



WHITING PETROLEUM CORP.

Project: Weld County, CO

Site: Sec 8-T10N-R57W

Well: Horsetail #08C-1707

Wellbore: Original Hole

Design: Original Hole



Precision
Directional Services

LEGEND

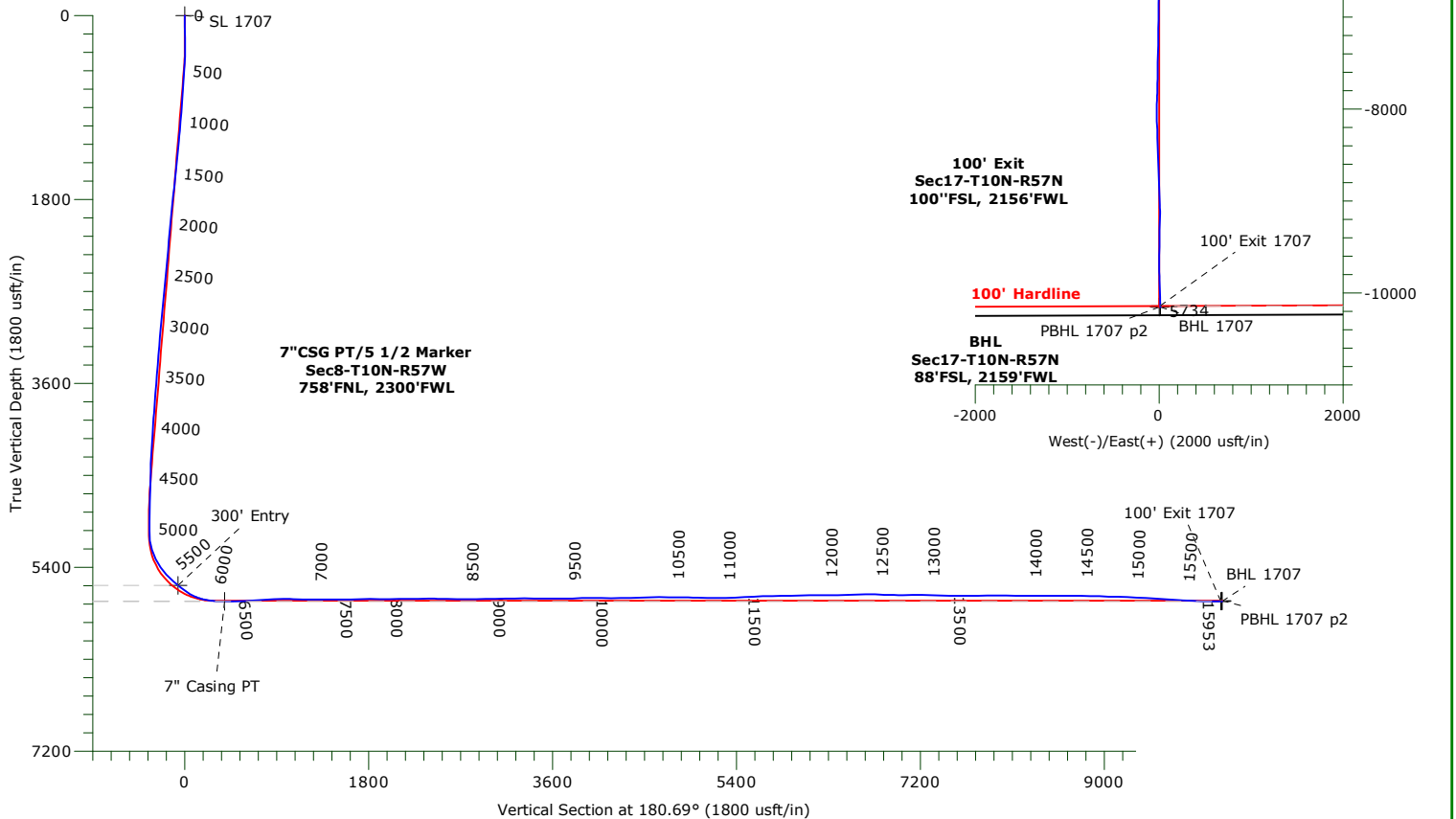
- Horsetail #08C-1707, Original Hole, Plan #2 V0
- Original Hole

ANNOTATIONS

TVD	MD	+N/-S	+E/-W	Annotation
5579.56	5689.00	65.74	32.74	300' Entry
5735.70	6185.00	-390.69	15.65	7" Casing PT
5733.77	15941.00	-10139.98	13.91	100' Exit 1707

MWD CORRECTION

WILL BE PROVIDED BY MAGVAR



WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1707	0.00	0.00	0.00	1560699.87	3476550.90	40° 51' 35.240 N	103° 46' 37.690 W	Point
300' Entry 1707	5579.56	65.74	32.74	1560766.23	3476582.36	40° 51' 35.889 N	103° 46' 37.264 W	Point
PBHL 1707 p2	5730.00	-10152.01	0.77	1550549.79	3476748.90	40° 49' 54.930 N	103° 46' 37.680 W	Point
BHL 1707	5733.65	-10151.98	14.20	1550550.08	3476762.33	40° 49' 54.930 N	103° 46' 37.505 W	Point
100' Exit 1707	5733.77	-10139.98	13.91	1550562.07	3476761.81	40° 49' 55.049 N	103° 46' 37.509 W	Point
7" Casing PT 1707	5735.70	-390.69	15.65	1560309.56	3476574.14	40° 51' 31.380 N	103° 46' 37.486 W	Point

WHITING PETROLEUM CORP.

Weld County, CO

Sec 8-T10N-R57W

Horsetail #08C-1707

Original Hole

Design: Original Hole

Standard Survey Report

31 May, 2016

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08C-1707
Project:	Weld County, CO	TVD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Well:	Horsetail #08C-1707	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 8-T10N-R57W		
Site Position:		Northing:	1,561,022.64 usft
From:	Lat/Long	Easting:	3,474,249.13 usft
Position Uncertainty:	0.0 usft	Slot Radius:	13.20 in
		Latitude:	40° 51' 38.869 N
		Longitude:	103° 47' 7.559 W
		Grid Convergence:	1.11 °

Well	Horsetail #08C-1707		
Well Position	+N/-S	0.0 usft	Northing:
	+E/-W	0.0 usft	Easting:
Position Uncertainty	0.0 usft		Wellhead Elevation:
			Latitude:
			Longitude:
			Ground Level:

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2015	4/25/2016	7.83	67.40	52,860

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	180.69	

Survey Program	Date 5/31/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
222.0	15,889.0	Survey #1 (Original Hole)	MWD+IFR1+MS	Fixed:v2:crustal dec & 3-axis correction	
15,953.0	15,953.0	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	
222.0	1.35	165.38	222.0	-2.5	0.7	2.5	0.61	0.61	0.00	
313.0	0.71	87.66	313.0	-3.5	1.5	3.5	1.52	-0.70	-85.41	
405.0	2.28	30.65	404.9	-1.9	3.0	1.9	2.16	1.71	-61.97	
496.0	4.13	16.61	495.8	2.8	4.9	-2.8	2.19	2.03	-15.43	
588.0	4.21	19.40	587.5	9.1	6.9	-9.2	0.24	0.09	3.03	
678.0	4.15	19.49	677.3	15.3	9.1	-15.4	0.07	-0.07	0.10	
769.0	3.99	18.20	768.1	21.4	11.2	-21.5	0.20	-0.18	-1.42	
859.0	3.71	15.69	857.9	27.2	13.0	-27.3	0.36	-0.31	-2.79	
951.0	4.91	13.18	949.6	33.9	14.7	-34.1	1.32	1.30	-2.73	

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Well:	Horsetail #08C-1707	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)
1,042.0	5.02	12.33	1,040.3	41.6	16.4	-41.8	0.15	0.12	-0.93
1,134.0	4.74	13.84	1,131.9	49.2	18.2	-49.4	0.33	-0.30	1.64
1,226.0	5.74	358.46	1,223.6	57.5	19.0	-57.7	1.86	1.09	-16.72
1,317.0	5.89	1.63	1,314.1	66.7	19.0	-66.9	0.39	0.16	3.48
1,409.0	5.92	4.83	1,405.6	76.1	19.5	-76.4	0.36	0.03	3.48
1,500.0	6.01	5.64	1,496.1	85.6	20.4	-85.8	0.14	0.10	0.89
1,591.0	5.54	5.06	1,586.6	94.7	21.2	-94.9	0.52	-0.52	-0.64
1,683.0	5.89	8.95	1,678.2	103.8	22.3	-104.0	0.57	0.38	4.23
1,774.0	6.15	353.75	1,768.7	113.2	22.5	-113.5	1.77	0.29	-16.70
1,866.0	6.23	349.02	1,860.2	123.0	21.1	-123.3	0.56	0.09	-5.14
1,958.0	5.29	349.99	1,951.7	132.1	19.4	-132.3	1.03	-1.02	1.05
2,116.0	5.40	344.06	2,109.0	146.4	16.1	-146.6	0.36	0.07	-3.75
2,210.0	5.59	340.36	2,202.6	155.0	13.3	-155.1	0.43	0.20	-3.94
2,305.0	5.38	338.58	2,297.1	163.5	10.1	-163.6	0.28	-0.22	-1.87
2,399.0	5.35	336.48	2,390.7	171.6	6.8	-171.7	0.21	-0.03	-2.23
2,493.0	5.78	350.17	2,484.3	180.3	4.2	-180.3	1.48	0.46	14.56
2,587.0	5.49	347.20	2,577.8	189.3	2.4	-189.4	0.44	-0.31	-3.16
2,964.0	5.40	355.33	2,953.1	224.6	-3.0	-224.6	0.21	-0.02	2.16
3,059.0	5.24	354.19	3,047.7	233.4	-3.8	-233.3	0.20	-0.17	-1.20
3,153.0	4.98	354.40	3,141.4	241.7	-4.7	-241.6	0.28	-0.28	0.22
3,247.0	5.38	19.40	3,235.0	249.9	-3.6	-249.9	2.42	0.43	26.60
3,342.0	4.79	15.86	3,329.6	257.9	-1.0	-257.9	0.70	-0.62	-3.73
3,436.0	4.57	19.19	3,423.3	265.3	1.3	-265.3	0.37	-0.23	3.54
3,530.0	4.65	22.16	3,517.0	272.3	3.9	-272.3	0.27	0.09	3.16
3,624.0	4.96	24.02	3,610.7	279.6	7.0	-279.6	0.37	0.33	1.98
3,719.0	5.10	25.65	3,705.3	287.1	10.5	-287.2	0.21	0.15	1.72
3,814.0	4.87	27.33	3,799.9	294.5	14.2	-294.7	0.29	-0.24	1.77
3,908.0	4.89	29.43	3,893.6	301.5	18.0	-301.7	0.19	0.02	2.23
4,002.0	3.75	20.48	3,987.3	307.9	21.0	-308.1	1.41	-1.21	-9.52
4,120.0	4.06	21.72	4,105.1	315.4	23.9	-315.7	0.27	0.26	1.05
4,214.0	3.78	20.33	4,198.8	321.4	26.2	-321.7	0.31	-0.30	-1.48
4,309.0	3.37	345.19	4,293.7	327.0	26.6	-327.3	2.31	-0.43	-36.99
4,403.0	1.89	0.37	4,387.6	331.3	25.9	-331.5	1.73	-1.57	16.15
4,498.0	1.44	13.62	4,482.5	334.0	26.2	-334.3	0.62	-0.47	13.95
4,592.0	2.15	324.73	4,576.5	336.6	25.5	-336.9	1.72	0.76	-52.01
4,686.0	1.37	325.84	4,670.4	338.9	23.8	-339.2	0.83	-0.83	1.18
4,780.0	2.12	307.19	4,764.4	340.9	21.8	-341.2	0.99	0.80	-19.84
4,968.0	1.83	314.96	4,952.3	345.1	16.9	-345.3	0.21	-0.15	4.13
5,062.0	1.90	311.09	5,046.2	347.2	14.7	-347.4	0.15	0.07	-4.12
5,157.0	7.01	181.24	5,141.0	342.5	13.4	-342.6	8.79	5.38	-136.68
5,251.0	18.96	176.89	5,232.4	321.4	14.1	-321.6	12.75	12.71	-4.63
5,345.0	26.36	173.88	5,319.1	285.4	17.1	-285.5	7.97	7.87	-3.20
5,440.0	34.69	172.68	5,400.9	237.5	22.8	-237.7	8.79	8.77	-1.26

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Survey Report

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Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
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Survey										
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5,534.0	43.66	172.90	5,473.7	178.6	30.3	-179.0	9.54	9.54	0.23	
5,628.0	47.52	180.05	5,539.5	111.7	34.3	-112.1	6.81	4.11	7.61	
5,723.0	52.05	185.50	5,600.9	39.3	30.6	-39.7	6.47	4.77	5.74	
5,817.0	56.95	183.49	5,655.4	-36.9	24.7	36.6	5.50	5.21	-2.14	
5,912.0	70.70	181.51	5,697.2	-121.9	21.1	121.7	14.59	14.47	-2.08	
6,006.0	79.04	181.89	5,721.7	-212.5	18.4	212.3	8.88	8.87	0.40	
6,101.0	87.06	180.68	5,733.2	-306.7	16.3	306.5	8.54	8.44	-1.27	
6,195.0	89.87	180.08	5,735.8	-400.7	15.6	400.5	3.06	2.99	-0.64	
6,290.0	90.66	178.91	5,735.3	-495.7	16.5	495.4	1.49	0.83	-1.23	
6,384.0	93.47	179.63	5,731.9	-589.6	17.7	589.3	3.09	2.99	0.77	
6,478.0	94.16	181.59	5,725.7	-683.4	16.7	683.1	2.21	0.73	2.09	
6,573.0	93.72	182.44	5,719.1	-778.1	13.3	777.9	1.01	-0.46	0.89	
6,667.0	91.78	183.12	5,714.6	-871.9	8.8	871.7	2.19	-2.06	0.72	
6,761.0	90.82	184.54	5,712.5	-965.6	2.5	965.5	1.82	-1.02	1.51	
6,856.0	88.20	183.46	5,713.3	-1,060.4	-4.1	1,060.4	2.98	-2.76	-1.14	
6,950.0	88.45	182.91	5,716.1	-1,154.2	-9.3	1,154.2	0.64	0.27	-0.59	
7,044.0	89.76	182.17	5,717.5	-1,248.1	-13.5	1,248.2	1.60	1.39	-0.79	
7,138.0	89.85	181.01	5,717.9	-1,342.1	-16.1	1,342.2	1.24	0.10	-1.23	
7,233.0	90.53	180.67	5,717.5	-1,437.1	-17.5	1,437.2	0.80	0.72	-0.36	
7,327.0	90.27	179.18	5,716.9	-1,531.0	-17.4	1,531.1	1.61	-0.28	-1.59	
7,422.0	90.72	178.16	5,716.1	-1,626.0	-15.2	1,626.1	1.17	0.47	-1.07	
7,517.0	91.95	179.98	5,713.8	-1,721.0	-13.6	1,721.0	2.31	1.29	1.92	
7,610.0	89.44	179.21	5,712.7	-1,814.0	-13.0	1,814.0	2.82	-2.70	-0.83	
7,705.0	89.37	179.02	5,713.7	-1,908.9	-11.5	1,908.9	0.21	-0.07	-0.20	
7,799.0	90.17	178.27	5,714.1	-2,002.9	-9.3	2,002.9	1.17	0.85	-0.80	
7,893.0	91.26	178.43	5,712.9	-2,096.9	-6.6	2,096.8	1.17	1.16	0.17	
7,988.0	90.36	178.11	5,711.6	-2,191.8	-3.7	2,191.7	1.01	-0.95	-0.34	
8,082.0	90.96	177.25	5,710.5	-2,285.7	0.1	2,285.6	1.12	0.64	-0.91	
8,177.0	90.27	177.63	5,709.5	-2,380.6	4.3	2,380.4	0.83	-0.73	0.40	
8,271.0	89.09	179.62	5,710.0	-2,474.6	6.6	2,474.3	2.46	-1.26	2.12	
8,365.0	88.44	179.48	5,712.0	-2,568.6	7.3	2,568.3	0.71	-0.69	-0.15	
8,460.0	89.31	178.96	5,713.9	-2,663.5	8.6	2,663.2	1.07	0.92	-0.55	
8,554.0	90.52	178.16	5,714.0	-2,757.5	11.0	2,757.2	1.54	1.29	-0.85	
8,649.0	90.46	179.71	5,713.2	-2,852.5	12.7	2,852.1	1.63	-0.06	1.63	
8,743.0	91.50	180.33	5,711.6	-2,946.5	12.7	2,946.1	1.29	1.11	0.66	
8,837.0	90.61	181.30	5,709.9	-3,040.4	11.4	3,040.1	1.40	-0.95	1.03	
8,931.0	90.70	180.34	5,708.8	-3,134.4	10.0	3,134.1	1.03	0.10	-1.02	
9,025.0	91.47	179.49	5,707.0	-3,228.4	10.2	3,228.0	1.22	0.82	-0.90	
9,120.0	90.04	180.33	5,705.8	-3,323.4	10.3	3,323.0	1.75	-1.51	0.88	
9,214.0	89.52	180.01	5,706.1	-3,417.4	10.0	3,417.0	0.65	-0.55	-0.34	
9,308.0	90.57	180.21	5,706.0	-3,511.4	9.9	3,511.0	1.14	1.12	0.21	
9,402.0	89.43	181.60	5,706.0	-3,605.4	8.4	3,605.0	1.91	-1.21	1.48	
9,497.0	89.93	181.94	5,706.6	-3,700.3	5.4	3,700.0	0.64	0.53	0.36	

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Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	COMPASS_ROCKIES

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9,591.0	90.62	181.13	5,706.1	-3,794.3	2.9	3,794.0	1.13	0.73	-0.86	
9,686.0	92.25	181.23	5,703.7	-3,889.2	1.0	3,888.9	1.72	1.72	0.11	
9,780.0	89.63	179.59	5,702.2	-3,983.2	0.3	3,982.9	3.29	-2.79	-1.74	
9,874.0	88.92	177.62	5,703.4	-4,077.2	2.6	4,076.8	2.23	-0.76	-2.10	
9,969.0	89.80	177.61	5,704.5	-4,172.1	6.5	4,171.7	0.93	0.93	-0.01	
10,064.0	90.67	179.03	5,704.1	-4,267.0	9.3	4,266.6	1.75	0.92	1.49	
10,158.0	92.32	179.80	5,701.6	-4,361.0	10.3	4,360.6	1.94	1.76	0.82	
10,252.0	91.45	181.09	5,698.5	-4,454.9	9.5	4,454.5	1.65	-0.93	1.37	
10,346.0	91.72	181.15	5,695.9	-4,548.9	7.7	4,548.5	0.29	0.29	0.06	
10,441.0	89.73	182.75	5,694.7	-4,643.8	4.5	4,643.4	2.69	-2.09	1.68	
10,535.0	89.07	182.74	5,695.7	-4,737.7	0.0	4,737.4	0.70	-0.70	-0.01	
10,629.0	89.81	182.53	5,696.6	-4,831.6	-4.3	4,831.3	0.82	0.79	-0.22	
10,723.0	89.97	179.99	5,696.8	-4,925.6	-6.4	4,925.3	2.71	0.17	-2.70	
10,818.0	88.55	181.16	5,698.0	-5,020.5	-7.4	5,020.3	1.94	-1.49	1.23	
10,910.0	88.09	180.48	5,700.7	-5,112.5	-8.7	5,112.2	0.89	-0.50	-0.74	
11,001.0	89.37	179.26	5,702.7	-5,203.5	-8.5	5,203.2	1.94	1.41	-1.34	
11,092.0	91.54	180.21	5,702.0	-5,294.5	-8.1	5,294.2	2.60	2.38	1.04	
11,184.0	93.14	180.32	5,698.3	-5,386.4	-8.5	5,386.1	1.74	1.74	0.12	
11,275.0	92.46	180.56	5,693.8	-5,477.3	-9.2	5,477.0	0.79	-0.75	0.26	
11,367.0	93.53	180.65	5,689.0	-5,569.1	-10.1	5,568.9	1.17	1.16	0.10	
11,457.0	91.08	179.45	5,685.4	-5,659.1	-10.2	5,658.8	3.03	-2.72	-1.33	
11,548.0	91.04	180.07	5,683.7	-5,750.0	-9.8	5,749.7	0.68	-0.04	0.68	
11,639.0	91.28	180.39	5,681.9	-5,841.0	-10.2	5,840.7	0.44	0.26	0.35	
11,730.0	91.74	180.45	5,679.5	-5,932.0	-10.9	5,931.7	0.51	0.51	0.07	
11,821.0	90.47	178.08	5,677.7	-6,022.9	-9.7	6,022.6	2.95	-1.40	-2.60	
11,913.0	91.45	178.09	5,676.2	-6,114.9	-6.6	6,114.5	1.07	1.07	0.01	
12,005.0	89.48	178.36	5,675.4	-6,206.8	-3.8	6,206.4	2.16	-2.14	0.29	
12,096.0	89.96	178.03	5,675.9	-6,297.8	-0.9	6,297.3	0.64	0.53	-0.36	
12,188.0	91.51	178.65	5,674.7	-6,389.7	1.7	6,389.3	1.81	1.68	0.67	
12,280.0	91.53	180.32	5,672.3	-6,481.7	2.6	6,481.2	1.81	0.02	1.82	
12,371.0	92.38	180.31	5,669.1	-6,572.6	2.1	6,572.1	0.93	0.93	-0.01	
12,462.0	90.81	181.15	5,666.6	-6,663.6	0.9	6,663.1	1.96	-1.73	0.92	
12,553.0	87.97	181.46	5,667.6	-6,754.6	-1.2	6,754.1	3.14	-3.12	0.34	
12,645.0	87.97	180.74	5,670.8	-6,846.5	-2.9	6,846.0	0.78	0.00	-0.78	
12,737.0	88.80	180.36	5,673.4	-6,938.4	-3.8	6,938.0	0.99	0.90	-0.41	
12,829.0	90.15	181.01	5,674.3	-7,030.4	-4.9	7,030.0	1.63	1.47	0.71	
12,921.0	91.09	181.14	5,673.3	-7,122.4	-6.6	7,122.0	1.03	1.02	0.14	
13,012.0	89.14	180.86	5,673.1	-7,213.4	-8.2	7,213.0	2.16	-2.14	-0.31	
13,104.0	88.30	181.27	5,675.2	-7,305.3	-9.9	7,304.9	1.02	-0.91	0.45	
13,196.0	88.62	180.80	5,677.6	-7,397.3	-11.6	7,396.9	0.62	0.35	-0.51	
13,288.0	89.13	180.49	5,679.4	-7,489.3	-12.6	7,488.9	0.65	0.55	-0.34	
13,380.0	90.31	181.26	5,679.9	-7,581.3	-14.0	7,580.9	1.53	1.28	0.84	
13,471.0	90.05	180.65	5,679.6	-7,672.2	-15.5	7,671.9	0.73	-0.29	-0.67	
13,563.0	90.65	182.45	5,679.0	-7,764.2	-18.0	7,763.9	2.06	0.65	1.96	

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08C-1707
Project:	Weld County, CO	TVD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Well:	Horsetail #08C-1707	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)
13,654.0	89.96	180.47	5,678.6	-7,855.2	-20.4	7,854.9	2.30	-0.76	-2.18
13,746.0	91.03	182.12	5,677.8	-7,947.1	-22.4	7,946.8	2.14	1.16	1.79
13,838.0	88.90	179.99	5,677.8	-8,039.1	-24.1	8,038.8	3.27	-2.32	-2.32
13,930.0	88.45	178.49	5,679.9	-8,131.1	-22.9	8,130.8	1.70	-0.49	-1.63
14,021.0	89.30	177.71	5,681.7	-8,222.0	-19.9	8,221.7	1.27	0.93	-0.86
14,113.0	90.45	177.88	5,681.9	-8,313.9	-16.3	8,313.5	1.26	1.25	0.18
14,203.0	89.96	178.06	5,681.6	-8,403.9	-13.2	8,403.4	0.58	-0.54	0.20
14,294.0	90.36	178.43	5,681.4	-8,494.8	-10.4	8,494.4	0.60	0.44	0.41
14,384.0	90.81	178.00	5,680.4	-8,584.8	-7.6	8,584.3	0.69	0.50	-0.48
14,476.0	89.63	178.50	5,680.1	-8,676.7	-4.8	8,676.2	1.39	-1.28	0.54
14,568.0	89.32	177.84	5,680.9	-8,768.7	-1.8	8,768.1	0.79	-0.34	-0.72
14,659.0	88.39	177.74	5,682.7	-8,859.6	1.7	8,858.9	1.03	-1.02	-0.11
14,751.0	88.29	177.98	5,685.4	-8,951.5	5.1	8,950.8	0.28	-0.11	0.26
14,843.0	88.30	177.71	5,688.1	-9,043.4	8.6	9,042.6	0.29	0.01	-0.29
14,934.0	88.46	180.43	5,690.7	-9,134.3	10.1	9,133.6	2.99	0.18	2.99
15,025.0	87.66	181.08	5,693.8	-9,225.3	8.9	9,224.5	1.13	-0.88	0.71
15,116.0	86.86	181.04	5,698.1	-9,316.2	7.2	9,315.4	0.88	-0.88	-0.04
15,207.0	86.75	180.76	5,703.2	-9,407.0	5.7	9,406.3	0.33	-0.12	-0.31
15,298.0	86.62	181.09	5,708.5	-9,497.8	4.3	9,497.1	0.39	-0.14	0.36
15,389.0	86.70	180.34	5,713.8	-9,588.7	3.1	9,588.0	0.83	0.09	-0.82
15,480.0	86.71	179.90	5,719.0	-9,679.5	3.0	9,678.8	0.48	0.01	-0.48
15,570.0	86.53	179.19	5,724.3	-9,769.4	3.7	9,768.6	0.81	-0.20	-0.79
15,663.0	87.27	178.14	5,729.3	-9,862.2	5.8	9,861.4	1.38	0.80	-1.13
15,755.0	87.99	177.98	5,733.2	-9,954.1	8.9	9,953.3	0.80	0.78	-0.17
15,846.0	90.20	178.66	5,734.6	-10,045.0	11.6	10,044.2	2.54	2.43	0.75
15,889.0	90.58	178.60	5,734.3	-10,088.0	12.6	10,087.1	0.89	0.88	-0.14
15,953.0	90.58	178.60	5,733.6	-10,152.0	14.2	10,151.1	0.00	0.00	0.00

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08C-1707
Project:	Weld County, CO	TVD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4913'GL+21'KB @ 4934.0usft (Unit 409)
Well:	Horsetail #08C-1707	North Reference:	True
Wellbore:	Original Hole	Survey Calculation Method:	Minimum Curvature
Design:	Original Hole	Database:	COMPASS_ROCKIES

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 1707 - actual wellpath hits target center - Point	0.00	0.00	0.0	0.0	0.0	1,560,699.88	3,476,550.90	40° 51' 35.240 N	103° 46' 37.690 W
300' Entry 1707 - actual wellpath hits target center - Point	0.00	0.00	5,579.6	65.7	32.7	1,560,766.24	3,476,582.36	40° 51' 35.889 N	103° 46' 37.264 W
PBHL 1707 p2 - actual wellpath misses target center by 13.9usft at 15952.7usft MD (5733.7 TVD, -10151.7 N, 14.2 E) - Point	0.00	0.00	5,730.0	-10,152.0	0.8	1,550,549.79	3,476,748.90	40° 49' 54.930 N	103° 46' 37.680 W
BHL 1707 - actual wellpath hits target center - Point	0.00	0.00	5,733.6	-10,152.0	14.2	1,550,550.08	3,476,762.33	40° 49' 54.930 N	103° 46' 37.505 W
100' Exit 1707 - actual wellpath hits target center - Point	0.00	0.00	5,733.8	-10,140.0	13.9	1,550,562.08	3,476,761.80	40° 49' 55.049 N	103° 46' 37.509 W
7" Casing PT 1707 - actual wellpath hits target center - Point	0.00	0.00	5,735.7	-390.7	15.6	1,560,309.56	3,476,574.14	40° 51' 31.379 N	103° 46' 37.486 W

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,689.0	5,579.6	65.7	32.7	300' Entry
6,185.0	5,735.7	-390.7	15.6	7" Casing PT
15,941.0	5,733.8	-10,140.0	13.9	100' Exit 1707

Checked By: _____ Approved By: _____ Date: _____