



WHITING PETROLEUM CORP.

Project: Weld County, CO
Site: Sec 8-T10N-R57W
Well: Horsetail #08B-1711
Wellbore: Original Hole
Design: Original Hole



Precision
Directional Services

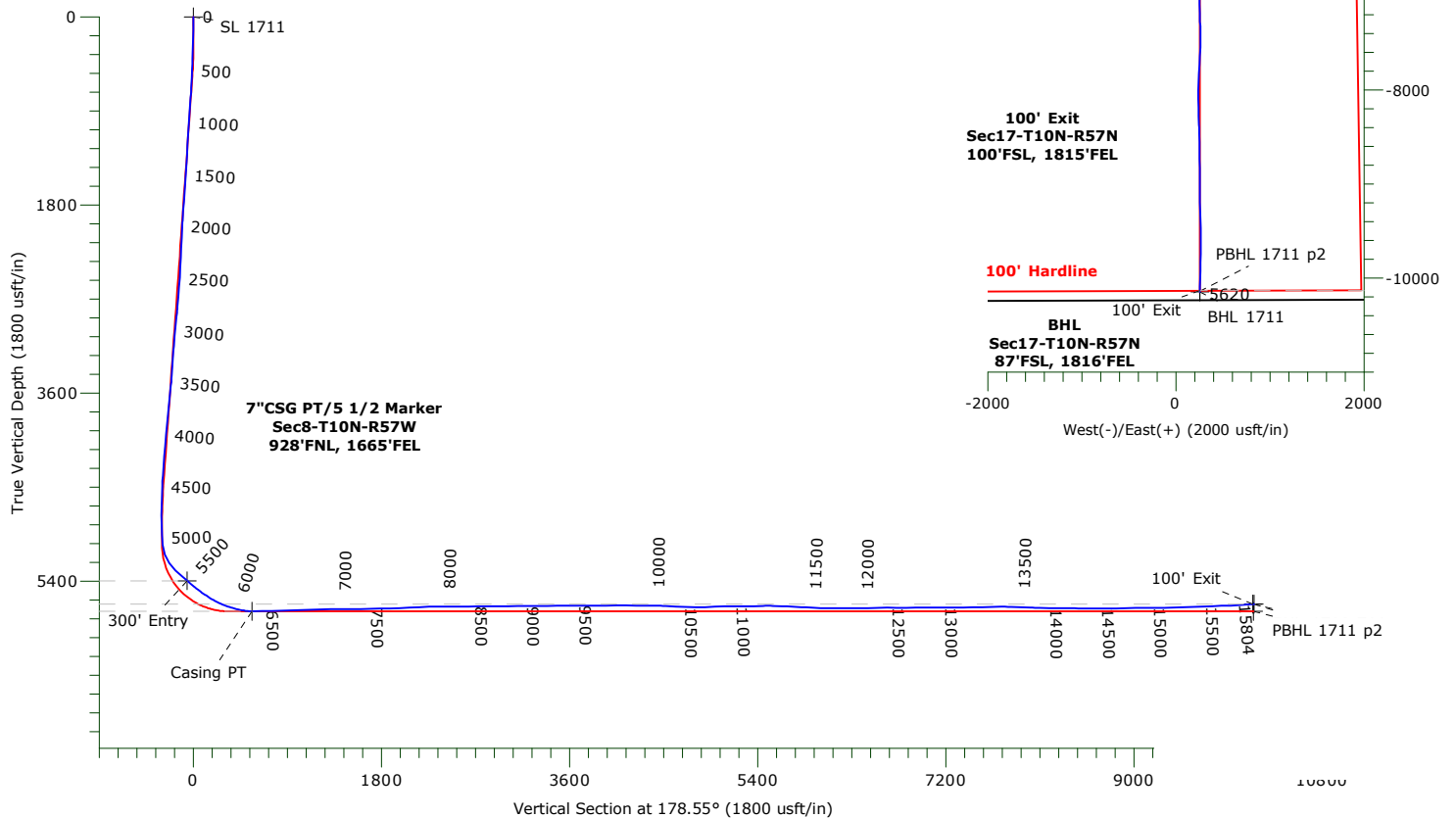
LEGEND

- Horsetail #08B-1711, Original Hole, Plan #2 V0
- Original Hole

ANNOTATIONS

TVD	MD	Inc	Azi	Annotation
5397.98	5504.00	48.98	178.54	300' Entry
5689.16	6207.00	90.05	179.91	Casing PT
5621.29	15791.00	94.86	181.64	100' Exit

MWD CORRECTION
WILL BE PROVIDED BY MAGVAR



WELLBORE TARGET DETAILS

Name	TVD	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Shape
SL 1711	0.00	0.00	0.00	1560719.00	3477638.01	40.859783°N	103.773206°W	Point
300' Entry 1711	5397.98	67.39	289.15	1560792.00	3477925.79	40.859968°N	103.772160°W	Point
BHL 1711	5620.19	-10145.65	256.18	1550580.26	3478091.70	40.831937°N	103.772280°W	Point
100' Exit 1711	5621.29	-10132.70	256.55	1550593.21	3478091.82	40.831972°N	103.772278°W	Point
7\" Casing PT Entry 1711	5689.16	-555.08	261.29	1560169.11	3477910.06	40.858260°N	103.772261°W	Point
PBHL 1711 p2	5690.00	-10139.87	256.75	1550586.05	3478092.16	40.831953°N	103.772278°W	Point

WHITING PETROLEUM CORP.

Weld County, CO

Sec 8-T10N-R57W

Horsetail #08B-1711

Original Hole

Design: Original Hole

Standard Survey Report

25 July, 2016

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08B-1711
Project:	Weld County, CO	TVD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Well:	Horsetail #08B-1711	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:	0.00 usft	Slot Radius:	13.20 in
		Latitude:	40.860797°N
		Longitude:	103.785433°W
		Grid Convergence:	1.11 °

Well	Horsetail #08B-1711		
Well Position	+N-S	0.00 usft	Northing: 1,560,719.00 usft
	+E-W	0.00 usft	Easting: 3,477,638.01 usft
Position Uncertainty	0.00 usft	Wellhead Elevation:	usft
		Latitude:	40.859783°N
		Longitude:	103.773206°W
		Ground Level:	4,890.00 usft

Wellbore	Original Hole				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	3/2/2015	7.85	67.44	53,077

Design	Original Hole				
Audit Notes:					
Version:	1.0	Phase:	ACTUAL	Tie On Depth:	0.00
Vertical Section:	Depth From (TVD) (usft)	+N-S (usft)	+E-W (usft)	Direction (°)	
	0.00	0.00	0.00	178.55	

Survey Program	Date 7/25/2016				
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
131.00	15,748.00	Survey #1 (Original Hole)	MWD+IFR1+MS+sag	Fixed:v2:crustal dec & 3-axis correction + sag OWSG BLIND	
15,804.00	15,804.00	Survey #2 (Original Hole)	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)	
0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
131.00	1.28	30.70	130.99	1.26	0.75	-1.24	0.98	0.98	0.00	
223.00	1.55	20.86	222.96	3.30	1.71	-3.26	0.39	0.29	-10.70	
314.00	1.87	36.13	313.92	5.65	3.03	-5.58	0.61	0.35	16.78	
405.00	1.64	35.45	404.88	7.91	4.66	-7.79	0.25	-0.25	-0.75	
497.00	3.24	30.04	496.79	11.24	6.72	-11.06	1.76	1.74	-5.88	
588.00	4.15	43.48	587.60	15.85	10.28	-15.59	1.37	1.00	14.77	
680.00	4.36	45.79	679.35	20.71	15.07	-20.32	0.29	0.23	2.51	
772.00	5.89	41.05	770.98	26.71	20.68	-26.17	1.72	1.66	-5.15	
863.00	5.49	40.55	861.53	33.53	26.58	-32.85	0.44	-0.44	-0.55	

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Site:	Sec 8-T10N-R57W	MD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Well:	Horsetail #08B-1711	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)
955.00	5.13	40.46	953.14	40.01	32.11	-39.18	0.39	-0.39	-0.10
1,047.00	4.96	44.27	1,044.78	45.99	37.55	-45.02	0.41	-0.18	4.14
1,138.00	4.91	43.02	1,135.44	51.65	42.96	-50.55	0.13	-0.05	-1.37
1,230.00	4.84	45.39	1,227.11	57.25	48.41	-56.01	0.23	-0.08	2.58
1,321.00	4.91	47.52	1,317.78	62.58	54.01	-61.19	0.21	0.08	2.34
1,412.00	5.97	46.08	1,408.37	68.49	60.29	-66.94	1.17	1.16	-1.58
1,504.00	6.05	51.46	1,499.86	74.83	67.53	-73.10	0.62	0.09	5.85
1,594.00	6.32	49.98	1,589.34	80.97	75.03	-79.05	0.35	0.30	-1.64
1,686.00	6.50	50.00	1,680.77	87.58	82.90	-85.45	0.20	0.20	0.02
1,776.00	5.97	48.70	1,770.23	93.94	90.32	-91.62	0.61	-0.59	-1.44
1,868.00	5.65	44.00	1,861.76	100.35	97.06	-97.87	0.62	-0.35	-5.11
1,959.00	5.40	48.49	1,952.34	106.42	103.38	-103.77	0.55	-0.27	4.93
1,971.00	5.61	46.60	1,964.28	107.19	104.23	-104.52	2.31	1.75	-15.75
2,124.00	4.80	57.09	2,116.65	115.81	115.04	-112.86	0.81	-0.53	6.86
2,219.00	5.13	54.06	2,211.30	120.46	121.81	-117.34	0.44	0.35	-3.19
2,313.00	4.71	55.99	2,304.95	125.09	128.41	-121.80	0.48	-0.45	2.05
2,407.00	4.74	51.78	2,398.63	129.65	134.66	-126.20	0.37	0.03	-4.48
2,502.00	4.56	48.29	2,493.32	134.59	140.57	-130.99	0.35	-0.19	-3.67
2,596.00	4.41	0.78	2,587.06	140.69	143.41	-137.02	3.84	-0.16	-50.54
2,690.00	4.60	358.12	2,680.77	148.07	143.33	-144.40	0.30	0.20	-2.83
2,785.00	4.57	357.16	2,775.47	155.66	143.02	-151.99	0.09	-0.03	-1.01
2,879.00	6.77	32.85	2,869.03	164.06	145.84	-160.31	4.31	2.34	37.97
2,973.00	6.56	29.87	2,962.40	173.37	151.52	-169.48	0.43	-0.22	-3.17
3,067.00	6.30	29.16	3,055.80	182.53	156.71	-178.50	0.29	-0.28	-0.76
3,162.00	6.17	34.68	3,150.24	191.28	162.15	-187.11	0.65	-0.14	5.81
3,256.00	4.99	32.50	3,243.80	198.88	167.22	-194.59	1.28	-1.26	-2.32
3,351.00	4.43	33.00	3,338.47	205.44	171.44	-201.04	0.59	-0.59	0.53
3,445.00	4.32	34.41	3,432.20	211.41	175.42	-206.90	0.16	-0.12	1.50
3,539.00	7.27	37.36	3,525.71	219.06	181.03	-214.41	3.15	3.14	3.14
3,634.00	7.42	36.45	3,619.93	228.77	188.32	-223.93	0.20	0.16	-0.96
3,728.00	7.33	35.63	3,713.15	238.53	195.42	-233.50	0.15	-0.10	-0.87
3,823.00	7.18	36.98	3,807.39	248.19	202.52	-242.99	0.24	-0.16	1.42
3,917.00	6.73	33.79	3,900.70	257.47	209.12	-252.09	0.63	-0.48	-3.39
4,012.00	6.32	37.19	3,995.09	266.26	215.38	-260.72	0.59	-0.43	3.58
4,130.00	6.15	39.70	4,112.39	276.29	223.34	-270.55	0.27	-0.14	2.13
4,224.00	5.89	38.69	4,205.87	283.93	229.57	-278.03	0.30	-0.28	-1.07
4,319.00	6.01	39.69	4,300.36	291.56	235.79	-285.50	0.17	0.13	1.05
4,413.00	6.01	39.53	4,393.84	299.15	242.07	-292.93	0.02	0.00	-0.17
4,507.00	3.53	62.11	4,487.52	304.30	247.76	-297.93	3.26	-2.64	24.02
4,601.00	3.16	51.22	4,581.36	307.27	252.34	-300.79	0.78	-0.39	-11.59
4,696.00	2.69	49.14	4,676.23	310.37	256.06	-303.79	0.51	-0.49	-2.19
4,790.00	1.71	133.15	4,770.18	310.86	258.76	-304.21	3.23	-1.04	89.37
4,885.00	1.29	123.47	4,865.15	309.30	260.68	-302.60	0.51	-0.44	-10.19

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Survey

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4,979.00	1.05	122.16	4,959.13	308.25	262.29	-301.52	0.26	-0.26	-1.39
5,074.00	9.74	148.72	5,053.62	300.91	267.21	-294.05	9.28	9.15	27.96
5,168.00	18.70	161.46	5,144.67	279.78	276.15	-272.70	10.04	9.53	13.55
5,262.00	33.51	174.88	5,228.92	239.39	283.31	-232.14	16.87	15.76	14.28
5,356.00	48.57	178.86	5,299.62	177.95	286.34	-170.65	16.25	16.02	4.23
5,451.00	48.05	178.48	5,362.81	107.03	287.99	-99.71	0.62	-0.55	-0.40
5,498.00	48.70	178.15	5,394.03	71.91	289.02	-64.57	1.48	1.38	-0.70
5,545.00	50.92	181.11	5,424.36	36.02	289.24	-28.69	6.74	4.72	6.30
5,592.00	50.83	181.65	5,454.02	-0.43	288.36	7.73	0.91	-0.19	1.15
5,639.00	51.92	186.09	5,483.37	-37.05	285.87	44.27	7.74	2.32	9.45
5,734.00	57.48	187.71	5,538.24	-113.98	276.52	120.95	6.02	5.85	1.71
5,781.00	58.00	187.62	5,563.33	-153.37	271.22	160.19	1.12	1.11	-0.19
5,828.00	62.90	185.68	5,586.50	-193.97	266.51	200.65	11.03	10.43	-4.13
5,875.00	62.83	186.00	5,607.94	-235.58	262.25	242.14	0.62	-0.15	0.68
5,923.00	69.33	181.63	5,627.40	-279.33	259.37	285.80	15.89	13.54	-9.10
6,017.00	73.92	178.73	5,657.03	-368.50	259.12	374.94	5.69	4.88	-3.09
6,112.00	78.48	179.34	5,679.68	-460.72	260.67	467.17	4.84	4.80	0.64
6,207.00	90.05	179.91	5,689.16	-555.08	261.29	561.51	12.19	12.18	0.60
6,301.00	91.67	179.44	5,687.75	-649.06	261.82	655.48	1.79	1.72	-0.50
6,396.00	91.51	178.17	5,685.11	-744.01	263.80	750.44	1.35	-0.17	-1.34
6,490.00	91.14	180.64	5,682.94	-837.97	264.78	844.40	2.66	-0.39	2.63
6,584.00	91.94	180.16	5,680.41	-931.93	264.12	938.32	0.99	0.85	-0.51
6,678.00	91.11	182.42	5,677.91	-1,025.87	262.00	1,032.17	2.56	-0.88	2.40
6,773.00	93.18	183.16	5,674.36	-1,120.68	257.38	1,126.84	2.31	2.18	0.78
6,867.00	92.12	182.08	5,670.01	-1,214.48	253.09	1,220.50	1.61	-1.13	-1.15
6,962.00	89.32	183.57	5,668.82	-1,309.35	248.41	1,315.21	3.34	-2.95	1.57
7,057.00	89.60	183.02	5,669.71	-1,404.18	242.95	1,409.88	0.65	0.29	-0.58
7,151.00	90.21	182.26	5,669.87	-1,498.08	238.62	1,503.64	1.04	0.65	-0.81
7,245.00	91.11	179.97	5,668.78	-1,592.05	236.79	1,597.53	2.62	0.96	-2.44
7,339.00	91.95	179.49	5,666.28	-1,686.02	237.23	1,691.48	1.03	0.89	-0.51
7,433.00	91.11	178.86	5,663.77	-1,779.97	238.59	1,785.44	1.12	-0.89	-0.67
7,528.00	91.45	177.97	5,661.64	-1,874.91	241.21	1,880.41	1.00	0.36	-0.94
7,622.00	92.56	178.53	5,658.35	-1,968.81	244.08	1,974.35	1.32	1.18	0.60
7,716.00	92.40	180.30	5,654.29	-2,062.71	245.04	2,068.25	1.89	-0.17	1.88
7,811.00	94.19	180.53	5,648.83	-2,157.55	244.35	2,163.04	1.90	1.88	0.24
7,905.00	90.83	180.75	5,644.71	-2,251.44	243.31	2,256.87	3.58	-3.57	0.23
7,999.00	88.98	179.78	5,644.87	-2,345.43	242.87	2,350.83	2.22	-1.97	-1.03
8,093.00	89.65	179.36	5,645.99	-2,439.42	243.58	2,444.80	0.84	0.71	-0.45
8,187.00	90.55	179.13	5,645.83	-2,533.41	244.82	2,538.79	0.99	0.96	-0.24
8,282.00	91.61	178.69	5,644.04	-2,628.38	246.62	2,633.77	1.21	1.12	-0.46
8,375.00	89.93	180.32	5,642.79	-2,721.36	247.43	2,726.75	2.52	-1.81	1.75
8,470.00	91.49	180.79	5,641.61	-2,816.34	246.50	2,821.68	1.71	1.64	0.49
8,564.00	89.20	179.95	5,641.04	-2,910.33	245.90	2,915.62	2.59	-2.44	-0.89

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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)
8,658.00	90.49	180.88	5,641.30	-3,004.33	245.22	3,009.57	1.69	1.37	0.99
8,753.00	92.00	182.01	5,639.23	-3,099.27	242.82	3,104.42	1.99	1.59	1.19
8,847.00	89.20	178.05	5,638.25	-3,193.24	242.77	3,198.36	5.16	-2.98	-4.21
8,941.00	90.43	179.05	5,638.55	-3,287.20	245.15	3,292.35	1.69	1.31	1.06
9,035.00	90.32	179.04	5,637.94	-3,381.19	246.72	3,386.35	0.12	-0.12	-0.01
9,129.00	90.54	178.48	5,637.23	-3,475.16	248.75	3,480.34	0.64	0.23	-0.60
9,223.00	90.54	178.09	5,636.34	-3,569.12	251.57	3,574.34	0.41	0.00	-0.41
9,318.00	89.14	179.34	5,636.61	-3,664.09	253.70	3,669.33	1.98	-1.47	1.32
9,412.00	89.70	179.27	5,637.56	-3,758.07	254.84	3,763.32	0.60	0.60	-0.07
9,506.00	90.66	179.54	5,637.27	-3,852.07	255.81	3,857.31	1.06	1.02	0.29
9,600.00	92.79	179.66	5,634.44	-3,946.02	256.47	3,951.24	2.27	2.27	0.13
9,695.00	90.66	179.95	5,631.58	-4,040.97	256.79	4,046.17	2.26	-2.24	0.31
9,790.00	88.92	180.51	5,631.93	-4,135.96	256.41	4,141.13	1.92	-1.83	0.59
9,884.00	88.14	179.37	5,634.34	-4,229.93	256.51	4,235.07	1.47	-0.83	-1.21
9,978.00	89.09	180.42	5,636.61	-4,323.90	256.68	4,329.01	1.51	1.01	1.12
10,072.00	90.32	180.49	5,637.09	-4,417.89	255.93	4,422.96	1.31	1.31	0.07
10,166.00	87.24	180.16	5,639.09	-4,511.86	255.40	4,516.88	3.30	-3.28	-0.35
10,261.00	87.47	179.88	5,643.48	-4,606.76	255.37	4,611.74	0.38	0.24	-0.29
10,355.00	88.25	179.67	5,646.99	-4,700.69	255.74	4,705.66	0.86	0.83	-0.22
10,450.00	88.70	179.05	5,649.52	-4,795.65	256.80	4,800.61	0.81	0.47	-0.65
10,544.00	91.16	179.10	5,649.63	-4,889.63	258.32	4,894.60	2.62	2.62	0.05
10,638.00	92.67	178.54	5,646.49	-4,983.56	260.25	4,988.55	1.71	1.61	-0.60
10,732.00	91.83	177.87	5,642.80	-5,077.44	263.19	5,082.47	1.14	-0.89	-0.71
10,826.00	88.81	177.83	5,642.28	-5,171.36	266.72	5,176.45	3.21	-3.21	-0.04
10,918.00	90.49	178.59	5,642.84	-5,263.31	269.59	5,268.44	2.00	1.83	0.83
11,010.00	92.34	178.03	5,640.57	-5,355.23	272.30	5,360.41	2.10	2.01	-0.61
11,101.00	91.39	180.68	5,637.60	-5,446.17	273.33	5,451.34	3.09	-1.04	2.91
11,192.00	88.03	182.20	5,638.06	-5,537.13	271.04	5,542.21	4.05	-3.69	1.67
11,284.00	88.14	182.03	5,641.14	-5,629.01	267.65	5,633.98	0.22	0.12	-0.18
11,375.00	87.13	182.76	5,644.89	-5,719.85	263.85	5,724.70	1.37	-1.11	0.80
11,467.00	88.36	182.29	5,648.51	-5,811.69	259.80	5,816.40	1.43	1.34	-0.51
11,558.00	86.68	181.46	5,652.45	-5,902.55	256.82	5,907.16	2.06	-1.85	-0.91
11,650.00	87.13	180.53	5,657.42	-5,994.40	255.23	5,998.94	1.12	0.49	-1.01
11,742.00	89.93	180.56	5,659.78	-6,086.36	254.35	6,090.85	3.04	3.04	0.03
11,833.00	91.10	180.26	5,658.96	-6,177.35	253.70	6,181.79	1.33	1.29	-0.33
11,925.00	89.98	180.95	5,658.09	-6,269.34	252.73	6,273.73	1.43	-1.22	0.75
12,017.00	89.26	179.71	5,658.70	-6,361.33	252.20	6,365.68	1.56	-0.78	-1.35
12,107.00	91.61	181.56	5,658.02	-6,451.32	251.20	6,455.61	3.32	2.61	2.06
12,199.00	91.38	182.20	5,655.62	-6,543.23	248.19	6,547.42	0.74	-0.25	0.70
12,290.00	89.14	179.57	5,655.21	-6,634.21	246.78	6,638.33	3.80	-2.46	-2.89
12,381.00	89.42	179.84	5,656.35	-6,725.20	247.25	6,729.30	0.43	0.31	0.30
12,472.00	90.15	178.96	5,656.69	-6,816.19	248.20	6,820.29	1.26	0.80	-0.97
12,563.00	91.44	179.31	5,655.43	-6,907.17	249.58	6,911.28	1.47	1.42	0.38
12,655.00	90.15	179.30	5,654.15	-6,999.15	250.69	7,003.26	1.40	-1.40	-0.01

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08B-1711
Project:	Weld County, CO	TVD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Well:	Horsetail #08B-1711	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)
12,745.00	90.32	178.70	5,653.78	-7,089.14	252.26	7,093.25	0.69	0.19	-0.67
12,837.00	90.32	178.82	5,653.27	-7,181.12	254.25	7,185.25	0.13	0.00	0.13
12,928.00	89.65	176.51	5,653.29	-7,272.03	257.96	7,276.23	2.64	-0.74	-2.54
13,020.00	91.16	179.53	5,652.64	-7,363.96	261.14	7,368.21	3.67	1.64	3.28
13,111.00	91.16	178.97	5,650.80	-7,454.94	262.33	7,459.19	0.62	0.00	-0.62
13,202.00	90.88	182.96	5,649.18	-7,545.89	260.80	7,550.07	4.39	-0.31	4.38
13,294.00	91.27	183.62	5,647.45	-7,637.72	255.52	7,641.74	0.83	0.42	0.72
13,385.00	90.32	183.02	5,646.19	-7,728.56	250.25	7,732.42	1.23	-1.04	-0.66
13,477.00	88.14	182.23	5,647.43	-7,820.45	246.04	7,824.17	2.52	-2.37	-0.86
13,568.00	87.91	181.81	5,650.56	-7,911.34	242.83	7,914.95	0.53	-0.25	-0.46
13,659.00	87.52	181.96	5,654.19	-8,002.22	239.84	8,005.72	0.46	-0.43	0.16
13,751.00	88.53	179.11	5,657.36	-8,094.15	238.98	8,097.60	3.28	1.10	-3.10
13,843.00	89.03	178.30	5,659.32	-8,186.10	241.06	8,189.58	1.03	0.54	-0.88
13,935.00	89.59	178.08	5,660.43	-8,278.05	243.97	8,281.57	0.65	0.61	-0.24
14,026.00	90.49	177.57	5,660.37	-8,368.98	247.42	8,372.56	1.14	0.99	-0.56
14,118.00	88.47	179.22	5,661.20	-8,460.93	250.00	8,464.55	2.83	-2.20	1.79
14,210.00	89.09	179.22	5,663.16	-8,552.90	251.25	8,556.52	0.67	0.67	0.00
14,301.00	89.81	179.29	5,664.03	-8,643.89	252.43	8,647.51	0.79	0.79	0.08
14,393.00	90.82	179.44	5,663.53	-8,735.88	253.45	8,739.50	1.11	1.10	0.16
14,485.00	92.28	179.77	5,661.04	-8,827.85	254.09	8,831.45	1.63	1.59	0.36
14,576.00	90.71	179.72	5,658.67	-8,918.81	254.49	8,922.39	1.73	-1.73	-0.05
14,667.00	91.49	179.39	5,656.92	-9,009.79	255.20	9,013.36	0.93	0.86	-0.36
14,759.00	89.42	179.64	5,656.19	-9,101.78	255.98	9,105.34	2.27	-2.25	0.27
14,849.00	90.15	179.23	5,656.53	-9,191.77	256.86	9,195.33	0.93	0.81	-0.46
14,941.00	90.88	178.55	5,655.70	-9,283.75	258.65	9,287.32	1.08	0.79	-0.74
15,032.00	91.49	178.25	5,653.82	-9,374.70	261.19	9,378.30	0.75	0.67	-0.33
15,124.00	92.56	178.02	5,650.57	-9,466.59	264.18	9,470.24	1.19	1.16	-0.25
15,215.00	91.66	179.04	5,647.22	-9,557.49	266.51	9,561.18	1.49	-0.99	1.12
15,307.00	92.00	181.38	5,644.28	-9,649.44	266.17	9,653.09	2.57	0.37	2.54
15,398.00	92.79	180.79	5,640.47	-9,740.34	264.45	9,743.92	1.08	0.87	-0.65
15,490.00	91.16	180.62	5,637.30	-9,832.28	263.32	9,835.79	1.78	-1.77	-0.18
15,581.00	92.11	181.17	5,634.71	-9,923.23	261.90	9,926.68	1.21	1.04	0.60
15,672.00	93.35	181.45	5,630.37	-10,014.10	259.82	10,017.47	1.40	1.36	0.31
15,748.00	94.86	181.64	5,624.93	-10,089.88	257.78	10,093.17	2.00	1.99	0.25
15,804.00	94.86	181.64	5,620.19	-10,145.65	256.18	10,148.88	0.00	0.00	0.00

Precision Drilling Corporation

Survey Report

Company:	WHITING PETROLEUM CORP.	Local Co-ordinate Reference:	Well Horsetail #08B-1711
Project:	Weld County, CO	TVD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Site:	Sec 8-T10N-R57W	MD Reference:	4890'GL+21'KB @ 4911.00usft (Unit 409)
Well:	Horsetail #08B-1711	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 1711 - actual wellpath hits target center - Point	0.00	0.00	0.00	0.00	0.00	1,560,719.00	3,477,638.01	40.859783°N	103.773206°W
300' Entry 1711 - actual wellpath hits target center - Point	0.00	0.00	5,397.98	67.39	289.15	1,560,792.01	3,477,925.79	40.859968°N	103.772161°W
BHL 1711 - actual wellpath hits target center - Point	0.00	0.00	5,620.19	-10,145.65	256.18	1,550,580.26	3,478,091.70	40.831937°N	103.772280°W
100' Exit 1711 - actual wellpath hits target center - Point	0.00	0.00	5,621.29	-10,132.70	256.55	1,550,593.22	3,478,091.82	40.831973°N	103.772279°W
7" Casing PT Entry 17 - actual wellpath hits target center - Point	0.00	0.00	5,689.16	-555.08	261.29	1,560,169.11	3,477,910.06	40.858260°N	103.772261°W
PBHL 1711 p2 - actual wellpath misses target center by 69.07usft at 15792.31usft MD (5621.18 TVD, -10134.01 N, 256.52 E) - Point	0.00	0.00	5,690.00	-10,139.87	256.75	1,550,586.05	3,478,092.15	40.831953°N	103.772278°W

Design Annotations

Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,504.00	5,397.98	67.39	289.15	300' Entry
6,207.00	5,689.16	-555.08	261.29	Casing PT
15,791.00	5,621.29	-10,132.70	256.55	100' Exit

Checked By: _____ Approved By: _____ Date: _____