


**WHITING PETROLEUM CORP.**

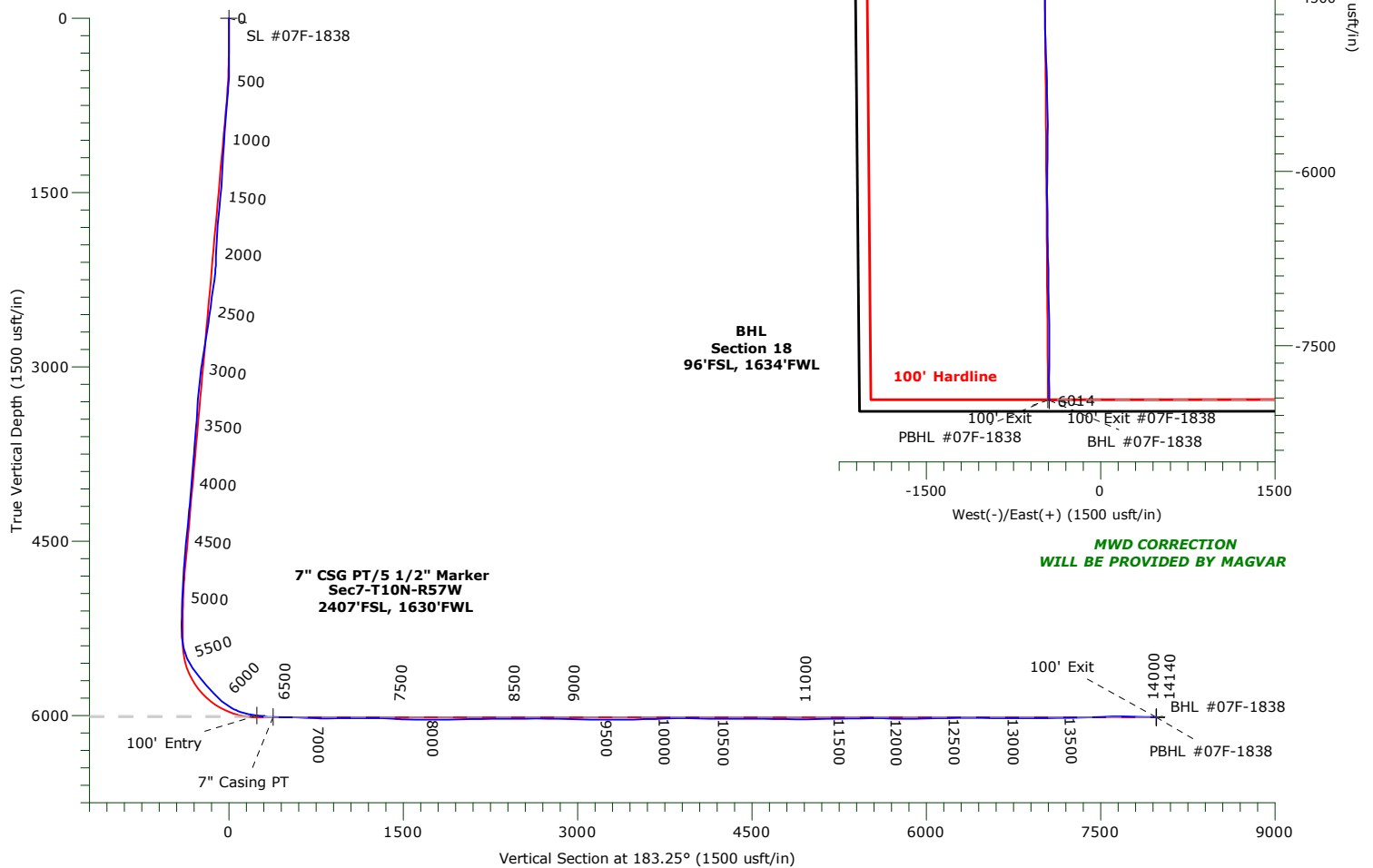
**Project: Weld County, CO**  
**Site: Sec 7-T10N-R57W**  
**Well: Horsetail #07F-1838**  
**Wellbore: Original Hole**  
**Design: Original Hole**



ANNOTATIONS				
TVD	MD	+N/-S	+E/-W	Annotation
5999.92	6376.00	-210.77	-544.50	100' Entry
6012.81	6517.00	-231.03	-544.17	7" Casing PT
6013.57	14136.00	-7966.67	-440.93	100' Exit

### LEGEND

-  Horsetail #07F-1838, Original Hole, Plan #3 V0  
 Original Hole



Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL #07F-1838	0.00	0.00	0.00	1558396.34	3471331.45	40.853744°N	103.796161°W	Point
100' Entry #07F-1838	5999.92	-210.77	-544.50	1558175.15	3470791.10	40.853166°N	103.798129°W	Point
7" Casing PT #07F-1838	6012.81	-351.03	-544.17	1558034.92	3470794.12	40.852781°N	103.798128°W	Point
100' Exit #07F-1838	6013.57	-7966.67	-440.93	1550422.67	3471043.67	40.831879°N	103.797755°W	Point
BHL #07F-1838	6013.64	-7970.67	-440.87	1550418.67	3471043.80	40.831868°N	103.797754°W	Point
PBHL #07F-1838	6015.00	-7965.95	-451.98	1550423.18	3471032.61	40.831881°N	103.797794°W	Point

# **WHITING PETROLEUM CORP.**

**Weld County, CO**

**Sec 7-T10N-R57W**

**Horsetail #07F-1838**

**Original Hole**

**Design: Original Hole**

## **Standard Survey Report**

**25 January, 2017**

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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 7-T10N-R57W		
<b>Site Position:</b>		<b>Northing:</b>	1,558,398.04 usft
<b>From:</b>	Lat/Long	<b>Easting:</b>	3,469,889.54 usft
<b>Position Uncertainty:</b>	0.00 usft	<b>Slot Radius:</b>	13.20 in
		<b>Latitude:</b>	40.853825°N
		<b>Longitude:</b>	103.801372°W
		<b>Grid Convergence:</b>	1.10 °

<b>Well</b>	Horsetail #07F-1838		
<b>Well Position</b>	<b>+N-S</b>	0.00 usft	<b>Northing:</b> 1,558,396.34 usft
	<b>+E-W</b>	0.00 usft	<b>Easting:</b> 3,471,331.45 usft
<b>Position Uncertainty</b>	0.00 usft	<b>Wellhead Elevation:</b>	0.00 usft
		<b>Latitude:</b>	40.853745°N
		<b>Longitude:</b>	103.796161°W
		<b>Ground Level:</b>	4,899.00 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	1/9/2017	7.76	67.37	52,773

<b>Survey Program</b>	<b>Date</b>	1/25/2017			
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>	
133.00	14,082.00	Survey #1 (Original Hole)	MWD+IFR1+MS+sag	Fixed:v2:crustal dec & 3-axis correction + sag	
14,140.00	14,140.00	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>	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
<b>SL #07F-1838</b>										
133.00	0.67	174.20	133.00	-0.77	0.08	0.77	0.50	0.50	0.00	
228.00	0.49	170.03	227.99	-1.73	0.21	1.71	0.19	-0.19	-4.39	
323.00	0.59	172.54	322.99	-2.61	0.34	2.59	0.11	0.11	2.64	
418.00	1.36	300.22	417.98	-2.53	-0.57	2.56	1.88	0.81	134.40	
512.00	3.75	309.18	511.88	-0.03	-3.92	0.25	2.57	2.54	9.53	
607.00	5.89	312.10	606.54	5.21	-9.94	-4.63	2.27	2.25	3.07	
702.00	9.04	308.92	700.72	13.16	-19.37	-12.05	3.34	3.32	-3.35	
797.00	8.92	308.73	794.56	22.46	-30.92	-20.67	0.13	-0.13	-0.20	
891.00	8.19	305.88	887.51	30.95	-42.03	-28.51	0.90	-0.78	-3.03	
986.00	7.74	304.79	981.59	38.56	-52.77	-35.51	0.50	-0.47	-1.15	
1,081.00	7.27	298.48	1,075.78	45.08	-63.31	-41.42	1.00	-0.49	-6.64	
1,175.00	7.61	300.98	1,168.99	51.12	-73.87	-46.85	0.50	0.36	2.66	
1,270.00	7.62	299.01	1,263.15	57.41	-84.77	-52.51	0.27	0.01	-2.07	
1,365.00	7.74	297.49	1,357.30	63.42	-95.96	-57.88	0.25	0.13	-1.60	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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)
1,460.00	8.91	305.43	1,451.30	70.64	-107.63	-64.42	1.72	1.23	8.36
1,554.00	9.00	311.33	1,544.16	79.71	-119.08	-72.83	0.98	0.10	6.28
1,649.00	9.35	310.73	1,637.94	89.65	-130.51	-82.11	0.38	0.37	-0.63
1,744.00	8.66	307.76	1,731.77	99.07	-142.01	-90.86	0.88	-0.73	-3.13
1,839.00	7.23	307.74	1,825.86	107.11	-152.39	-98.30	1.51	-1.51	-0.02
1,934.00	5.90	304.37	1,920.23	113.52	-161.15	-104.21	1.46	-1.40	-3.55
2,015.00	5.18	303.71	2,000.85	117.90	-167.63	-108.21	0.89	-0.89	-0.81
2,128.00	3.52	292.74	2,113.53	122.08	-175.07	-111.95	1.64	-1.47	-9.71
2,223.00	8.32	324.49	2,208.01	128.80	-181.76	-118.29	5.93	5.05	33.42
2,317.00	10.02	330.47	2,300.81	141.46	-189.74	-130.47	2.07	1.81	6.36
2,412.00	9.68	330.69	2,394.41	155.61	-197.72	-144.15	0.36	-0.36	0.23
2,507.00	9.21	331.68	2,488.12	169.27	-205.24	-157.36	0.52	-0.49	1.04
2,601.00	8.74	330.58	2,580.97	182.11	-212.32	-169.78	0.53	-0.50	-1.17
2,696.00	11.46	325.98	2,674.49	196.22	-221.14	-183.37	2.98	2.86	-4.84
2,791.00	11.40	325.76	2,767.61	211.81	-231.71	-198.33	0.08	-0.06	-0.23
2,886.00	11.70	325.89	2,860.68	227.54	-242.39	-213.44	0.32	0.32	0.14
2,981.00	11.05	323.22	2,953.82	242.81	-253.24	-228.06	0.88	-0.68	-2.81
3,075.00	12.07	307.47	3,045.93	256.01	-266.44	-240.49	3.52	1.09	-16.76
3,170.00	11.46	304.98	3,138.94	267.46	-282.06	-251.04	0.84	-0.64	-2.62
3,265.00	10.38	302.20	3,232.22	277.43	-297.03	-260.15	1.26	-1.14	-2.93
3,359.00	9.25	301.17	3,324.84	285.86	-310.66	-267.79	1.22	-1.20	-1.10
3,454.00	8.49	298.79	3,418.70	293.19	-323.34	-274.38	0.89	-0.80	-2.51
3,549.00	10.38	296.23	3,512.41	300.35	-337.17	-280.75	2.04	1.99	-2.69
3,643.00	10.62	293.65	3,604.84	307.56	-352.70	-287.07	0.56	0.26	-2.74
3,738.00	11.38	300.24	3,698.10	315.80	-368.81	-294.38	1.55	0.80	6.94
3,833.00	10.17	298.59	3,791.42	324.53	-384.28	-302.22	1.31	-1.27	-1.74
3,927.00	9.34	305.99	3,884.06	332.99	-397.74	-309.90	1.60	-0.88	7.87
4,022.00	8.41	310.05	3,977.93	341.99	-409.29	-318.23	1.18	-0.98	4.27
4,117.00	7.78	311.88	4,071.98	350.75	-419.40	-326.41	0.72	-0.66	1.93
4,211.00	7.41	313.10	4,165.15	359.14	-428.56	-334.26	0.43	-0.39	1.30
4,306.00	9.65	308.27	4,259.10	368.26	-439.29	-342.76	2.47	2.36	-5.08
4,401.00	9.18	308.05	4,352.82	377.86	-451.50	-351.65	0.50	-0.49	-0.23
4,496.00	8.51	310.85	4,446.69	387.13	-462.79	-360.27	0.84	-0.71	2.95
4,590.00	8.26	315.16	4,539.69	396.46	-472.81	-369.02	0.72	-0.27	4.59
4,685.00	6.93	316.40	4,633.85	405.45	-481.58	-377.50	1.41	-1.40	1.31
4,780.00	5.82	316.41	4,728.26	413.09	-488.85	-384.71	1.17	-1.17	0.01
4,874.00	5.12	312.33	4,821.83	419.37	-495.24	-390.62	0.85	-0.74	-4.34
4,969.00	4.09	314.51	4,916.53	424.60	-500.79	-395.53	1.10	-1.08	2.29
5,064.00	3.31	308.85	5,011.33	428.69	-505.34	-399.36	0.91	-0.82	-5.96
5,158.00	3.13	313.04	5,105.18	432.15	-509.33	-402.58	0.32	-0.19	4.46
5,253.00	1.87	318.22	5,200.09	435.07	-512.26	-405.33	1.35	-1.33	5.45
5,285.00	1.90	311.50	5,232.07	435.82	-513.00	-406.03	0.70	0.09	-21.00
5,381.00	3.85	209.67	5,327.99	434.07	-515.79	-404.13	4.82	2.03	-106.07
5,475.00	14.77	188.67	5,420.63	419.43	-519.17	-389.33	11.98	11.62	-22.34

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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)
5,570.00	24.92	188.33	5,509.87	387.58	-523.91	-357.25	10.68	10.68	-0.36
5,665.00	34.20	186.35	5,592.41	341.14	-529.77	-310.55	9.82	9.77	-2.08
5,760.00	39.66	180.59	5,668.35	284.23	-533.04	-253.55	6.80	5.75	-6.06
5,854.00	41.99	176.13	5,739.49	222.84	-531.23	-192.36	3.97	2.48	-4.74
5,949.00	42.47	176.61	5,809.83	159.12	-527.19	-128.97	0.61	0.51	0.51
6,044.00	49.73	179.47	5,875.67	90.76	-524.95	-60.85	7.94	7.64	3.01
6,138.00	59.56	186.04	5,930.03	14.36	-528.89	15.65	11.90	10.46	6.99
6,233.00	71.88	186.39	5,969.02	-71.56	-538.26	101.96	12.97	12.97	0.37
6,328.00	79.98	180.89	5,992.11	-163.41	-544.03	193.99	10.21	8.53	-5.79
6,376.00	81.30	180.24	5,999.92	-210.77	-544.50	241.30	3.05	2.74	-1.36
<b>100' Entry</b>									
6,422.00	82.56	179.62	6,006.38	-256.31	-544.44	286.77	3.05	2.75	-1.35
6,517.00	89.67	180.05	6,012.81	-351.03	-544.17	381.32	7.50	7.48	0.45
<b>7" Casing PT</b>									
6,612.00	89.37	179.39	6,013.61	-446.03	-543.70	476.14	0.76	-0.32	-0.69
6,706.00	87.85	177.08	6,015.89	-539.95	-540.81	569.74	2.94	-1.62	-2.46
6,801.00	87.34	176.96	6,019.88	-634.73	-535.88	664.09	0.55	-0.54	-0.13
6,895.00	88.24	178.44	6,023.50	-728.59	-532.11	757.58	1.84	0.96	1.57
6,990.00	90.29	179.83	6,024.72	-823.56	-530.67	852.32	2.61	2.16	1.46
7,085.00	90.68	179.10	6,023.92	-918.55	-529.79	947.11	0.87	0.41	-0.77
7,179.00	90.73	179.11	6,022.76	-1,012.53	-528.32	1,040.86	0.05	0.05	0.01
7,274.00	90.21	178.53	6,021.98	-1,107.51	-526.36	1,135.57	0.82	-0.55	-0.61
7,369.00	90.57	177.38	6,021.33	-1,202.44	-522.97	1,230.16	1.27	0.38	-1.21
7,463.00	87.08	176.82	6,023.26	-1,296.29	-518.22	1,323.58	3.76	-3.71	-0.60
7,558.00	86.74	176.58	6,028.38	-1,390.99	-512.76	1,417.83	0.44	-0.36	-0.25
7,652.00	88.53	179.71	6,032.26	-1,484.85	-509.72	1,511.36	3.83	1.90	3.33
7,747.00	88.52	179.95	6,034.71	-1,579.82	-509.44	1,606.16	0.25	-0.01	0.25
7,842.00	90.42	179.79	6,035.59	-1,674.81	-509.22	1,700.98	2.01	2.00	-0.17
7,937.00	90.72	179.97	6,034.64	-1,769.80	-509.02	1,795.81	0.37	0.32	0.19
8,032.00	90.31	180.24	6,033.79	-1,864.80	-509.20	1,890.67	0.52	-0.43	0.28
8,126.00	91.28	181.46	6,032.48	-1,958.78	-510.59	1,984.57	1.66	1.03	1.30
8,221.00	90.85	181.69	6,030.72	-2,053.72	-513.20	2,079.52	0.51	-0.45	0.24
8,315.00	91.22	180.62	6,029.02	-2,147.69	-515.10	2,173.44	1.20	0.39	-1.14
8,410.00	90.75	180.96	6,027.39	-2,242.66	-516.41	2,268.33	0.61	-0.49	0.36
8,504.00	89.96	178.44	6,026.80	-2,336.65	-515.91	2,362.14	2.81	-0.84	-2.68
8,599.00	90.26	178.08	6,026.62	-2,431.61	-513.03	2,456.78	0.49	0.32	-0.38
8,693.00	90.48	177.54	6,026.01	-2,525.54	-509.44	2,550.36	0.62	0.23	-0.57
8,788.00	90.14	176.74	6,025.50	-2,620.42	-504.70	2,644.82	0.91	-0.36	-0.84
8,883.00	89.36	179.19	6,025.91	-2,715.35	-501.32	2,739.40	2.71	-0.82	2.58
8,977.00	88.78	179.58	6,027.44	-2,809.33	-500.32	2,833.18	0.74	-0.62	0.41
9,070.00	88.48	179.57	6,029.66	-2,902.30	-499.63	2,925.96	0.32	-0.32	-0.01
9,164.00	88.93	179.92	6,031.79	-2,996.28	-499.21	3,019.76	0.61	0.48	0.37
9,257.00	88.34	179.72	6,034.00	-3,089.25	-498.92	3,112.56	0.67	-0.63	-0.22

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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)	
9,350.00	89.87	179.64	6,035.46	-3,182.23	-498.40	3,205.37	1.65	1.65	-0.09	
9,443.00	90.41	179.09	6,035.23	-3,275.23	-497.37	3,298.16	0.83	0.58	-0.59	
9,537.00	90.63	178.50	6,034.38	-3,369.20	-495.39	3,391.87	0.67	0.23	-0.63	
9,630.00	91.06	178.30	6,033.00	-3,462.15	-492.79	3,484.52	0.51	0.46	-0.22	
9,723.00	91.45	178.37	6,030.97	-3,555.09	-490.09	3,577.16	0.43	0.42	0.08	
9,816.00	91.58	178.59	6,028.51	-3,648.03	-487.62	3,669.80	0.27	0.14	0.24	
9,909.00	92.20	178.25	6,025.44	-3,740.94	-485.06	3,762.42	0.76	0.67	-0.37	
10,002.00	90.47	179.86	6,023.27	-3,833.90	-483.53	3,855.14	2.54	-1.86	1.73	
10,095.00	89.17	180.14	6,023.57	-3,926.89	-483.53	3,947.99	1.43	-1.40	0.30	
10,188.00	88.90	179.25	6,025.13	-4,019.88	-483.03	4,040.80	1.00	-0.29	-0.96	
10,281.00	89.31	179.36	6,026.59	-4,112.86	-481.91	4,133.57	0.46	0.44	0.12	
10,374.00	89.72	179.33	6,027.37	-4,205.85	-480.84	4,226.35	0.44	0.44	-0.03	
10,468.00	90.00	179.82	6,027.60	-4,299.85	-480.15	4,320.15	0.60	0.30	0.52	
10,561.00	90.48	179.84	6,027.21	-4,392.85	-479.87	4,412.99	0.52	0.52	0.02	
10,654.00	89.77	179.68	6,027.01	-4,485.84	-479.48	4,505.81	0.78	-0.76	-0.17	
10,748.00	89.66	179.94	6,027.48	-4,579.84	-479.17	4,599.64	0.30	-0.12	0.28	
10,841.00	88.87	179.42	6,028.67	-4,672.83	-478.65	4,692.45	1.02	-0.85	-0.56	
10,934.00	88.86	178.60	6,030.51	-4,765.80	-477.04	4,785.18	0.88	-0.01	-0.88	
11,028.00	88.93	177.51	6,032.33	-4,859.73	-473.85	4,878.77	1.16	0.07	-1.16	
11,121.00	91.05	178.63	6,032.34	-4,952.67	-470.72	4,971.39	2.58	2.28	1.20	
11,214.00	91.48	177.62	6,030.29	-5,045.59	-467.68	5,063.99	1.18	0.46	-1.09	
11,308.00	91.48	177.50	6,027.86	-5,139.48	-463.68	5,157.50	0.13	0.00	-0.13	
11,401.00	90.87	179.97	6,025.95	-5,232.43	-461.63	5,250.18	2.74	-0.66	2.66	
11,494.00	90.12	178.24	6,025.15	-5,325.41	-460.17	5,342.93	2.03	-0.81	-1.86	
11,588.00	90.37	178.56	6,024.75	-5,419.37	-457.55	5,436.59	0.43	0.27	0.34	
11,681.00	90.97	178.16	6,023.66	-5,512.32	-454.89	5,529.25	0.78	0.65	-0.43	
11,774.00	88.76	180.59	6,023.88	-5,605.31	-453.87	5,622.02	3.53	-2.38	2.61	
11,869.00	88.43	180.44	6,026.21	-5,700.27	-454.73	5,716.88	0.38	-0.35	-0.16	
11,964.00	90.39	180.79	6,027.19	-5,795.26	-455.75	5,811.77	2.10	2.06	0.37	
12,058.00	90.64	180.91	6,026.34	-5,889.24	-457.14	5,905.69	0.30	0.27	0.13	
12,152.00	90.95	180.25	6,025.04	-5,983.23	-458.09	5,999.58	0.78	0.33	-0.70	
12,247.00	91.05	180.46	6,023.38	-6,078.21	-458.68	6,094.44	0.24	0.11	0.22	
12,342.00	91.64	180.04	6,021.15	-6,173.18	-459.10	6,189.28	0.76	0.62	-0.44	
12,436.00	89.87	179.32	6,019.91	-6,267.17	-458.57	6,283.09	2.03	-1.88	-0.77	
12,531.00	90.54	179.05	6,019.57	-6,362.16	-457.22	6,377.85	0.76	0.71	-0.28	
12,626.00	88.66	179.86	6,020.23	-6,457.15	-456.32	6,472.63	2.15	-1.98	0.85	
12,720.00	89.12	179.67	6,022.06	-6,551.13	-455.93	6,566.44	0.53	0.49	-0.20	
12,815.00	88.99	178.48	6,023.62	-6,646.10	-454.40	6,661.17	1.26	-0.14	-1.25	
12,909.00	90.59	178.13	6,023.97	-6,740.06	-451.62	6,754.82	1.74	1.70	-0.37	
13,004.00	90.27	178.09	6,023.25	-6,835.00	-448.48	6,849.44	0.34	-0.34	-0.04	
13,099.00	90.57	180.19	6,022.56	-6,929.98	-447.06	6,944.18	2.23	0.32	2.21	
13,193.00	90.80	179.80	6,021.43	-7,023.98	-447.05	7,038.03	0.48	0.24	-0.41	
13,288.00	90.59	178.88	6,020.28	-7,118.96	-445.96	7,132.80	0.99	-0.22	-0.97	
13,382.00	91.03	177.91	6,018.95	-7,212.92	-443.32	7,226.45	1.13	0.47	-1.03	

# Precision Drilling Corporation

## Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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)
13,477.00	91.56	180.39	6,016.81	-7,307.87	-441.91	7,321.17	2.67	0.56	2.61
13,571.00	92.21	179.00	6,013.71	-7,401.82	-441.41	7,414.94	1.63	0.69	-1.48
13,666.00	91.08	180.67	6,010.99	-7,496.77	-441.14	7,509.73	2.12	-1.19	1.76
13,761.00	91.57	179.91	6,008.79	-7,591.75	-441.62	7,604.57	0.95	0.52	-0.80
13,856.00	89.14	180.77	6,008.20	-7,686.73	-442.19	7,699.44	2.71	-2.56	0.91
13,950.00	88.73	179.92	6,009.95	-7,780.72	-442.75	7,793.30	1.00	-0.44	-0.90
14,045.00	88.81	179.32	6,011.99	-7,875.69	-442.12	7,888.09	0.64	0.08	-0.63
14,082.00	89.05	179.23	6,012.68	-7,912.68	-441.65	7,924.99	0.69	0.65	-0.24
14,135.16	89.05	179.23	6,013.56	-7,965.83	-440.94	7,978.01	0.00	0.00	0.00
<b>PBHL #07F-1838</b>									
14,136.00	89.05	179.23	6,013.57	-7,966.67	-440.93	7,978.85	0.00	0.00	0.00
<b>100' Exit</b>									
14,140.00	89.05	179.23	6,013.64	-7,970.67	-440.87	7,982.84	0.00	0.00	0.00

### Design Targets

Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N-S (usft)	+E-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
SL #07F-1838 - hit/miss target - Shape - Point	0.00	0.00	0.00	0.00	0.00	1,558,396.34	3,471,331.45	40.853745°N	103.796161°W
100' Entry #07F-1838 - actual wellpath hits target center - Point	0.00	0.00	5,999.92	-210.77	-544.50	1,558,175.15	3,470,791.10	40.853166°N	103.798130°W
7" Casing PT #07F-1838 - actual wellpath hits target center - Point	0.00	0.00	6,012.81	-351.03	-544.17	1,558,034.92	3,470,794.12	40.852781°N	103.798128°W
100' Exit #07F-1838 - actual wellpath hits target center - Point	0.00	0.00	6,013.57	-7,966.67	-440.93	1,550,422.67	3,471,043.66	40.831879°N	103.797755°W
BHL #07F-1838 - actual wellpath hits target center - Point	0.00	0.00	6,013.64	-7,970.67	-440.87	1,550,418.68	3,471,043.80	40.831868°N	103.797755°W
PBHL #07F-1838 - actual wellpath misses target center by 11.14usft at 14135.16usft MD (6013.56 TVD, -7965.83 N, -440.94 E) - Point	0.00	0.00	6,015.00	-7,965.95	-451.98	1,550,423.18	3,471,032.60	40.831881°N	103.797795°W

### Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	+N-S (usft)	+E-W (usft)	Comment
6,376.00	5,999.92	-210.77	-544.50	100' Entry
6,517.00	6,012.81	-351.03	-544.17	7" Casing PT
14,136.00	6,013.57	-7,966.67	-440.93	100' Exit

Precision Drilling Corporation  
Survey Report

<b>Company:</b>	WHITING PETROLEUM CORP.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #07F-1838
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Site:</b>	Sec 7-T10N-R57W	<b>MD Reference:</b>	4899'GL+21'KB @ 4920.00usft (Unit 406)
<b>Well:</b>	Horsetail #07F-1838	<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

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