	-151.3	10,122.8	0.50	-0.50	0.01
16,200.0	89.51	177.43	5,981.0	-10,201.7	-147.7	10,201.7	0.00	0.00	0.00

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #08C-1739
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Site:</b>	Sec 8-T10N-R57W	<b>MD Reference:</b>	4913.3'GL+21'KB @ 4934.3usft (Unit 409)
<b>Well:</b>	Horsetail #08C-1739	<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>	Local2

### Design Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL 1739 - actual wellpath hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,560,749.45	3,476,549.94	40.859925°N	103.777136°W
300' Entry 1739 - actual wellpath hits target center - Point	0.00	0.00	5,845.7	16.5	-169.0	1,560,762.69	3,476,380.63	40.859970°N	103.777747°W
100' Exit 1739 - actual wellpath hits target center - Point	0.00	0.00	5,980.9	-10,189.7	-148.2	1,550,558.81	3,476,599.68	40.831958°N	103.777672°W
BHL 1739 - actual wellpath hits target center - Point	0.00	0.00	5,981.0	-10,201.7	-147.7	1,550,546.84	3,476,600.45	40.831925°N	103.777670°W
PBHL 1739 p2 - actual wellpath misses target center by 17.3usft at 16200.0usft MD (5981.0 TVD, -10201.7 N, -147.7 E) - Point	0.00	0.00	5,985.0	-10,202.6	-164.5	1,550,545.57	3,476,583.68	40.831922°N	103.777731°W
7" Casing PT 1739 - actual wellpath hits target center - Point	0.00	0.00	5,986.7	-483.5	-169.2	1,560,262.74	3,476,390.14	40.858598°N	103.777748°W

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,949.0	5,845.7	16.5	-169.0	300' Entry
6,478.0	5,986.8	-483.5	-169.2	7' Casin PT
16,188.0	5,980.9	-10,189.7	-148.3	100' Exit

Checked By: \_\_\_\_\_ Approved By: \_\_\_\_\_ Date: \_\_\_\_\_