



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 30-T10N-R57W**

**Horsetail #30E-1903**

**Hz**

**APD**

## **Anticollision Report**

**22 October, 2015**



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

<b>Reference</b>	APD		
<b>Filter type:</b>	NO GLOBAL FILTER: Using user defined selection & filtering criteria		
<b>Interpolation Method:</b>	MD Interval 100.00usft	<b>Error Model:</b>	ISCWSA
<b>Depth Range:</b>	Unlimited	<b>Scan Method:</b>	Closest Approach 3D
<b>Results Limited by:</b>	Maximum center-center distance of 1,550.00 usft	<b>Error Surface:</b>	Elliptical Conic
<b>Warning Levels Evaluated at:</b>	3.00 Sigma	<b>Casing Method:</b>	Not applied

<b>Survey Tool Program</b>	<b>Date</b>	10/13/2015		
<b>From (usft)</b>	<b>To (usft)</b>	<b>Survey (Wellbore)</b>	<b>Tool Name</b>	<b>Description</b>
0.00	13,650.75	APD (Hz)	MWD+IFR1+MS+sag	Fixed:v2:crustal dec & 3-axis correction + sag

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 30-T10N-R57W						
Horsetail #30E-1901 - Hz - APD	300.00	300.00	120.73	119.11	74.755	CC, ES
Horsetail #30E-1901 - Hz - APD	13,650.75	13,652.33	659.49	426.29	2.828	SF
Horsetail #30E-1902 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-1902 - Hz - APD	400.00	399.46	60.55	58.33	27.349	ES
Horsetail #30E-1902 - Hz - APD	13,650.75	13,719.08	336.72	107.50	1.469	Level 3, SF
Horsetail #30E-1904 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-1904 - Hz - APD	400.00	399.18	60.54	58.32	27.269	ES
Horsetail #30E-1904 - Hz - APD	13,650.75	13,732.32	336.72	107.97	1.472	Level 3, SF
Horsetail #30E-1934 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC, ES
Horsetail #30E-1934 - Hz - APD	13,650.75	13,846.43	532.79	313.43	2.429	SF
Horsetail #30E-1935 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-1935 - Hz - APD	400.00	399.88	30.30	28.09	13.706	ES
Horsetail #30E-1935 - Hz - APD	13,650.75	13,926.28	326.86	185.50	2.312	SF
Horsetail #30E-1936 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-1936 - Hz - APD	400.00	399.75	30.29	28.07	13.680	ES
Horsetail #30E-1936 - Hz - APD	13,650.75	13,849.49	257.15	93.06	1.567	SF
Horsetail #30E-3103 - Hz - APD	732.39	730.37	21.47	17.00	4.802	CC, ES, SF
Horsetail #30E-3104 - Hz - APD	442.10	439.63	77.07	74.53	30.425	CC
Horsetail #30E-3104 - Hz - APD	500.00	496.26	77.24	74.32	26.428	ES
Horsetail #30E-3104 - Hz - APD	5,957.53	5,676.77	594.62	556.68	15.674	SF
Horsetail #30E-3135 - Hz - APD	778.19	777.01	18.80	14.05	3.958	CC, ES
Horsetail #30E-3135 - Hz - APD	6,166.60	5,552.33	86.29	47.91	2.248	SF
Horsetail #30E-3136 - Hz - APD	601.29	597.86	52.13	48.51	14.412	CC, ES
Horsetail #30E-3136 - Hz - APD	6,108.61	5,588.47	430.01	391.89	11.279	SF
Horsetail #30E-3137 Dropped - Hz - APD	300.00	300.00	102.06	100.44	63.197	CC
Horsetail #30E-3137 Dropped - Hz - APD	400.00	397.27	102.44	100.18	45.235	ES
Horsetail #30E-3137 Dropped - Hz - APD	6,200.00	5,572.13	749.95	711.48	19.494	SF
Horsetail #30E-3138 - Hz - APD	300.00	300.00	129.10	127.48	79.939	CC, ES
Horsetail #30E-3138 - Hz - APD	6,300.00	5,600.00	1,108.06	1,068.89	28.289	SF

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



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<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-120.73	120.73							
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-120.73	120.73	120.46	0.27	453.262				
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-120.73	120.73	119.78	0.94	128.343				
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-120.73	120.73	119.11	1.61	74.755	CC, ES			
400.00	399.98	398.24	398.22	1.11	1.10	94.10	-1.53	-121.44	121.57	119.35	2.22	54.785				
500.00	499.84	496.44	496.29	1.41	1.40	94.30	-6.10	-123.57	124.12	121.30	2.82	44.082				
600.00	599.45	594.56	594.04	1.73	1.72	94.62	-13.71	-127.12	128.36	124.89	3.47	37.013				
700.00	698.70	692.55	691.32	2.06	2.05	95.02	-24.34	-132.08	134.29	130.12	4.17	32.235				
800.00	797.47	790.37	787.98	2.42	2.40	95.49	-37.94	-138.43	141.91	137.00	4.91	28.912				
900.00	895.76	888.00	883.88	2.82	2.79	95.84	-54.49	-146.15	151.15	145.45	5.69	26.541				
1,000.00	994.00	987.32	981.06	3.23	3.21	95.66	-73.08	-154.83	161.18	154.68	6.49	24.818				
1,100.00	1,092.25	1,086.82	1,078.41	3.65	3.64	95.49	-91.72	-163.53	171.21	163.90	7.31	23.413				
1,200.00	1,190.50	1,186.31	1,175.76	4.07	4.07	95.34	-110.35	-172.22	181.25	173.10	8.14	22.254				
1,300.00	1,288.74	1,285.81	1,273.10	4.50	4.51	95.21	-128.98	-180.92	191.28	182.29	8.99	21.282				
1,400.00	1,386.99	1,385.30	1,370.45	4.93	4.96	95.09	-147.61	-189.61	201.32	191.48	9.84	20.463				
1,500.00	1,485.24	1,484.80	1,467.80	5.36	5.40	94.98	-166.24	-198.31	211.36	200.66	10.69	19.763				
1,600.00	1,583.49	1,584.29	1,565.14	5.80	5.85	94.88	-184.88	-207.00	221.40	209.84	11.56	19.159				
1,700.00	1,681.73	1,683.78	1,662.49	6.23	6.30	94.79	-203.51	-215.70	231.43	219.01	12.42	18.634				
1,800.00	1,779.98	1,783.28	1,759.83	6.67	6.76	94.71	-222.14	-224.39	241.47	228.19	13.29	18.173				
1,900.00	1,878.23	1,882.77	1,857.18	7.11	7.21	94.63	-240.77	-233.09	251.51	237.36	14.16	17.766				
2,000.00	1,976.47	1,982.27	1,954.53	7.54	7.66	94.56	-259.40	-241.78	261.55	246.53	15.03	17.404				
2,100.00	2,074.72	2,081.76	2,051.87	7.98	8.12	94.49	-278.04	-250.48	271.60	255.69	15.90	17.080				
2,200.00	2,172.97	2,181.25	2,149.22	8.42	8.58	94.43	-296.67	-259.17	281.64	264.86	16.78	16.788				
2,300.00	2,271.21	2,280.75	2,246.57	8.86	9.03	94.38	-315.30	-267.87	291.68	274.03	17.65	16.524				
2,400.00	2,369.46	2,380.24	2,343.91	9.30	9.49	94.32	-333.93	-276.56	301.72	283.19	18.53	16.285				
2,500.00	2,467.71	2,479.74	2,441.26	9.74	9.95	94.28	-352.56	-285.26	311.76	292.36	19.41	16.066				
2,600.00	2,565.95	2,579.23	2,538.61	10.18	10.40	94.23	-371.20	-293.95	321.80	301.52	20.28	15.865				
2,700.00	2,664.20	2,678.73	2,635.95	10.62	10.86	94.19	-389.83	-302.65	331.85	310.68	21.16	15.681				
2,800.00	2,762.45	2,778.22	2,733.30	11.06	11.32	94.15	-408.46	-311.34	341.89	319.85	22.04	15.511				
2,900.00	2,860.70	2,877.71	2,830.65	11.51	11.78	94.11	-427.09	-320.04	351.93	329.01	22.92	15.354				
3,000.00	2,958.94	2,977.21	2,927.99	11.95	12.23	94.07	-445.72	-328.73	361.98	338.17	23.80	15.208				
3,100.00	3,057.19	3,076.70	3,025.34	12.39	12.69	94.04	-464.36	-337.43	372.02	347.34	24.68	15.072				
3,200.00	3,155.44	3,176.20	3,122.69	12.83	13.15	94.00	-482.99	-346.12	382.06	356.50	25.56	14.946				
3,300.00	3,253.68	3,275.69	3,220.03	13.27	13.61	93.97	-501.62	-354.82	392.10	365.66	26.44	14.827				
3,400.00	3,351.93	3,375.18	3,317.38	13.71	14.07	93.94	-520.25	-363.51	402.15	374.82	27.33	14.716				
3,500.00	3,450.18	3,474.68	3,414.72	14.16	14.53	93.92	-538.88	-372.21	412.19	383.98	28.21	14.612				
3,600.00	3,548.42	3,574.17	3,512.07	14.60	14.99	93.89	-557.51	-380.90	422.23	393.14	29.09	14.515				
3,700.00	3,646.67	3,673.67	3,609.42	15.04	15.45	93.86	-576.15	-389.60	432.28	402.31	29.97	14.422				
3,800.00	3,744.92	3,773.16	3,706.76	15.48	15.91	93.84	-594.78	-398.29	442.32	411.47	30.86	14.335				
3,900.00	3,843.16	3,872.66	3,804.11	15.93	16.37	93.82	-613.41	-406.99	452.37	420.63	31.74	14.253				
4,000.00	3,941.41	3,972.15	3,901.46	16.37	16.83	93.79	-632.04	-415.68	462.41	429.79	32.62	14.175				
4,100.00	4,039.66	4,071.64	3,998.80	16.81	17.28	93.77	-650.67	-424.38	472.45	438.95	33.50	14.102				
4,200.00	4,137.91	4,171.14	4,096.15	17.25	17.74	93.75	-669.31	-433.07	482.50	448.11	34.39	14.031				
4,300.00	4,236.15	4,270.63	4,193.50	17.70	18.20	93.73	-687.94	-441.77	492.54	457.27	35.27	13.965				
4,400.00	4,334.49	4,375.47	4,296.25	18.09	18.62	93.85	-706.75	-450.55	502.20	466.11	36.09	13.917				
4,500.00	4,433.33	4,483.11	4,402.45	18.36	18.93	94.04	-722.68	-457.98	510.16	473.48	36.68	13.909				
4,600.00	4,532.64	4,591.01	4,509.47	18.61	19.21	94.18	-735.00	-463.73	516.31	479.09	37.22	13.873				
4,700.00	4,632.30	4,699.09	4,617.13	18.85	19.47	94.28	-743.68	-467.78	520.63	482.91	37.72	13.801				
4,800.00	4,732.19	4,807.30	4,725.18	19.08	19.71	94.34	-748.67	-470.11	523.11	484.92	38.19	13.696				
4,900.00	4,832.18	4,914.30	4,832.18	19.33	19.97	-89.67	-750.00	-470.73	523.78	485.08	38.70	13.534				
5,000.00	4,932.18	5,014.30	4,932.18	19.54	20.20	-89.67	-750.00	-470.73	523.78	484.63	39.15	13.380				
5,087.27	5,019.44	5,101.52	5,019.39	19.72	20.38	-89.79	-750.00	-470.73	523.77	484.26	39.51	13.256				

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



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<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,032.17	5,113.97	5,031.84	19.75	20.40	-89.67	-749.79	-470.73	523.78	484.21	39.57	13.238		
5,200.00	5,131.24	5,211.81	5,128.81	19.90	20.55	-89.68	-737.86	-470.93	523.98	484.11	39.87	13.143		
5,300.00	5,226.11	5,309.74	5,221.92	19.96	20.62	-89.70	-708.02	-471.42	524.48	484.49	39.99	13.116		
5,400.00	5,313.30	5,407.82	5,307.94	19.95	20.61	-89.73	-661.21	-472.19	525.26	485.30	39.95	13.146		
5,500.00	5,389.61	5,506.12	5,383.84	19.89	20.54	-89.77	-598.98	-473.21	526.29	486.47	39.82	13.218		
5,600.00	5,452.23	5,604.70	5,446.88	19.81	20.43	-89.81	-523.38	-474.45	527.54	487.91	39.63	13.310		
5,700.00	5,498.87	5,703.62	5,494.71	19.74	20.31	-89.87	-436.98	-475.87	528.97	489.50	39.47	13.401		
5,800.00	5,527.81	5,802.92	5,525.45	19.72	20.19	-89.92	-342.72	-477.42	530.53	491.14	39.39	13.469		
5,899.99	5,537.99	5,902.62	5,537.79	19.75	20.10	-89.98	-243.96	-479.04	532.16	492.73	39.42	13.499		
6,000.00	5,538.00	6,002.62	5,538.00	19.87	20.09	-90.00	-143.98	-480.69	533.80	494.16	39.64	13.467		
6,100.00	5,538.00	6,102.60	5,538.00	20.10	20.18	-90.00	-44.01	-482.33	535.44	495.37	40.07	13.362		
6,200.00	5,538.00	6,202.59	5,538.00	20.43	20.40	-90.00	55.97	-483.97	537.08	496.37	40.72	13.191		
6,300.00	5,538.00	6,302.58	5,538.00	20.86	20.75	-90.00	155.94	-485.61	538.73	497.17	41.56	12.963		
6,400.00	5,538.00	6,402.56	5,538.00	21.39	21.22	-90.00	255.91	-487.26	540.37	497.78	42.59	12.687		
6,500.00	5,538.00	6,502.55	5,538.00	22.00	21.80	-90.00	355.89	-488.90	542.01	498.22	43.80	12.376		
6,600.00	5,538.00	6,602.54	5,538.00	22.69	22.47	-90.00	455.86	-490.54	543.66	498.49	45.16	12.038		
6,700.00	5,538.00	6,702.52	5,538.00	23.45	23.23	-90.00	555.83	-492.18	545.30	498.62	46.67	11.683		
6,800.00	5,538.00	6,802.51	5,538.00	24.28	24.05	-90.00	655.80	-493.83	546.94	498.62	48.32	11.319		
6,900.00	5,538.00	6,902.49	5,538.00	25.17	24.93	-90.00	755.78	-495.47	548.58	498.50	50.08	10.953		
7,000.00	5,538.00	7,002.48	5,538.00	26.11	25.87	-90.00	855.75	-497.11	550.23	498.27	51.96	10.590		
7,100.00	5,538.00	7,102.47	5,538.00	27.10	26.86	-90.00	955.72	-498.75	551.87	497.95	53.92	10.234		
7,200.00	5,538.00	7,202.45	5,538.00	28.13	27.89	-90.00	1,055.70	-500.40	553.51	497.54	55.98	9.888		
7,300.00	5,538.00	7,302.44	5,538.00	29.19	28.96	-90.00	1,155.67	-502.04	555.16	497.05	58.11	9.554		
7,400.00	5,538.00	7,402.43	5,538.00	30.29	30.06	-90.00	1,255.64	-503.68	556.80	496.49	60.31	9.233		
7,500.00	5,538.00	7,502.41	5,538.00	31.43	31.20	-90.00	1,355.62	-505.33	558.44	495.87	62.57	8.925		
7,600.00	5,538.00	7,602.40	5,538.00	32.58	32.36	-90.00	1,455.59	-506.97	560.08	495.20	64.88	8.632		
7,700.00	5,538.00	7,702.39	5,538.00	33.77	33.54	-90.00	1,555.56	-508.61	561.73	494.48	67.25	8.353		
7,800.00	5,538.00	7,802.37	5,538.00	34.97	34.75	-90.00	1,655.54	-510.25	563.37	493.71	69.66	8.088		
7,900.00	5,538.00	7,902.36	5,538.00	36.20	35.98	-90.00	1,755.51	-511.90	565.01	492.90	72.11	7.836		
8,000.00	5,538.00	8,002.35	5,538.00	37.44	37.22	-90.00	1,855.48	-513.54	566.66	492.06	74.59	7.597		
8,100.00	5,538.00	8,102.33	5,538.00	38.70	38.48	-90.00	1,955.45	-515.18	568.30	491.19	77.11	7.370		
8,200.00	5,538.00	8,202.32	5,538.00	39.97	39.76	-90.00	2,055.43	-516.82	569.94	490.28	79.66	7.155		
8,300.00	5,538.00	8,302.31	5,538.00	41.26	41.05	-90.00	2,155.40	-518.47	571.58	489.35	82.23	6.951		
8,400.00	5,538.00	8,402.29	5,538.00	42.56	42.35	-90.00	2,255.37	-520.11	573.23	488.40	84.83	6.757		
8,500.00	5,538.00	8,502.28	5,538.00	43.87	43.66	-90.00	2,355.35	-521.75	574.87	487.42	87.45	6.574		
8,600.00	5,538.00	8,602.27	5,538.00	45.19	44.98	-90.00	2,455.32	-523.39	576.51	486.42	90.09	6.399		
8,700.00	5,538.00	8,702.25	5,538.00	46.51	46.31	-90.00	2,555.29	-525.04	578.15	485.40	92.75	6.233		
8,800.00	5,538.00	8,802.24	5,538.00	47.85	47.65	-90.00	2,655.27	-526.68	579.80	484.37	95.43	6.076		
8,900.00	5,538.00	8,902.23	5,538.00	49.20	49.00	-90.00	2,755.24	-528.32	581.44	483.32	98.12	5.926		
9,000.00	5,538.00	9,002.21	5,538.00	50.55	50.35	-90.00	2,855.21	-529.96	583.08	482.26	100.82	5.783		
9,100.00	5,538.00	9,102.20	5,538.00	51.91	51.71	-90.00	2,955.18	-531.61	584.73	481.18	103.54	5.647		
9,200.00	5,538.00	9,202.18	5,538.00	53.27	53.08	-90.00	3,055.16	-533.25	586.37	480.10	106.27	5.518		
9,300.00	5,538.00	9,302.17	5,538.00	54.64	54.45	-90.00	3,155.13	-534.89	588.01	479.00	109.02	5.394		
9,400.00	5,538.00	9,402.16	5,538.00	56.02	55.83	-90.00	3,255.10	-536.53	589.65	477.89	111.77	5.276		
9,500.00	5,538.00	9,502.14	5,538.00	57.39	57.21	-90.00	3,355.08	-538.18	591.30	476.77	114.53	5.163		
9,600.00	5,538.00	9,602.13	5,538.00	58.78	58.60	-90.00	3,455.05	-539.82	592.94	475.64	117.30	5.055		
9,700.00	5,538.00	9,702.12	5,538.00	60.17	59.99	-90.00	3,555.02	-541.46	594.58	474.50	120.08	4.951		
9,800.00	5,538.00	9,802.10	5,538.00	61.56	61.38	-90.00	3,655.00	-543.10	596.23	473.36	122.87	4.853		
9,900.00	5,538.00	9,902.09	5,538.00	62.96	62.78	-90.00	3,754.97	-544.75	597.87	472.21	125.66	4.758		
10,000.00	5,538.00	10,002.08	5,538.00	64.35	64.18	-90.00	3,854.94	-546.39	599.51	471.05	128.46	4.667		
10,100.00	5,538.00	10,102.06	5,538.00	65.76	65.59	-90.00	3,954.91	-548.03	601.15	469.88	131.27	4.579		
10,200.00	5,538.00	10,202.05	5,538.00	67.16	66.99	-90.00	4,054.89	-549.68	602.80	468.71	134.09	4.496		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	5,538.00	10,302.04	5,538.00	68.57	68.40	-90.00	4,154.86	-551.32	604.44	467.53	136.91	4.415		
10,400.00	5,538.00	10,402.02	5,538.00	69.98	69.82	-90.00	4,254.83	-552.96	606.08	466.35	139.73	4.338		
10,500.00	5,538.00	10,502.01	5,538.00	71.39	71.23	-90.00	4,354.81	-554.60	607.73	465.17	142.56	4.263		
10,600.00	5,538.00	10,602.00	5,538.00	72.81	72.65	-90.00	4,454.78	-556.25	609.37	463.97	145.39	4.191		
10,700.00	5,538.00	10,701.98	5,538.00	74.23	74.07	-90.00	4,554.75	-557.89	611.01	462.78	148.23	4.122		
10,800.00	5,538.00	10,801.97	5,538.00	75.65	75.50	-90.00	4,654.73	-559.53	612.65	461.58	151.08	4.055		
10,900.00	5,538.00	10,901.96	5,538.00	77.07	76.92	-90.00	4,754.70	-561.17	614.30	460.38	153.92	3.991		
11,000.00	5,538.00	11,001.94	5,538.00	78.49	78.35	-90.00	4,854.67	-562.82	615.94	459.17	156.77	3.929		
11,100.00	5,538.00	11,101.93	5,538.00	79.92	79.77	-90.00	4,954.64	-564.46	617.58	457.96	159.63	3.869		
11,200.00	5,538.00	11,201.91	5,538.00	81.35	81.20	-90.00	5,054.62	-566.10	619.23	456.74	162.48	3.811		
11,300.00	5,538.00	11,301.90	5,538.00	82.77	82.64	-90.00	5,154.59	-567.74	620.87	455.52	165.34	3.755		
11,400.00	5,538.00	11,401.89	5,538.00	84.20	84.07	-90.00	5,254.56	-569.39	622.51	454.30	168.21	3.701		
11,500.00	5,538.00	11,501.87	5,538.00	85.64	85.50	-90.00	5,354.54	-571.03	624.15	453.08	171.07	3.648		
11,600.00	5,538.00	11,601.86	5,538.00	87.07	86.94	-90.00	5,454.51	-572.67	625.80	451.86	173.94	3.598		
11,700.00	5,538.00	11,701.85	5,538.00	88.50	88.38	-90.00	5,554.48	-574.31	627.44	450.63	176.81	3.549		
11,800.00	5,538.00	11,801.83	5,538.00	89.94	89.81	-90.00	5,654.46	-575.96	629.08	449.40	179.69	3.501		
11,900.00	5,538.00	11,901.82	5,538.00	91.37	91.25	-90.00	5,754.43	-577.60	630.73	448.16	182.56	3.455		
12,000.00	5,538.00	12,001.81	5,538.00	92.81	92.69	-90.00	5,854.40	-579.24	632.37	446.93	185.44	3.410		
12,100.00	5,538.00	12,101.79	5,538.00	94.25	94.14	-90.00	5,954.37	-580.88	634.01	445.69	188.32	3.367		
12,200.00	5,538.00	12,201.78	5,538.00	95.69	95.58	-90.00	6,054.35	-582.53	635.65	444.45	191.20	3.324		
12,300.00	5,538.00	12,301.77	5,538.00	97.13	97.02	-90.00	6,154.32	-584.17	637.30	443.21	194.09	3.284		
12,400.00	5,538.00	12,401.75	5,538.00	98.57	98.47	-90.00	6,254.29	-585.81	638.94	441.97	196.97	3.244		
12,500.00	5,538.00	12,501.74	5,538.00	100.01	99.91	-90.00	6,354.27	-587.45	640.58	440.72	199.86	3.205		
12,600.00	5,538.00	12,601.73	5,538.00	101.46	101.36	-90.00	6,454.24	-589.10	642.23	439.47	202.75	3.168		
12,700.00	5,538.00	12,701.71	5,538.00	102.90	102.80	-90.00	6,554.21	-590.74	643.87	438.22	205.64	3.131		
12,800.00	5,538.00	12,801.70	5,538.00	104.35	104.25	-90.00	6,654.19	-592.38	645.51	436.97	208.54	3.095		
12,900.00	5,538.00	12,901.69	5,538.00	105.79	105.70	-90.00	6,754.16	-594.02	647.15	435.72	211.43	3.061		
13,000.00	5,538.00	13,001.67	5,538.00	107.24	107.15	-90.00	6,854.13	-595.67	648.80	434.47	214.33	3.027		
13,100.00	5,538.00	13,101.66	5,538.00	108.68	108.60	-90.00	6,954.10	-597.31	650.44	433.22	217.22	2.994		
13,200.00	5,538.00	13,201.64	5,538.00	110.13	110.05	-90.00	7,054.08	-598.95	652.08	431.96	220.12	2.962		
13,300.00	5,538.00	13,301.63	5,538.00	111.58	111.50	-90.00	7,154.05	-600.60	653.72	430.70	223.02	2.931		
13,400.00	5,538.00	13,401.62	5,538.00	113.03	112.95	-90.00	7,254.02	-602.24	655.37	429.45	225.92	2.901		
13,500.00	5,538.00	13,501.60	5,538.00	114.48	114.41	-90.00	7,354.00	-603.88	657.01	428.19	228.82	2.871		
13,600.00	5,538.00	13,601.59	5,538.00	115.93	115.86	-90.00	7,453.97	-605.52	658.65	426.93	231.73	2.842		
13,650.75	5,538.00	13,652.33	5,538.00	116.66	116.60	-90.00	7,504.71	-606.36	659.49	426.29	233.20	2.828 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	399.46	399.44	1.11	1.11	94.08	-1.67	-60.42	60.55	58.33	2.21	27.349 ES		
500.00	499.84	498.90	498.74	1.41	1.41	94.22	-6.67	-61.75	62.26	59.46	2.80	22.253		
600.00	599.45	598.31	597.77	1.73	1.73	94.43	-14.99	-63.97	65.10	61.66	3.44	18.929		
700.00	698.70	697.66	696.38	2.06	2.06	94.70	-26.63	-67.07	69.08	64.95	4.13	16.722		
800.00	797.47	796.93	794.44	2.42	2.42	94.99	-41.54	-71.04	74.19	69.31	4.87	15.223		
900.00	895.76	896.45	892.24	2.82	2.81	95.20	-59.34	-75.78	80.25	74.59	5.66	14.187		
1,000.00	994.00	996.26	990.25	3.23	3.22	95.33	-77.56	-80.63	86.42	79.96	6.47	13.365		
1,100.00	1,092.25	1,096.07	1,088.26	3.65	3.64	95.44	-95.79	-85.49	92.60	85.31	7.29	12.697		
1,200.00	1,190.50	1,195.88	1,186.27	4.07	4.06	95.53	-114.01	-90.34	98.78	90.64	8.13	12.147		
1,300.00	1,288.74	1,295.69	1,284.28	4.50	4.49	95.61	-132.24	-95.20	104.95	95.97	8.98	11.688		
1,400.00	1,386.99	1,395.49	1,382.29	4.93	4.92	95.69	-150.46	-100.05	111.13	101.30	9.83	11.301		
1,500.00	1,485.24	1,495.30	1,480.31	5.36	5.36	95.75	-168.69	-104.90	117.31	106.62	10.69	10.971		
1,600.00	1,583.49	1,595.11	1,578.32	5.80	5.79	95.81	-186.91	-109.76	123.49	111.93	11.56	10.687		
1,700.00	1,681.73	1,694.92	1,676.33	6.23	6.23	95.87	-205.14	-114.61	129.67	117.24	12.42	10.439		
1,800.00	1,779.98	1,794.73	1,774.34	6.67	6.67	95.91	-223.36	-119.46	135.84	122.55	13.29	10.222		
1,900.00	1,878.23	1,894.54	1,872.35	7.11	7.11	95.96	-241.59	-124.32	142.02	127.86	14.16	10.030		
2,000.00	1,976.47	1,994.35	1,970.36	7.54	7.55	96.00	-259.81	-129.17	148.20	133.17	15.03	9.860		
2,100.00	2,074.72	2,094.16	2,068.37	7.98	7.99	96.04	-278.04	-134.02	154.38	138.47	15.90	9.707		
2,200.00	2,172.97	2,193.97	2,166.38	8.42	8.43	96.07	-296.26	-138.88	160.56	143.78	16.78	9.569		
2,300.00	2,271.21	2,293.77	2,264.39	8.86	8.87	96.10	-314.49	-143.73	166.74	149.08	17.65	9.445		
2,400.00	2,369.46	2,393.58	2,362.40	9.30	9.31	96.13	-332.71	-148.58	172.91	154.38	18.53	9.332		
2,500.00	2,467.71	2,493.39	2,460.41	9.74	9.75	96.16	-350.94	-153.44	179.09	159.69	19.41	9.229		
2,600.00	2,565.95	2,593.20	2,558.42	10.18	10.19	96.19	-369.16	-158.29	185.27	164.99	20.28	9.134		
2,700.00	2,664.20	2,693.01	2,656.43	10.62	10.63	96.21	-387.39	-163.15	191.45	170.29	21.16	9.047		
2,800.00	2,762.45	2,792.82	2,754.45	11.06	11.08	96.24	-405.61	-168.00	197.63	175.59	22.04	8.967		
2,900.00	2,860.70	2,892.63	2,852.46	11.51	11.52	96.26	-423.84	-172.85	203.81	180.89	22.92	8.893		
3,000.00	2,958.94	2,992.44	2,950.47	11.95	11.96	96.28	-442.06	-177.71	209.99	186.19	23.80	8.824		
3,100.00	3,057.19	3,092.25	3,048.48	12.39	12.41	96.30	-460.29	-182.56	216.16	191.49	24.68	8.760		
3,200.00	3,155.44	3,192.05	3,146.49	12.83	12.85	96.31	-478.51	-187.41	222.34	196.79	25.56	8.700		
3,300.00	3,253.68	3,291.86	3,244.50	13.27	13.29	96.33	-496.74	-192.27	228.52	202.08	26.44	8.644		
3,400.00	3,351.93	3,391.67	3,342.51	13.71	13.74	96.35	-514.96	-197.12	234.70	207.38	27.32	8.592		
3,500.00	3,450.18	3,491.48	3,440.52	14.16	14.18	96.36	-533.19	-201.97	240.88	212.68	28.20	8.542		
3,600.00	3,548.42	3,591.29	3,538.53	14.60	14.62	96.38	-551.41	-206.83	247.06	217.98	29.08	8.496		
3,700.00	3,646.67	3,691.10	3,636.54	15.04	15.07	96.39	-569.64	-211.68	253.24	223.28	29.96	8.452		
3,800.00	3,744.92	3,790.91	3,734.55	15.48	15.51	96.40	-587.86	-216.53	259.42	228.58	30.84	8.411		
3,900.00	3,843.16	3,890.72	3,832.56	15.93	15.95	96.42	-606.09	-221.39	265.60	233.87	31.72	8.372		
4,000.00	3,941.41	3,990.53	3,930.57	16.37	16.40	96.43	-624.31	-226.24	271.77	239.17	32.60	8.336		
4,100.00	4,039.66	4,090.33	4,028.59	16.81	16.84	96.44	-642.54	-231.10	277.95	244.47	33.49	8.301		
4,200.00	4,137.91	4,190.14	4,126.60	17.25	17.29	96.45	-660.76	-235.95	284.13	249.76	34.37	8.268		
4,300.00	4,236.15	4,289.95	4,224.61	17.70	17.73	96.46	-678.99	-240.80	290.31	255.06	35.25	8.236		
4,400.00	4,334.49	4,389.76	4,322.62	18.09	18.17	96.44	-697.21	-245.66	296.44	260.35	36.08	8.215		
4,500.00	4,433.33	4,491.40	4,422.62	18.36	18.55	96.08	-714.70	-250.31	301.99	265.27	36.73	8.223		
4,600.00	4,532.64	4,593.70	4,523.86	18.61	18.83	95.70	-728.91	-254.10	306.43	269.18	37.25	8.226		
4,700.00	4,632.30	4,696.16	4,625.71	18.85	19.08	95.31	-739.64	-256.95	309.73	271.99	37.74	8.206		
4,800.00	4,732.19	4,798.77	4,728.04	19.08	19.32	94.91	-746.84	-258.87	311.89	273.69	38.21	8.164		
4,900.00	4,832.18	4,901.49	4,830.69	19.33	19.55	-89.54	-750.50	-259.85	312.90	274.23	38.67	8.091		
5,000.00	4,932.18	5,002.98	4,932.18	19.54	19.80	-89.63	-751.00	-259.98	313.03	273.90	39.13	8.000		
5,100.00	5,032.17	5,102.98	5,032.17	19.75	20.00	-89.67	-751.00	-259.98	313.03	273.48	39.55	7.915		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,130.50	5,062.61	5,133.42	5,062.61	19.79	20.07	-90.00	-751.00	-259.98	313.02	273.37	39.65	7.894		
5,200.00	5,131.24	5,202.82	5,131.96	19.90	20.21	-91.56	-748.88	-259.98	313.14	273.28	39.86	7.857		
5,300.00	5,226.11	5,304.82	5,231.99	19.96	20.33	-93.89	-729.83	-260.02	313.80	273.84	39.96	7.852		
5,400.00	5,313.30	5,409.51	5,328.80	19.95	20.37	-96.09	-690.44	-260.10	314.95	275.08	39.86	7.901		
5,500.00	5,389.61	5,516.89	5,417.86	19.89	20.33	-98.07	-630.80	-260.22	316.44	276.85	39.59	7.992		
5,600.00	5,452.23	5,626.80	5,494.41	19.81	20.24	-99.75	-552.21	-260.38	318.05	278.83	39.22	8.109		
5,700.00	5,498.87	5,738.91	5,553.77	19.74	20.14	-101.03	-457.36	-260.58	319.55	280.68	38.87	8.222		
5,800.00	5,527.81	5,852.70	5,591.90	19.72	20.07	-101.87	-350.39	-260.79	320.70	282.05	38.65	8.297		
5,899.99	5,537.99	5,967.45	5,605.96	19.75	20.05	-102.21	-236.74	-261.02	321.34	282.64	38.70	8.304		
6,000.00	5,538.00	6,068.34	5,606.00	19.87	20.14	-102.21	-135.85	-261.23	321.54	282.59	38.95	8.256		
6,100.00	5,538.00	6,168.34	5,606.00	20.10	20.33	-102.20	-35.85	-261.43	321.74	282.34	39.40	8.167		
6,200.00	5,538.00	6,268.34	5,606.00	20.43	20.63	-102.19	64.15	-261.63	321.94	281.89	40.05	8.039		
6,300.00	5,538.00	6,368.34	5,606.00	20.86	21.04	-102.19	164.15	-261.84	322.14	281.24	40.90	7.877		
6,400.00	5,538.00	6,468.34	5,606.00	21.39	21.54	-102.18	264.15	-262.04	322.33	280.41	41.93	7.688		
6,500.00	5,538.00	6,568.34	5,606.00	22.00	22.14	-102.17	364.15	-262.24	322.53	279.41	43.12	7.479		
6,600.00	5,538.00	6,668.34	5,606.00	22.69	22.82	-102.16	464.15	-262.44	322.73	278.25	44.48	7.256		
6,700.00	5,538.00	6,768.34	5,606.00	23.45	23.57	-102.16	564.15	-262.65	322.93	276.95	45.97	7.024		
6,800.00	5,538.00	6,868.34	5,606.00	24.28	24.39	-102.15	664.15	-262.85	323.13	275.53	47.60	6.789		
6,900.00	5,538.00	6,968.34	5,606.00	25.17	25.27	-102.14	764.15	-263.05	323.32	273.99	49.34	6.553		
7,000.00	5,538.00	7,068.34	5,606.00	26.11	26.20	-102.13	864.15	-263.25	323.52	272.34	51.18	6.321		
7,100.00	5,538.00	7,168.34	5,606.00	27.10	27.18	-102.13	964.15	-263.46	323.72	270.60	53.12	6.094		
7,200.00	5,538.00	7,268.34	5,606.00	28.13	28.21	-102.12	1,064.15	-263.66	323.92	268.78	55.14	5.874		
7,300.00	5,538.00	7,368.34	5,606.00	29.19	29.27	-102.11	1,164.15	-263.86	324.12	266.88	57.24	5.663		
7,400.00	5,538.00	7,468.34	5,606.00	30.29	30.37	-102.10	1,264.15	-264.07	324.32	264.91	59.40	5.460		
7,500.00	5,538.00	7,568.34	5,606.00	31.43	31.49	-102.10	1,364.15	-264.27	324.51	262.89	61.62	5.266		
7,600.00	5,538.00	7,668.34	5,606.00	32.58	32.65	-102.09	1,464.15	-264.47	324.71	260.81	63.90	5.082		
7,700.00	5,538.00	7,768.34	5,606.00	33.77	33.83	-102.08	1,564.15	-264.67	324.91	258.69	66.22	4.906		
7,800.00	5,538.00	7,868.34	5,606.00	34.97	35.03	-102.07	1,664.15	-264.88	325.11	256.52	68.59	4.740		
7,900.00	5,538.00	7,968.34	5,606.00	36.20	36.25	-102.07	1,764.15	-265.08	325.31	254.31	71.00	4.582		
8,000.00	5,538.00	8,068.34	5,606.00	37.44	37.49	-102.06	1,864.14	-265.28	325.50	252.07	73.44	4.432		
8,100.00	5,538.00	8,168.34	5,606.00	38.70	38.74	-102.05	1,964.14	-265.48	325.70	249.79	75.91	4.291		
8,200.00	5,538.00	8,268.34	5,606.00	39.97	40.01	-102.04	2,064.14	-265.69	325.90	247.49	78.41	4.156		
8,300.00	5,538.00	8,368.34	5,606.00	41.26	41.30	-102.04	2,164.14	-265.89	326.10	245.16	80.94	4.029		
8,400.00	5,538.00	8,468.34	5,606.00	42.56	42.59	-102.03	2,264.14	-266.09	326.30	242.81	83.49	3.908		
8,500.00	5,538.00	8,568.34	5,606.00	43.87	43.90	-102.02	2,364.14	-266.30	326.50	240.43	86.06	3.794		
8,600.00	5,538.00	8,668.34	5,606.00	45.19	45.22	-102.01	2,464.14	-266.50	326.69	238.04	88.65	3.685		
8,700.00	5,538.00	8,768.34	5,606.00	46.51	46.54	-102.01	2,564.14	-266.70	326.89	235.63	91.26	3.582		
8,800.00	5,538.00	8,868.34	5,606.00	47.85	47.88	-102.00	2,664.14	-266.90	327.09	233.20	93.89	3.484		
8,900.00	5,538.00	8,968.34	5,606.00	49.20	49.22	-101.99	2,764.14	-267.11	327.29	230.76	96.53	3.390		
9,000.00	5,538.00	9,068.34	5,606.00	50.55	50.57	-101.98	2,864.14	-267.31	327.49	228.30	99.19	3.302		
9,100.00	5,538.00	9,168.34	5,606.00	51.91	51.93	-101.98	2,964.14	-267.51	327.69	225.83	101.86	3.217		
9,200.00	5,538.00	9,268.34	5,606.00	53.27	53.29	-101.97	3,064.14	-267.71	327.88	223.34	104.54	3.136		
9,300.00	5,538.00	9,368.34	5,606.00	54.64	54.66	-101.96	3,164.14	-267.92	328.08	220.85	107.23	3.060		
9,400.00	5,538.00	9,468.34	5,606.00	56.02	56.03	-101.95	3,264.14	-268.12	328.28	218.35	109.94	2.986		
9,500.00	5,538.00	9,568.34	5,606.00	57.39	57.41	-101.95	3,364.14	-268.32	328.48	215.83	112.65	2.916		
9,600.00	5,538.00	9,668.34	5,606.00	58.78	58.79	-101.94	3,464.14	-268.53	328.68	213.31	115.37	2.849		
9,700.00	5,538.00	9,768.34	5,606.00	60.17	60.18	-101.93	3,564.14	-268.73	328.88	210.78	118.10	2.785		
9,800.00	5,538.00	9,868.33	5,606.00	61.56	61.57	-101.93	3,664.14	-268.93	329.07	208.24	120.84	2.723		
9,900.00	5,538.00	9,968.33	5,606.00	62.96	62.96	-101.92	3,764.14	-269.13	329.27	205.69	123.58	2.664		
10,000.00	5,538.00	10,068.33	5,606.00	64.35	64.36	-101.91	3,864.14	-269.34	329.47	203.14	126.33	2.608		
10,100.00	5,538.00	10,168.33	5,606.00	65.76	65.76	-101.90	3,964.14	-269.54	329.67	200.58	129.09	2.554		
10,200.00	5,538.00	10,268.33	5,606.00	67.16	67.17	-101.90	4,064.14	-269.74	329.87	198.02	131.85	2.502		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,300.00	5,538.00	10,368.33	5,606.00	68.57	68.57	-101.89	4,164.14	-269.94	330.07	195.45	134.62	2.452	
10,400.00	5,538.00	10,468.33	5,606.00	69.98	69.98	-101.88	4,264.13	-270.15	330.26	192.87	137.39	2.404	
10,500.00	5,538.00	10,568.33	5,606.00	71.39	71.40	-101.87	4,364.13	-270.35	330.46	190.29	140.17	2.358	
10,600.00	5,538.00	10,668.33	5,606.00	72.81	72.81	-101.87	4,464.13	-270.55	330.66	187.70	142.96	2.313	
10,700.00	5,538.00	10,768.33	5,606.00	74.23	74.23	-101.86	4,564.13	-270.76	330.86	185.12	145.74	2.270	
10,800.00	5,538.00	10,868.33	5,606.00	75.65	75.65	-101.85	4,664.13	-270.96	331.06	182.52	148.54	2.229	
10,900.00	5,538.00	10,968.33	5,606.00	77.07	77.07	-101.85	4,764.13	-271.16	331.26	179.92	151.33	2.189	
11,000.00	5,538.00	11,068.33	5,606.00	78.49	78.49	-101.84	4,864.13	-271.36	331.46	177.32	154.13	2.150	
11,100.00	5,538.00	11,168.33	5,606.00	79.92	79.92	-101.83	4,964.13	-271.57	331.65	174.72	156.94	2.113	
11,200.00	5,538.00	11,268.33	5,606.00	81.35	81.34	-101.82	5,064.13	-271.77	331.85	172.11	159.74	2.077	
11,300.00	5,538.00	11,368.33	5,606.00	82.77	82.77	-101.82	5,164.13	-271.97	332.05	169.50	162.55	2.043	
11,400.00	5,538.00	11,468.33	5,606.00	84.20	84.20	-101.81	5,264.13	-272.17	332.25	166.88	165.37	2.009	
11,500.00	5,538.00	11,568.33	5,606.00	85.64	85.63	-101.80	5,364.13	-272.38	332.45	164.27	168.18	1.977	
11,600.00	5,538.00	11,668.33	5,606.00	87.07	87.06	-101.80	5,464.13	-272.58	332.65	161.64	171.00	1.945	
11,700.00	5,538.00	11,768.33	5,606.00	88.50	88.50	-101.79	5,564.13	-272.78	332.84	159.02	173.82	1.915	
11,800.00	5,538.00	11,868.33	5,606.00	89.94	89.93	-101.78	5,664.13	-272.99	333.04	156.40	176.65	1.885	
11,900.00	5,538.00	11,968.33	5,606.00	91.37	91.37	-101.77	5,764.13	-273.19	333.24	153.77	179.47	1.857	
12,000.00	5,538.00	12,068.33	5,606.00	92.81	92.80	-101.77	5,864.13	-273.39	333.44	151.14	182.30	1.829	
12,100.00	5,538.00	12,168.33	5,606.00	94.25	94.24	-101.76	5,964.13	-273.59	333.64	148.51	185.13	1.802	
12,200.00	5,538.00	12,268.33	5,606.00	95.69	95.68	-101.75	6,064.13	-273.80	333.84	145.87	187.96	1.776	
12,300.00	5,538.00	12,368.33	5,606.00	97.13	97.12	-101.75	6,164.13	-274.00	334.04	143.24	190.80	1.751	
12,400.00	5,538.00	12,468.33	5,606.00	98.57	98.56	-101.74	6,264.13	-274.20	334.23	140.60	193.64	1.726	
12,500.00	5,538.00	12,568.33	5,606.00	100.01	100.01	-101.73	6,364.13	-274.40	334.43	137.96	196.47	1.702	
12,600.00	5,538.00	12,668.33	5,606.00	101.46	101.45	-101.72	6,464.13	-274.61	334.63	135.32	199.31	1.679	
12,700.00	5,538.00	12,768.33	5,606.00	102.90	102.89	-101.72	6,564.13	-274.81	334.83	132.67	202.16	1.656	
12,800.00	5,538.00	12,868.33	5,606.00	104.35	104.34	-101.71	6,664.13	-275.01	335.03	130.03	205.00	1.634	
12,900.00	5,538.00	12,968.33	5,606.00	105.79	105.78	-101.70	6,764.12	-275.21	335.23	127.38	207.85	1.613	
13,000.00	5,538.00	13,068.33	5,606.00	107.24	107.23	-101.70	6,864.12	-275.42	335.42	124.73	210.69	1.592	
13,100.00	5,538.00	13,168.33	5,606.00	108.68	108.67	-101.69	6,964.12	-275.62	335.62	122.08	213.54	1.572	
13,200.00	5,538.00	13,268.33	5,606.00	110.13	110.12	-101.68	7,064.12	-275.82	335.82	119.43	216.39	1.552	
13,300.00	5,538.00	13,368.33	5,606.00	111.58	111.57	-101.68	7,164.12	-276.03	336.02	116.78	219.24	1.533	
13,400.00	5,538.00	13,468.33	5,606.00	113.03	113.02	-101.67	7,264.12	-276.23	336.22	114.13	222.09	1.514	
13,500.00	5,538.00	13,568.33	5,606.00	114.48	114.47	-101.66	7,364.12	-276.43	336.42	111.47	224.95	1.496 Level 3	
13,600.00	5,538.00	13,668.33	5,606.00	115.93	115.92	-101.65	7,464.12	-276.63	336.62	108.81	227.80	1.478 Level 3	
13,650.75	5,538.00	13,719.08	5,606.00	116.66	116.62	-101.65	7,514.87	-276.74	336.72	107.50	229.22	1.469 Level 3, SF	





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.02	-0.02	59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	90.02	-0.02	59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	90.02	-0.02	59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	90.02	-0.02	59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	399.18	399.16	1.11	1.11	-86.08	-1.60	60.65	60.54	58.32	2.22	27.269 ES		
500.00	499.84	498.34	498.18	1.41	1.41	-86.45	-6.33	62.68	62.21	59.40	2.81	22.101		
600.00	599.45	597.46	596.93	1.73	1.73	-87.03	-14.21	66.05	65.01	61.54	3.47	18.756		
700.00	698.70	696.53	695.27	2.06	2.06	-87.75	-25.21	70.75	68.93	64.76	4.16	16.554		
800.00	797.47	795.52	793.06	2.42	2.42	-88.56	-39.33	76.79	73.97	69.06	4.91	15.070		
900.00	895.76	894.57	890.31	2.82	2.81	-89.02	-56.51	84.14	80.14	74.45	5.70	14.066		
1,000.00	994.00	994.35	988.06	3.23	3.23	-88.84	-74.94	92.02	86.73	80.23	6.51	13.331		
1,100.00	1,092.25	1,094.13	1,085.81	3.65	3.66	-88.68	-93.38	99.90	93.32	85.99	7.33	12.725		
1,200.00	1,190.50	1,193.91	1,183.56	4.07	4.09	-88.55	-111.81	107.78	99.91	91.74	8.17	12.224		
1,300.00	1,288.74	1,293.70	1,281.30	4.50	4.53	-88.43	-130.25	115.67	106.50	97.48	9.02	11.803		
1,400.00	1,386.99	1,393.48	1,379.05	4.93	4.97	-88.32	-148.68	123.55	113.09	103.21	9.88	11.446		
1,500.00	1,485.24	1,493.26	1,476.80	5.36	5.42	-88.23	-167.11	131.43	119.68	108.94	10.74	11.142		
1,600.00	1,583.49	1,593.04	1,574.55	5.80	5.86	-88.15	-185.55	139.32	126.27	114.67	11.61	10.878		
1,700.00	1,681.73	1,692.82	1,672.29	6.23	6.31	-88.07	-203.98	147.20	132.87	120.39	12.48	10.648		
1,800.00	1,779.98	1,792.61	1,770.04	6.67	6.76	-88.00	-222.42	155.08	139.46	126.11	13.35	10.447		
1,900.00	1,878.23	1,892.39	1,867.79	7.11	7.21	-87.94	-240.85	162.96	146.05	131.83	14.22	10.268		
2,000.00	1,976.47	1,992.17	1,965.54	7.54	7.66	-87.88	-259.28	170.85	152.64	137.54	15.10	10.109		
2,100.00	2,074.72	2,091.95	2,063.28	7.98	8.11	-87.83	-277.72	178.73	159.24	143.26	15.98	9.967		
2,200.00	2,172.97	2,191.74	2,161.03	8.42	8.57	-87.78	-296.15	186.61	165.83	148.97	16.86	9.838		
2,300.00	2,271.21	2,291.52	2,258.78	8.86	9.02	-87.74	-314.58	194.50	172.42	154.69	17.73	9.722		
2,400.00	2,369.46	2,391.30	2,356.53	9.30	9.47	-87.70	-333.02	202.38	179.01	160.40	18.62	9.616		
2,500.00	2,467.71	2,491.08	2,454.27	9.74	9.93	-87.66	-351.45	210.26	185.61	166.11	19.50	9.520		
2,600.00	2,565.95	2,590.87	2,552.02	10.18	10.38	-87.62	-369.89	218.14	192.20	171.82	20.38	9.431		
2,700.00	2,664.20	2,690.65	2,649.77	10.62	10.83	-87.59	-388.32	226.03	198.79	177.53	21.26	9.350		
2,800.00	2,762.45	2,790.43	2,747.52	11.06	11.29	-87.56	-406.75	233.91	205.39	183.24	22.14	9.275		
2,900.00	2,860.70	2,890.21	2,845.26	11.51	11.74	-87.53	-425.19	241.79	211.98	188.95	23.03	9.205		
3,000.00	2,958.94	2,990.00	2,943.01	11.95	12.20	-87.50	-443.62	249.68	218.57	194.66	23.91	9.141		
3,100.00	3,057.19	3,089.78	3,040.76	12.39	12.65	-87.48	-462.05	257.56	225.16	200.37	24.80	9.081		
3,200.00	3,155.44	3,189.56	3,138.51	12.83	13.11	-87.45	-480.49	265.44	231.76	206.08	25.68	9.025		
3,300.00	3,253.68	3,289.34	3,236.25	13.27	13.56	-87.43	-498.92	273.33	238.35	211.79	26.57	8.972		
3,400.00	3,351.93	3,389.13	3,334.00	13.71	14.02	-87.41	-517.36	281.21	244.94	217.49	27.45	8.923		
3,500.00	3,450.18	3,488.91	3,431.75	14.16	14.47	-87.39	-535.79	289.09	251.54	223.20	28.34	8.877		
3,600.00	3,548.42	3,588.69	3,529.50	14.60	14.93	-87.37	-554.22	296.97	258.13	228.91	29.22	8.833		
3,700.00	3,646.67	3,688.47	3,627.24	15.04	15.38	-87.35	-572.66	304.86	264.72	234.62	30.11	8.792		
3,800.00	3,744.92	3,788.25	3,724.99	15.48	15.84	-87.33	-591.09	312.74	271.32	240.32	30.99	8.754		
3,900.00	3,843.16	3,888.04	3,822.74	15.93	16.29	-87.31	-609.53	320.62	277.91	246.03	31.88	8.717		
4,000.00	3,941.41	3,987.82	3,920.49	16.37	16.75	-87.30	-627.96	328.51	284.51	251.74	32.77	8.683		
4,100.00	4,039.66	4,087.60	4,018.23	16.81	17.21	-87.28	-646.39	336.39	291.10	257.45	33.65	8.650		
4,200.00	4,137.91	4,187.38	4,115.98	17.25	17.66	-87.27	-664.83	344.27	297.69	263.15	34.54	8.619		
4,300.00	4,236.15	4,287.17	4,213.73	17.70	18.12	-87.25	-683.26	352.15	304.29	268.86	35.43	8.589		
4,400.00	4,334.49	4,387.03	4,311.56	18.09	18.57	-87.22	-701.71	360.04	310.90	274.64	36.26	8.573		
4,500.00	4,433.33	4,491.06	4,413.84	18.36	18.88	-86.99	-719.15	367.50	316.98	280.15	36.83	8.608		
4,600.00	4,532.64	4,595.30	4,516.95	18.61	19.16	-86.72	-733.19	373.51	321.89	284.55	37.35	8.619		
4,700.00	4,632.30	4,699.72	4,620.73	18.85	19.42	-86.42	-743.79	378.04	325.64	287.80	37.84	8.606		
4,800.00	4,732.19	4,804.30	4,725.01	19.08	19.67	-86.08	-750.91	381.08	328.21	289.92	38.29	8.572		
4,900.00	4,832.18	4,909.01	4,829.64	19.33	19.91	90.27	-754.53	382.63	329.60	290.86	38.75	8.506		
5,000.00	4,932.18	5,011.55	4,932.18	19.54	20.15	90.35	-755.02	382.84	329.81	290.61	39.19	8.415		
5,005.49	4,937.67	5,017.04	4,937.67	19.55	20.16	90.35	-755.02	382.84	329.81	290.59	39.21	8.410		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,032.17	5,111.55	5,032.17	19.75	20.36	90.39	-755.02	382.84	329.81	290.19	39.61	8.326		
5,200.00	5,131.24	5,211.82	5,132.38	19.90	20.56	92.17	-752.86	382.84	330.04	290.17	39.87	8.277		
5,300.00	5,226.11	5,314.77	5,233.32	19.96	20.69	94.36	-733.46	382.84	330.77	290.86	39.91	8.287		
5,400.00	5,313.30	5,420.42	5,330.87	19.95	20.73	96.40	-693.36	382.84	331.89	292.13	39.76	8.348		
5,500.00	5,389.61	5,528.73	5,420.37	19.89	20.69	98.21	-632.72	382.84	333.24	293.79	39.46	8.446		
5,600.00	5,452.23	5,639.47	5,496.94	19.81	20.59	99.70	-553.00	382.84	334.61	295.53	39.08	8.562		
5,700.00	5,498.87	5,752.25	5,555.83	19.74	20.47	100.81	-457.08	382.84	335.77	297.02	38.75	8.665		
5,800.00	5,527.81	5,866.46	5,593.07	19.72	20.36	101.47	-349.35	382.84	336.52	297.94	38.59	8.721		
5,899.99	5,537.99	5,981.38	5,606.00	19.75	20.29	101.65	-235.40	382.84	336.74	298.07	38.67	8.708		
5,985.68	5,538.29	6,067.25	5,606.00	19.85	20.32	101.60	-149.53	382.84	336.68	297.80	38.87	8.661		
6,000.00	5,538.00	6,081.57	5,606.00	19.87	20.33	101.65	-135.21	382.84	336.74	297.84	38.90	8.656		
6,100.00	5,538.00	6,181.57	5,606.00	20.10	20.47	101.65	-35.21	382.84	336.74	297.40	39.33	8.561		
6,200.00	5,538.00	6,281.57	5,606.00	20.43	20.73	101.65	64.79	382.84	336.74	296.76	39.97	8.424		
6,300.00	5,538.00	6,381.57	5,606.00	20.86	21.11	101.65	164.79	382.84	336.74	295.93	40.81	8.252		
6,400.00	5,538.00	6,481.57	5,606.00	21.39	21.60	101.65	264.79	382.84	336.74	294.91	41.83	8.051		
6,500.00	5,538.00	6,581.57	5,606.00	22.00	22.19	101.65	364.79	382.84	336.73	293.72	43.01	7.828		
6,600.00	5,538.00	6,681.57	5,606.00	22.69	22.86	101.65	464.79	382.84	336.73	292.38	44.36	7.591		
6,700.00	5,538.00	6,781.57	5,606.00	23.45	23.61	101.65	564.79	382.84	336.73	290.89	45.85	7.345		
6,800.00	5,538.00	6,881.57	5,606.00	24.28	24.43	101.65	664.79	382.84	336.73	289.27	47.46	7.095		
6,900.00	5,538.00	6,981.57	5,606.00	25.17	25.30	101.65	764.79	382.84	336.73	287.54	49.20	6.845		
7,000.00	5,538.00	7,081.57	5,606.00	26.11	26.23	101.65	864.79	382.84	336.73	285.70	51.04	6.598		
7,100.00	5,538.00	7,181.57	5,606.00	27.10	27.21	101.65	964.79	382.84	336.73	283.77	52.97	6.357		
7,200.00	5,538.00	7,281.57	5,606.00	28.13	28.23	101.65	1,064.79	382.84	336.73	281.75	54.98	6.124		
7,300.00	5,538.00	7,381.57	5,606.00	29.19	29.29	101.65	1,164.79	382.84	336.73	279.66	57.08	5.900		
7,400.00	5,538.00	7,481.57	5,606.00	30.29	30.39	101.65	1,264.79	382.84	336.73	277.50	59.23	5.685		
7,500.00	5,538.00	7,581.57	5,606.00	31.43	31.51	101.65	1,364.79	382.84	336.73	275.28	61.45	5.479		
7,600.00	5,538.00	7,681.57	5,606.00	32.58	32.66	101.65	1,464.79	382.84	336.73	273.01	63.73	5.284		
7,700.00	5,538.00	7,781.57	5,606.00	33.77	33.84	101.65	1,564.79	382.83	336.73	270.69	66.05	5.098		
7,800.00	5,538.00	7,881.57	5,606.00	34.97	35.04	101.65	1,664.79	382.83	336.73	268.32	68.41	4.922		
7,900.00	5,538.00	7,981.57	5,606.00	36.20	36.26	101.65	1,764.79	382.83	336.73	265.92	70.81	4.755		
8,000.00	5,538.00	8,081.57	5,606.00	37.44	37.49	101.65	1,864.79	382.83	336.73	263.48	73.25	4.597		
8,100.00	5,538.00	8,181.57	5,606.00	38.70	38.74	101.65	1,964.79	382.83	336.73	261.01	75.72	4.447		
8,200.00	5,538.00	8,281.57	5,606.00	39.97	40.01	101.65	2,064.79	382.83	336.73	258.51	78.22	4.305		
8,300.00	5,538.00	8,381.57	5,606.00	41.26	41.29	101.65	2,164.79	382.83	336.73	255.98	80.75	4.170		
8,400.00	5,538.00	8,481.57	5,606.00	42.56	42.59	101.65	2,264.79	382.83	336.73	253.44	83.30	4.043		
8,500.00	5,538.00	8,581.57	5,606.00	43.87	43.89	101.65	2,364.79	382.83	336.73	250.86	85.87	3.922		
8,600.00	5,538.00	8,681.57	5,606.00	45.19	45.20	101.65	2,464.79	382.83	336.73	248.27	88.46	3.807		
8,700.00	5,538.00	8,781.57	5,606.00	46.51	46.53	101.65	2,564.79	382.83	336.73	245.67	91.06	3.698		
8,800.00	5,538.00	8,881.57	5,606.00	47.85	47.86	101.65	2,664.79	382.83	336.73	243.04	93.69	3.594		
8,900.00	5,538.00	8,981.57	5,606.00	49.20	49.20	101.65	2,764.79	382.83	336.73	240.40	96.33	3.496		
9,000.00	5,538.00	9,081.57	5,606.00	50.55	50.55	101.65	2,864.79	382.83	336.73	237.75	98.98	3.402		
9,100.00	5,538.00	9,181.57	5,606.00	51.91	51.90	101.65	2,964.79	382.83	336.73	235.08	101.65	3.313		
9,200.00	5,538.00	9,281.57	5,606.00	53.27	53.26	101.65	3,064.79	382.83	336.73	232.40	104.33	3.228		
9,300.00	5,538.00	9,381.57	5,606.00	54.64	54.63	101.65	3,164.79	382.83	336.73	229.71	107.02	3.147		
9,400.00	5,538.00	9,481.57	5,606.00	56.02	56.00	101.65	3,264.79	382.83	336.73	227.01	109.72	3.069		
9,500.00	5,538.00	9,581.57	5,606.00	57.39	57.38	101.65	3,364.79	382.83	336.73	224.30	112.42	2.995		
9,600.00	5,538.00	9,681.57	5,606.00	58.78	58.76	101.65	3,464.79	382.83	336.73	221.59	115.14	2.924		
9,700.00	5,538.00	9,781.57	5,606.00	60.17	60.14	101.65	3,564.79	382.83	336.73	218.86	117.87	2.857		
9,800.00	5,538.00	9,881.57	5,606.00	61.56	61.53	101.65	3,664.79	382.83	336.73	216.13	120.60	2.792		
9,900.00	5,538.00	9,981.57	5,606.00	62.96	62.93	101.65	3,764.79	382.83	336.73	213.38	123.34	2.730		
10,000.00	5,538.00	10,081.57	5,606.00	64.35	64.32	101.65	3,864.79	382.83	336.73	210.64	126.09	2.671		
10,100.00	5,538.00	10,181.57	5,606.00	65.76	65.72	101.65	3,964.79	382.83	336.73	207.88	128.84	2.613		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-1904 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis				Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
10,200.00	5,538.00	10,281.57	5,606.00	67.16	67.12	101.65	4,064.79	382.83	336.73	205.12	131.60	2.559					
10,300.00	5,538.00	10,381.57	5,606.00	68.57	68.53	101.65	4,164.79	382.83	336.73	202.36	134.37	2.506					
10,400.00	5,538.00	10,481.57	5,606.00	69.98	69.94	101.65	4,264.79	382.83	336.73	199.59	137.14	2.455					
10,500.00	5,538.00	10,581.57	5,606.00	71.39	71.35	101.65	4,364.79	382.83	336.73	196.81	139.91	2.407					
10,600.00	5,538.00	10,681.57	5,606.00	72.81	72.76	101.65	4,464.79	382.83	336.72	194.03	142.69	2.360					
10,700.00	5,538.00	10,781.57	5,606.00	74.23	74.18	101.65	4,564.79	382.83	336.72	191.25	145.48	2.315					
10,800.00	5,538.00	10,881.57	5,606.00	75.65	75.60	101.65	4,664.79	382.83	336.72	188.46	148.26	2.271					
10,900.00	5,538.00	10,981.57	5,606.00	77.07	77.02	101.65	4,764.79	382.83	336.72	185.67	151.05	2.229					
11,000.00	5,538.00	11,081.57	5,606.00	78.49	78.44	101.65	4,864.79	382.83	336.72	182.87	153.85	2.189					
11,100.00	5,538.00	11,181.57	5,606.00	79.92	79.86	101.65	4,964.79	382.83	336.72	180.08	156.65	2.150					
11,200.00	5,538.00	11,281.57	5,606.00	81.35	81.29	101.65	5,064.79	382.83	336.72	177.27	159.45	2.112					
11,300.00	5,538.00	11,381.57	5,606.00	82.77	82.71	101.65	5,164.79	382.83	336.72	174.47	162.26	2.075					
11,400.00	5,538.00	11,481.57	5,606.00	84.20	84.14	101.65	5,264.79	382.83	336.72	171.66	165.06	2.040					
11,500.00	5,538.00	11,581.57	5,606.00	85.64	85.57	101.65	5,364.79	382.83	336.72	168.85	167.87	2.006					
11,600.00	5,538.00	11,681.57	5,606.00	87.07	87.00	101.65	5,464.79	382.83	336.72	166.04	170.69	1.973					
11,700.00	5,538.00	11,781.57	5,606.00	88.50	88.43	101.65	5,564.79	382.83	336.72	163.22	173.50	1.941					
11,800.00	5,538.00	11,881.57	5,606.00	89.94	89.87	101.65	5,664.79	382.83	336.72	160.40	176.32	1.910					
11,900.00	5,538.00	11,981.57	5,606.00	91.37	91.30	101.65	5,764.79	382.83	336.72	157.58	179.14	1.880					
12,000.00	5,538.00	12,081.57	5,606.00	92.81	92.74	101.65	5,864.79	382.83	336.72	154.76	181.96	1.850					
12,100.00	5,538.00	12,181.57	5,606.00	94.25	94.18	101.65	5,964.79	382.82	336.72	151.93	184.79	1.822					
12,200.00	5,538.00	12,281.57	5,606.00	95.69	95.61	101.65	6,064.79	382.82	336.72	149.11	187.62	1.795					
12,300.00	5,538.00	12,381.57	5,606.00	97.13	97.05	101.65	6,164.79	382.82	336.72	146.28	190.44	1.768					
12,400.00	5,538.00	12,481.57	5,606.00	98.57	98.49	101.65	6,264.79	382.82	336.72	143.45	193.27	1.742					
12,500.00	5,538.00	12,581.57	5,606.00	100.01	99.93	101.65	6,364.79	382.82	336.72	140.61	196.11	1.717					
12,600.00	5,538.00	12,681.57	5,606.00	101.46	101.38	101.65	6,464.79	382.82	336.72	137.78	198.94	1.693					
12,700.00	5,538.00	12,781.57	5,606.00	102.90	102.82	101.65	6,564.79	382.82	336.72	134.94	201.78	1.669					
12,800.00	5,538.00	12,881.57	5,606.00	104.35	104.26	101.65	6,664.79	382.82	336.72	132.11	204.61	1.646					
12,900.00	5,538.00	12,981.57	5,606.00	105.79	105.71	101.65	6,764.79	382.82	336.72	129.27	207.45	1.623					
13,000.00	5,538.00	13,081.57	5,606.00	107.24	107.15	101.65	6,864.79	382.82	336.72	126.43	210.29	1.601					
13,100.00	5,538.00	13,181.57	5,606.00	108.68	108.60	101.65	6,964.79	382.82	336.72	123.59	213.13	1.580					
13,200.00	5,538.00	13,281.57	5,606.00	110.13	110.04	101.65	7,064.79	382.82	336.72	120.75	215.97	1.559					
13,300.00	5,538.00	13,381.57	5,606.00	111.58	111.49	101.65	7,164.79	382.82	336.72	117.90	218.82	1.539					
13,400.00	5,538.00	13,481.57	5,606.00	113.03	112.94	101.65	7,264.79	382.82	336.72	115.06	221.66	1.519					
13,500.00	5,538.00	13,581.57	5,606.00	114.48	114.39	101.65	7,364.79	382.82	336.72	112.21	224.51	1.500 Level 3					
13,600.00	5,538.00	13,681.57	5,606.00	115.93	115.84	101.65	7,464.79	382.82	336.72	109.36	227.35	1.481 Level 3					
13,650.75	5,538.00	13,732.32	5,606.00	116.66	116.52	101.65	7,515.54	382.82	336.72	107.97	228.75	1.472 Level 3, SF					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	-0.01	-89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	-0.01	-89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	-0.01	-89.97	89.97	89.03	0.94	95.644		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	-0.01	-89.97	89.97	88.35	1.61	55.709 CC, ES		
400.00	399.98	398.93	398.91	1.11	1.11	94.08	-1.61	-90.55	90.68	88.47	2.22	40.914		
500.00	499.84	497.82	497.67	1.41	1.41	94.26	-6.42	-92.32	92.83	90.03	2.81	33.081		
600.00	599.45	596.66	596.13	1.73	1.72	94.53	-14.42	-95.24	96.41	92.96	3.45	27.922		
700.00	698.70	695.41	694.15	2.06	2.05	94.88	-25.59	-99.34	101.42	97.27	4.15	24.453		
800.00	797.47	794.04	791.59	2.42	2.41	95.26	-39.91	-104.58	107.85	102.96	4.89	22.056		
900.00	895.76	893.15	889.01	2.82	2.80	95.64	-57.06	-110.86	115.50	109.84	5.67	20.381		
1,000.00	994.00	992.84	986.91	3.23	3.21	95.94	-74.69	-117.32	123.31	116.84	6.47	19.066		
1,100.00	1,092.25	1,092.54	1,084.82	3.65	3.63	96.21	-92.33	-123.77	131.12	123.84	7.29	17.994		
1,200.00	1,190.50	1,192.23	1,182.73	4.07	4.05	96.45	-109.96	-130.23	138.94	130.82	8.12	17.113		
1,300.00	1,288.74	1,291.92	1,280.64	4.50	4.48	96.66	-127.60	-136.69	146.75	137.79	8.96	16.378		
1,400.00	1,386.99	1,391.61	1,378.55	4.93	4.91	96.85	-145.23	-143.15	154.57	144.76	9.81	15.759		
1,500.00	1,485.24	1,491.31	1,476.45	5.36	5.34	97.03	-162.87	-149.60	162.39	151.73	10.66	15.230		
1,600.00	1,583.49	1,591.00	1,574.36	5.80	5.78	97.18	-180.50	-156.06	170.21	158.69	11.52	14.775		
1,700.00	1,681.73	1,690.69	1,672.27	6.23	6.21	97.33	-198.14	-162.52	178.03	165.65	12.38	14.379		
1,800.00	1,779.98	1,790.38	1,770.18	6.67	6.65	97.46	-215.77	-168.98	185.86	172.61	13.24	14.032		
1,900.00	1,878.23	1,890.08	1,868.08	7.11	7.09	97.58	-233.41	-175.43	193.68	179.57	14.11	13.726		
2,000.00	1,976.47	1,989.77	1,965.99	7.54	7.53	97.69	-251.04	-181.89	201.51	186.53	14.98	13.453		
2,100.00	2,074.72	2,089.46	2,063.90	7.98	7.97	97.79	-268.68	-188.35	209.33	193.49	15.85	13.209		
2,200.00	2,172.97	2,189.16	2,161.81	8.42	8.40	97.89	-286.31	-194.81	217.16	200.44	16.72	12.990		
2,300.00	2,271.21	2,288.85	2,259.72	8.86	8.84	97.98	-303.95	-201.27	224.99	207.40	17.59	12.791		
2,400.00	2,369.46	2,388.54	2,357.62	9.30	9.29	98.06	-321.58	-207.72	232.81	214.35	18.46	12.611		
2,500.00	2,467.71	2,488.23	2,455.53	9.74	9.73	98.14	-339.22	-214.18	240.64	221.31	19.33	12.447		
2,600.00	2,565.95	2,587.93	2,553.44	10.18	10.17	98.21	-356.85	-220.64	248.47	228.26	20.21	12.296		
2,700.00	2,664.20	2,687.62	2,651.35	10.62	10.61	98.28	-374.49	-227.10	256.30	235.21	21.08	12.157		
2,800.00	2,762.45	2,787.31	2,749.25	11.06	11.05	98.34	-392.12	-233.55	264.13	242.17	21.96	12.030		
2,900.00	2,860.70	2,887.00	2,847.16	11.51	11.49	98.40	-409.76	-240.01	271.95	249.12	22.83	11.911		
3,000.00	2,958.94	2,986.70	2,945.07	11.95	11.93	98.46	-427.39	-246.47	279.78	256.08	23.71	11.802		
3,100.00	3,057.19	3,086.39	3,042.98	12.39	12.38	98.51	-445.03	-252.93	287.61	263.03	24.58	11.700		
3,200.00	3,155.44	3,186.08	3,140.89	12.83	12.82	98.56	-462.66	-259.38	295.44	269.98	25.46	11.604		
3,300.00	3,253.68	3,285.77	3,238.79	13.27	13.26	98.61	-480.30	-265.84	303.27	276.94	26.34	11.516		
3,400.00	3,351.93	3,385.47	3,336.70	13.71	13.70	98.66	-497.93	-272.30	311.10	283.89	27.21	11.432		
3,500.00	3,450.18	3,485.16	3,434.61	14.16	14.15	98.70	-515.57	-278.76	318.93	290.84	28.09	11.354		
3,600.00	3,548.42	3,584.85	3,532.52	14.60	14.59	98.74	-533.20	-285.21	326.76	297.80	28.97	11.281		
3,700.00	3,646.67	3,684.55	3,630.42	15.04	15.03	98.78	-550.84	-291.67	334.60	304.75	29.84	11.211		
3,800.00	3,744.92	3,784.24	3,728.33	15.48	15.47	98.82	-568.47	-298.13	342.43	311.70	30.72	11.146		
3,900.00	3,843.16	3,883.93	3,826.24	15.93	15.92	98.86	-586.11	-304.59	350.26	318.66	31.60	11.084		
4,000.00	3,941.41	3,983.62	3,924.15	16.37	16.36	98.89	-603.74	-311.05	358.09	325.61	32.48	11.026		
4,100.00	4,039.66	4,083.32	4,022.06	16.81	16.80	98.93	-621.38	-317.50	365.92	332.56	33.36	10.970		
4,200.00	4,137.91	4,183.01	4,119.96	17.25	17.25	98.96	-639.02	-323.96	373.75	339.52	34.23	10.917		
4,300.00	4,236.15	4,282.70	4,217.87	17.70	17.69	98.99	-656.65	-330.42	381.58	346.47	35.11	10.867		
4,400.00	4,334.49	4,382.40	4,315.78	18.09	18.13	99.03	-674.29	-336.88	389.34	353.39	35.95	10.831		
4,500.00	4,433.33	4,482.07	4,413.67	18.36	18.58	98.69	-691.92	-343.33	396.63	359.99	36.64	10.825		
4,600.00	4,532.64	4,583.15	4,512.99	18.61	18.99	97.89	-709.55	-349.79	403.38	366.09	37.29	10.816		
4,700.00	4,632.30	4,686.98	4,615.52	18.85	19.28	96.98	-724.86	-355.39	408.96	371.15	37.82	10.815		
4,800.00	4,732.19	4,791.18	4,718.96	19.08	19.54	96.06	-736.70	-359.73	413.17	374.88	38.29	10.790		
4,900.00	4,832.18	4,895.74	4,823.13	19.33	19.79	-88.90	-745.03	-362.78	416.00	377.22	38.78	10.728		
5,000.00	4,932.18	5,000.69	4,927.95	19.54	20.03	-89.56	-749.79	-364.53	417.60	378.40	39.20	10.652		
5,100.00	5,032.17	5,104.92	5,032.17	19.75	20.29	-89.76	-751.01	-364.97	418.01	378.35	39.66	10.539		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,130.41	5,062.53	5,135.28	5,062.53	19.79	20.35	-90.00	-751.01	-364.97	418.01	378.24	39.77	10.511		
5,200.00	5,131.24	5,203.99	5,131.24	19.90	20.49	-91.43	-751.01	-364.97	418.15	378.18	39.97	10.462		
5,300.00	5,226.11	5,299.81	5,227.06	19.96	20.70	-95.27	-750.84	-364.97	420.08	380.02	40.06	10.487		
5,400.00	5,313.30	5,403.83	5,330.09	19.95	20.86	-99.93	-737.91	-365.09	425.56	385.69	39.87	10.674		
5,500.00	5,389.61	5,517.60	5,437.37	19.89	20.93	-104.37	-700.70	-365.44	433.98	394.64	39.34	11.032		
5,600.00	5,452.23	5,643.04	5,543.17	19.81	20.90	-108.40	-633.86	-366.06	444.13	405.71	38.42	11.560		
5,700.00	5,498.87	5,781.35	5,637.59	19.74	20.79	-111.75	-533.35	-367.00	454.24	417.01	37.23	12.199		
5,800.00	5,527.81	5,931.79	5,706.43	19.72	20.64	-114.05	-400.19	-368.24	462.27	426.03	36.24	12.756		
5,899.99	5,537.99	6,090.45	5,734.79	19.75	20.56	-114.97	-244.71	-369.69	466.39	430.31	36.09	12.924		
6,000.00	5,538.00	6,196.01	5,735.00	19.87	20.60	-114.94	-139.16	-370.67	467.29	430.93	36.36	12.851		
6,100.00	5,538.00	6,296.00	5,735.00	20.10	20.75	-114.89	-39.17	-371.60	468.13	431.33	36.81	12.719		
6,200.00	5,538.00	6,396.00	5,735.00	20.43	21.01	-114.84	60.82	-372.54	468.98	431.54	37.44	12.525		
6,300.00	5,538.00	6,496.00	5,735.00	20.86	21.39	-114.79	160.82	-373.47	469.82	431.56	38.26	12.279		
6,400.00	5,538.00	6,595.99	5,735.00	21.39	21.87	-114.74	260.81	-374.40	470.67	431.42	39.25	11.991		
6,500.00	5,538.00	6,695.99	5,735.00	22.00	22.45	-114.70	360.80	-375.33	471.52	431.11	40.40	11.670		
6,600.00	5,538.00	6,795.98	5,735.00	22.69	23.12	-114.65	460.79	-376.26	472.36	430.66	41.70	11.327		
6,700.00	5,538.00	6,895.98	5,735.00	23.45	23.86	-114.60	560.78	-377.20	473.21	430.08	43.13	10.971		
6,800.00	5,538.00	6,995.97	5,735.00	24.28	24.66	-114.56	660.77	-378.13	474.06	429.37	44.68	10.609		
6,900.00	5,538.00	7,095.97	5,735.00	25.17	25.53	-114.51	760.76	-379.06	474.91	428.56	46.35	10.247		
7,000.00	5,538.00	7,195.97	5,735.00	26.11	26.46	-114.46	860.75	-379.99	475.75	427.65	48.11	9.890		
7,100.00	5,538.00	7,295.96	5,735.00	27.10	27.43	-114.42	960.75	-380.92	476.60	426.65	49.95	9.541		
7,200.00	5,538.00	7,395.96	5,735.00	28.13	28.44	-114.37	1,060.74	-381.86	477.45	425.57	51.88	9.203		
7,300.00	5,538.00	7,495.95	5,735.00	29.19	29.50	-114.32	1,160.73	-382.79	478.30	424.42	53.88	8.877		
7,400.00	5,538.00	7,595.95	5,735.00	30.29	30.59	-114.28	1,260.72	-383.72	479.15	423.21	55.94	8.565		
7,500.00	5,538.00	7,695.94	5,735.00	31.43	31.70	-114.23	1,360.71	-384.65	480.00	421.94	58.06	8.267		
7,600.00	5,538.00	7,795.94	5,735.00	32.58	32.85	-114.19	1,460.70	-385.58	480.85	420.62	60.23	7.984		
7,700.00	5,538.00	7,895.94	5,735.00	33.77	34.02	-114.14	1,560.69	-386.51	481.70	419.26	62.44	7.714		
7,800.00	5,538.00	7,995.93	5,735.00	34.97	35.22	-114.10	1,660.68	-387.45	482.55	417.85	64.70	7.458		
7,900.00	5,538.00	8,095.93	5,735.00	36.20	36.43	-114.05	1,760.68	-388.38	483.40	416.41	66.99	7.216		
8,000.00	5,538.00	8,195.92	5,735.00	37.44	37.67	-114.01	1,860.67	-389.31	484.25	414.93	69.32	6.986		
8,100.00	5,538.00	8,295.92	5,735.00	38.70	38.92	-113.96	1,960.66	-390.24	485.10	413.42	71.68	6.768		
8,200.00	5,538.00	8,395.91	5,735.00	39.97	40.18	-113.92	2,060.65	-391.17	485.96	411.89	74.07	6.561		
8,300.00	5,538.00	8,495.91	5,735.00	41.26	41.46	-113.87	2,160.64	-392.11	486.81	410.33	76.48	6.365		
8,400.00	5,538.00	8,595.90	5,735.00	42.56	42.75	-113.83	2,260.63	-393.04	487.66	408.75	78.91	6.180		
8,500.00	5,538.00	8,695.90	5,735.00	43.87	44.05	-113.78	2,360.62	-393.97	488.51	407.14	81.37	6.004		
8,600.00	5,538.00	8,795.90	5,735.00	45.19	45.37	-113.74	2,460.62	-394.90	489.37	405.52	83.85	5.836		
8,700.00	5,538.00	8,895.89	5,735.00	46.51	46.69	-113.70	2,560.61	-395.83	490.22	403.88	86.34	5.678		
8,800.00	5,538.00	8,995.89	5,735.00	47.85	48.02	-113.65	2,660.60	-396.77	491.07	402.22	88.85	5.527		
8,900.00	5,538.00	9,095.88	5,735.00	49.20	49.36	-113.61	2,760.59	-397.70	491.93	400.55	91.38	5.383		
9,000.00	5,538.00	9,195.88	5,735.00	50.55	50.71	-113.56	2,860.58	-398.63	492.78	398.86	93.92	5.247		
9,100.00	5,538.00	9,295.87	5,735.00	51.91	52.06	-113.52	2,960.57	-399.56	493.63	397.16	96.47	5.117		
9,200.00	5,538.00	9,395.87	5,735.00	53.27	53.42	-113.48	3,060.56	-400.49	494.49	395.45	99.04	4.993		
9,300.00	5,538.00	9,495.87	5,735.00	54.64	54.78	-113.44	3,160.55	-401.43	495.34	393.73	101.62	4.875		
9,400.00	5,538.00	9,595.86	5,735.00	56.02	56.16	-113.39	3,260.55	-402.36	496.20	391.99	104.21	4.762		
9,500.00	5,538.00	9,695.86	5,735.00	57.39	57.53	-113.35	3,360.54	-403.29	497.06	390.25	106.80	4.654		
9,600.00	5,538.00	9,795.85	5,735.00	58.78	58.91	-113.31	3,460.53	-404.22	497.91	388.50	109.41	4.551		
9,700.00	5,538.00	9,895.85	5,735.00	60.17	60.30	-113.27	3,560.52	-405.15	498.77	386.74	112.03	4.452		
9,800.00	5,538.00	9,995.84	5,735.00	61.56	61.69	-113.22	3,660.51	-406.08	499.62	384.97	114.65	4.358		
9,900.00	5,538.00	10,095.84	5,735.00	62.96	63.08	-113.18	3,760.50	-407.02	500.48	383.19	117.29	4.267		
10,000.00	5,538.00	10,195.84	5,735.00	64.35	64.48	-113.14	3,860.49	-407.95	501.34	381.41	119.93	4.180		
10,100.00	5,538.00	10,295.83	5,735.00	65.76	65.88	-113.10	3,960.49	-408.88	502.19	379.62	122.57	4.097		
10,200.00	5,538.00	10,395.83	5,735.00	67.16	67.28	-113.06	4,060.48	-409.81	503.05	377.82	125.23	4.017		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,300.00	5,538.00	10,495.82	5,735.00	68.57	68.69	-113.01	4,160.47	-410.74	503.91	376.02	127.89	3.940		
10,400.00	5,538.00	10,595.82	5,735.00	69.98	70.09	-112.97	4,260.46	-411.68	504.77	374.21	130.56	3.866		
10,500.00	5,538.00	10,695.81	5,735.00	71.39	71.51	-112.93	4,360.45	-412.61	505.62	372.40	133.23	3.795		
10,600.00	5,538.00	10,795.81	5,735.00	72.81	72.92	-112.89	4,460.44	-413.54	506.48	370.58	135.91	3.727		
10,700.00	5,538.00	10,895.80	5,735.00	74.23	74.34	-112.85	4,560.43	-414.47	507.34	368.75	138.59	3.661		
10,800.00	5,538.00	10,995.80	5,735.00	75.65	75.75	-112.81	4,660.42	-415.40	508.20	366.93	141.28	3.597		
10,900.00	5,538.00	11,095.80	5,735.00	77.07	77.18	-112.77	4,760.42	-416.34	509.06	365.09	143.97	3.536		
11,000.00	5,538.00	11,195.79	5,735.00	78.49	78.60	-112.73	4,860.41	-417.27	509.92	363.25	146.67	3.477		
11,100.00	5,538.00	11,295.79	5,735.00	79.92	80.02	-112.69	4,960.40	-418.20	510.78	361.41	149.37	3.420		
11,200.00	5,538.00	11,395.78	5,735.00	81.35	81.45	-112.65	5,060.39	-419.13	511.64	359.57	152.07	3.364		
11,300.00	5,538.00	11,495.78	5,735.00	82.77	82.88	-112.61	5,160.38	-420.06	512.50	357.72	154.78	3.311		
11,400.00	5,538.00	11,595.77	5,735.00	84.20	84.30	-112.57	5,260.37	-420.99	513.36	355.86	157.50	3.260		
11,500.00	5,538.00	11,695.77	5,735.00	85.64	85.74	-112.53	5,360.36	-421.93	514.22	354.01	160.21	3.210		
11,600.00	5,538.00	11,795.77	5,735.00	87.07	87.17	-112.49	5,460.35	-422.86	515.08	352.15	162.93	3.161		
11,700.00	5,538.00	11,895.76	5,735.00	88.50	88.60	-112.45	5,560.35	-423.79	515.94	350.29	165.66	3.115		
11,800.00	5,538.00	11,995.76	5,735.00	89.94	90.04	-112.41	5,660.34	-424.72	516.80	348.42	168.39	3.069		
11,900.00	5,538.00	12,095.75	5,735.00	91.37	91.47	-112.37	5,760.33	-425.65	517.67	346.55	171.12	3.025		
12,000.00	5,538.00	12,195.75	5,735.00	92.81	92.91	-112.33	5,860.32	-426.59	518.53	344.68	173.85	2.983		
12,100.00	5,538.00	12,295.74	5,735.00	94.25	94.35	-112.29	5,960.31	-427.52	519.39	342.80	176.59	2.941		
12,200.00	5,538.00	12,395.74	5,735.00	95.69	95.79	-112.25	6,060.30	-428.45	520.25	340.93	179.33	2.901		
12,300.00	5,538.00	12,495.74	5,735.00	97.13	97.23	-112.21	6,160.29	-429.38	521.12	339.05	182.07	2.862		
12,400.00	5,538.00	12,595.73	5,735.00	98.57	98.67	-112.17	6,260.29	-430.31	521.98	337.16	184.82	2.824		
12,500.00	5,538.00	12,695.73	5,735.00	100.01	100.11	-112.14	6,360.28	-431.25	522.84	335.28	187.56	2.788		
12,600.00	5,538.00	12,795.72	5,735.00	101.46	101.55	-112.10	6,460.27	-432.18	523.70	333.39	190.31	2.752		
12,700.00	5,538.00	12,895.72	5,735.00	102.90	103.00	-112.06	6,560.26	-433.11	524.57	331.50	193.07	2.717		
12,800.00	5,538.00	12,995.71	5,735.00	104.35	104.44	-112.02	6,660.25	-434.04	525.43	329.61	195.82	2.683		
12,900.00	5,538.00	13,095.71	5,735.00	105.79	105.89	-111.98	6,760.24	-434.97	526.30	327.72	198.58	2.650		
13,000.00	5,538.00	13,195.71	5,735.00	107.24	107.34	-111.94	6,860.23	-435.91	527.16	325.82	201.34	2.618		
13,100.00	5,538.00	13,295.70	5,735.00	108.68	108.78	-111.91	6,960.22	-436.84	528.03	323.92	204.10	2.587		
13,200.00	5,538.00	13,395.70	5,735.00	110.13	110.23	-111.87	7,060.22	-437.77	528.89	322.02	206.87	2.557		
13,300.00	5,538.00	13,495.69	5,735.00	111.58	111.68	-111.83	7,160.21	-438.70	529.76	320.12	209.64	2.527		
13,400.00	5,538.00	13,595.69	5,735.00	113.03	113.13	-111.79	7,260.20	-439.63	530.62	318.21	212.41	2.498		
13,500.00	5,538.00	13,695.68	5,735.00	114.48	114.58	-111.76	7,360.19	-440.56	531.49	316.31	215.18	2.470		
13,600.00	5,538.00	13,795.68	5,735.00	115.93	116.03	-111.72	7,460.18	-441.50	532.35	314.40	217.95	2.443		
13,650.75	5,538.00	13,846.43	5,735.00	116.66	116.76	-111.70	7,510.93	-441.97	532.79	313.43	219.36	2.429 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.02	-0.01	-29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	-90.02	-0.01	-29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	-90.02	-0.01	-29.99	29.99	29.05	0.94	31.881		
300.00	300.00	300.00	300.00	0.81	0.81	-90.02	-0.01	-29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	399.88	399.86	1.11	1.11	94.02	-1.74	-30.18	30.30	28.09	2.21	13.706 ES		
500.00	499.84	499.76	499.60	1.41	1.41	94.05	-6.93	-30.75	31.24	28.45	2.79	11.206		
600.00	599.45	599.63	599.09	1.73	1.73	94.09	-15.57	-31.69	32.80	29.38	3.42	9.581		
700.00	698.70	699.48	698.19	2.06	2.06	94.13	-27.65	-33.02	34.98	30.87	4.11	8.508		
800.00	797.47	799.31	796.79	2.42	2.42	94.18	-43.15	-34.71	37.78	32.93	4.85	7.784		
900.00	895.76	899.25	895.22	2.82	2.81	95.78	-60.35	-36.60	40.98	35.34	5.64	7.271		
1,000.00	994.00	999.19	993.65	3.23	3.22	97.48	-77.54	-38.48	44.23	37.79	6.44	6.864		
1,100.00	1,092.25	1,099.13	1,092.08	3.65	3.62	98.95	-94.73	-40.36	47.52	40.26	7.27	6.540		
1,200.00	1,190.50	1,199.07	1,190.52	4.07	4.04	100.22	-111.93	-42.25	50.84	42.74	8.10	6.277		
1,300.00	1,288.74	1,299.01	1,288.95	4.50	4.45	101.34	-129.12	-44.13	54.18	45.24	8.94	6.061		
1,400.00	1,386.99	1,398.95	1,387.38	4.93	4.87	102.32	-146.31	-46.01	57.54	47.76	9.78	5.882		
1,500.00	1,485.24	1,498.89	1,485.81	5.36	5.29	103.20	-163.51	-47.90	60.91	50.28	10.63	5.731		
1,600.00	1,583.49	1,598.83	1,584.24	5.80	5.72	103.99	-180.70	-49.78	64.30	52.82	11.48	5.603		
1,700.00	1,681.73	1,698.77	1,682.67	6.23	6.14	104.70	-197.89	-51.66	67.69	55.37	12.32	5.492		
1,800.00	1,779.98	1,798.71	1,781.10	6.67	6.56	105.34	-215.09	-53.55	71.10	57.92	13.18	5.396		
1,900.00	1,878.23	1,898.64	1,879.53	7.11	6.99	105.92	-232.28	-55.43	74.51	60.48	14.03	5.312		
2,000.00	1,976.47	1,998.58	1,977.96	7.54	7.42	106.45	-249.47	-57.31	77.93	63.05	14.88	5.238		
2,100.00	2,074.72	2,098.52	2,076.39	7.98	7.84	106.93	-266.67	-59.19	81.36	65.63	15.73	5.172		
2,200.00	2,172.97	2,198.46	2,174.82	8.42	8.27	107.38	-283.86	-61.08	84.79	68.21	16.58	5.113		
2,300.00	2,271.21	2,298.40	2,273.26	8.86	8.70	107.79	-301.05	-62.96	88.23	70.79	17.43	5.061		
2,400.00	2,369.46	2,398.34	2,371.69	9.30	9.13	108.17	-318.25	-64.84	91.67	73.38	18.29	5.013		
2,500.00	2,467.71	2,498.28	2,470.12	9.74	9.55	108.52	-335.44	-66.73	95.11	75.97	19.14	4.970		
2,600.00	2,565.95	2,598.22	2,568.55	10.18	9.98	108.85	-352.63	-68.61	98.56	78.57	19.99	4.930		
2,700.00	2,664.20	2,698.16	2,666.98	10.62	10.41	109.16	-369.83	-70.49	102.01	81.17	20.84	4.894		
2,800.00	2,762.45	2,798.10	2,765.41	11.06	10.84	109.45	-387.02	-72.38	105.47	83.77	21.70	4.861		
2,900.00	2,860.70	2,898.03	2,863.84	11.51	11.27	109.71	-404.21	-74.26	108.92	86.37	22.55	4.831		
3,000.00	2,958.94	2,997.97	2,962.27	11.95	11.70	109.96	-421.41	-76.14	112.38	88.98	23.40	4.802		
3,100.00	3,057.19	3,097.91	3,060.70	12.39	12.13	110.20	-438.60	-78.02	115.84	91.59	24.25	4.776		
3,200.00	3,155.44	3,197.85	3,159.13	12.83	12.56	110.42	-455.79	-79.91	119.30	94.20	25.11	4.752		
3,300.00	3,253.68	3,297.79	3,257.56	13.27	12.99	110.63	-472.99	-81.79	122.77	96.81	25.96	4.730		
3,400.00	3,351.93	3,397.73	3,356.00	13.71	13.42	110.83	-490.18	-83.67	126.23	99.42	26.81	4.709		
3,500.00	3,450.18	3,497.67	3,454.43	14.16	13.85	111.02	-507.37	-85.56	129.70	102.04	27.66	4.689		
3,600.00	3,548.42	3,597.61	3,552.86	14.60	14.28	111.20	-524.57	-87.44	133.17	104.66	28.51	4.670		
3,700.00	3,646.67	3,697.55	3,651.29	15.04	14.71	111.37	-541.76	-89.32	136.64	107.27	29.37	4.653		
3,800.00	3,744.92	3,797.49	3,749.72	15.48	15.14	111.53	-558.95	-91.21	140.11	109.89	30.22	4.637		
3,900.00	3,843.16	3,897.42	3,848.15	15.93	15.57	111.68	-576.15	-93.09	143.58	112.51	31.07	4.621		
4,000.00	3,941.41	3,997.36	3,946.58	16.37	16.00	111.83	-593.34	-94.97	147.05	115.13	31.92	4.607		
4,100.00	4,039.66	4,097.30	4,045.01	16.81	16.43	111.97	-610.53	-96.86	150.53	117.76	32.77	4.593		
4,200.00	4,137.91	4,197.24	4,143.44	17.25	16.86	112.10	-627.73	-98.74	154.00	120.38	33.62	4.580		
4,300.00	4,236.15	4,297.18	4,241.87	17.70	17.29	112.23	-644.92	-100.62	157.48	123.00	34.48	4.568		
4,400.00	4,334.49	4,397.12	4,340.31	18.09	17.72	112.22	-662.11	-102.50	160.77	125.48	35.29	4.555		
4,500.00	4,433.33	4,497.05	4,438.73	18.36	18.15	111.22	-679.31	-104.39	162.92	126.88	36.04	4.521		
4,600.00	4,532.64	4,596.85	4,537.02	18.61	18.58	109.08	-696.48	-106.27	163.95	127.13	36.83	4.452		
4,700.00	4,632.30	4,696.22	4,634.92	18.85	18.98	105.88	-713.39	-108.12	164.25	126.65	37.60	4.368		
4,800.00	4,732.19	4,795.34	4,732.99	19.08	19.24	102.45	-727.67	-109.68	164.41	126.22	38.19	4.305		
4,900.00	4,832.18	4,894.81	4,831.84	19.33	19.49	-84.98	-738.60	-110.88	164.55	125.80	38.75	4.246		
5,000.00	4,932.18	4,994.78	4,931.52	19.54	19.73	-87.61	-746.14	-111.71	164.89	125.67	39.22	4.205		
5,100.00	5,032.17	5,095.16	5,031.81	19.75	19.95	-89.11	-750.22	-112.15	165.21	125.56	39.66	4.166		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,131.24	5,194.59	5,131.24	19.90	20.20	-93.61	-751.01	-112.24	165.63	125.62	40.01	4.140		
5,300.00	5,226.11	5,289.46	5,226.11	19.96	20.40	-103.05	-751.01	-112.24	170.49	130.59	39.89	4.274		
5,400.00	5,313.30	5,379.65	5,313.30	19.95	20.59	-114.66	-750.72	-112.24	188.31	149.27	39.03	4.824		
5,500.00	5,389.61	5,488.74	5,424.16	19.89	20.76	-126.50	-735.75	-112.24	219.09	181.82	37.27	5.879		
5,600.00	5,452.23	5,616.82	5,543.47	19.81	20.83	-135.91	-690.09	-112.24	255.20	220.99	34.21	7.460		
5,700.00	5,498.87	5,771.26	5,667.20	19.74	20.78	-143.05	-598.61	-112.24	289.91	260.60	29.31	9.890		
5,800.00	5,527.81	5,957.48	5,772.89	19.72	20.66	-147.79	-446.50	-112.24	316.10	292.72	23.38	13.520		
5,899.99	5,537.99	6,169.37	5,819.88	19.75	20.66	-149.62	-241.37	-112.24	326.83	305.38	21.45	15.240		
6,000.00	5,538.00	6,275.53	5,820.00	19.87	20.79	-149.63	-135.21	-112.24	326.87	304.95	21.91	14.917		
6,100.00	5,538.00	6,375.53	5,820.00	20.10	21.01	-149.63	-35.21	-112.24	326.87	304.47	22.40	14.595		
6,200.00	5,538.00	6,475.53	5,820.00	20.43	21.33	-149.63	64.79	-112.24	326.87	303.86	23.00	14.210		
6,300.00	5,538.00	6,575.53	5,820.00	20.86	21.74	-149.63	164.79	-112.24	326.87	303.14	23.73	13.777		
6,400.00	5,538.00	6,675.53	5,820.00	21.39	22.25	-149.63	264.79	-112.24	326.87	302.31	24.55	13.313		
6,500.00	5,538.00	6,775.53	5,820.00	22.00	22.84	-149.63	364.79	-112.24	326.87	301.39	25.48	12.831		
6,600.00	5,538.00	6,875.53	5,820.00	22.69	23.51	-149.63	464.79	-112.24	326.87	300.38	26.48	12.343		
6,700.00	5,538.00	6,975.53	5,820.00	23.45	24.25	-149.63	564.79	-112.24	326.87	299.30	27.56	11.858		
6,800.00	5,538.00	7,075.53	5,820.00	24.28	25.05	-149.63	664.79	-112.24	326.87	298.15	28.71	11.384		
6,900.00	5,538.00	7,175.53	5,820.00	25.17	25.92	-149.63	764.79	-112.24	326.87	296.94	29.92	10.924		
7,000.00	5,538.00	7,275.53	5,820.00	26.11	26.84	-149.63	864.79	-112.24	326.87	295.68	31.18	10.482		
7,100.00	5,538.00	7,375.53	5,820.00	27.10	27.80	-149.63	964.79	-112.24	326.87	294.37	32.49	10.060		
7,200.00	5,538.00	7,475.53	5,820.00	28.13	28.81	-149.63	1,064.79	-112.24	326.87	293.03	33.84	9.659		
7,300.00	5,538.00	7,575.53	5,820.00	29.19	29.85	-149.63	1,164.79	-112.24	326.87	291.64	35.22	9.280		
7,400.00	5,538.00	7,675.53	5,820.00	30.29	30.94	-149.63	1,264.79	-112.24	326.87	290.22	36.64	8.921		
7,500.00	5,538.00	7,775.53	5,820.00	31.43	32.05	-149.63	1,364.79	-112.24	326.87	288.78	38.09	8.582		
7,600.00	5,538.00	7,875.53	5,820.00	32.58	33.19	-149.63	1,464.79	-112.24	326.87	287.31	39.56	8.263		
7,700.00	5,538.00	7,975.53	5,820.00	33.77	34.35	-149.63	1,564.79	-112.24	326.87	285.82	41.05	7.963		
7,800.00	5,538.00	8,075.53	5,820.00	34.97	35.54	-149.63	1,664.79	-112.24	326.87	284.30	42.56	7.680		
7,900.00	5,538.00	8,175.53	5,820.00	36.20	36.75	-149.63	1,764.79	-112.24	326.87	282.77	44.09	7.413		
8,000.00	5,538.00	8,275.53	5,820.00	37.44	37.98	-149.63	1,864.79	-112.24	326.87	281.22	45.64	7.161		
8,100.00	5,538.00	8,375.53	5,820.00	38.70	39.22	-149.63	1,964.79	-112.24	326.87	279.66	47.21	6.924		
8,200.00	5,538.00	8,475.53	5,820.00	39.97	40.48	-149.63	2,064.79	-112.24	326.87	278.08	48.78	6.701		
8,300.00	5,538.00	8,575.53	5,820.00	41.26	41.76	-149.63	2,164.79	-112.24	326.87	276.49	50.37	6.489		
8,400.00	5,538.00	8,675.53	5,820.00	42.56	43.04	-149.63	2,264.79	-112.24	326.87	274.90	51.97	6.290		
8,500.00	5,538.00	8,775.53	5,820.00	43.87	44.34	-149.63	2,364.79	-112.24	326.87	273.29	53.58	6.101		
8,600.00	5,538.00	8,875.53	5,820.00	45.19	45.65	-149.63	2,464.79	-112.24	326.87	271.67	55.20	5.922		
8,700.00	5,538.00	8,975.53	5,820.00	46.51	46.96	-149.63	2,564.79	-112.24	326.87	270.04	56.82	5.752		
8,800.00	5,538.00	9,075.53	5,820.00	47.85	48.29	-149.63	2,664.79	-112.24	326.86	268.41	58.46	5.591		
8,900.00	5,538.00	9,175.53	5,820.00	49.20	49.63	-149.63	2,764.79	-112.24	326.86	266.77	60.10	5.439		
9,000.00	5,538.00	9,275.53	5,820.00	50.55	50.97	-149.63	2,864.79	-112.24	326.86	265.12	61.75	5.294		
9,100.00	5,538.00	9,375.53	5,820.00	51.91	52.32	-149.63	2,964.79	-112.24	326.86	263.46	63.40	5.155		
9,200.00	5,538.00	9,475.53	5,820.00	53.27	53.67	-149.63	3,064.79	-112.24	326.86	261.80	65.06	5.024		
9,300.00	5,538.00	9,575.53	5,820.00	54.64	55.03	-149.63	3,164.79	-112.24	326.86	260.14	66.72	4.899		
9,400.00	5,538.00	9,675.53	5,820.00	56.02	56.40	-149.63	3,264.79	-112.24	326.86	258.47	68.39	4.779		
9,500.00	5,538.00	9,775.53	5,820.00	57.39	57.77	-149.63	3,364.79	-112.24	326.86	256.80	70.07	4.665		
9,600.00	5,538.00	9,875.53	5,820.00	58.78	59.15	-149.63	3,464.79	-112.24	326.86	255.12	71.75	4.556		
9,700.00	5,538.00	9,975.53	5,820.00	60.17	60.53	-149.63	3,564.79	-112.24	326.86	253.44	73.43	4.452		
9,800.00	5,538.00	10,075.53	5,820.00	61.56	61.92	-149.63	3,664.79	-112.24	326.86	251.75	75.11	4.352		
9,900.00	5,538.00	10,175.53	5,820.00	62.96	63.31	-149.63	3,764.79	-112.24	326.86	250.07	76.80	4.256		
10,000.00	5,538.00	10,275.53	5,820.00	64.35	64.70	-149.63	3,864.79	-112.24	326.86	248.37	78.49	4.164		
10,100.00	5,538.00	10,375.53	5,820.00	65.76	66.10	-149.63	3,964.79	-112.24	326.86	246.68	80.18	4.076		
10,200.00	5,538.00	10,475.53	5,820.00	67.16	67.50	-149.63	4,064.79	-112.24	326.86	244.98	81.88	3.992		
10,300.00	5,538.00	10,575.53	5,820.00	68.57	68.90	-149.63	4,164.79	-112.24	326.86	243.28	83.58	3.911		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	5,538.00	10,675.53	5,820.00	69.98	70.31	-149.63	4,264.79	-112.24	326.86	241.58	85.28	3.833		
10,500.00	5,538.00	10,775.53	5,820.00	71.39	71.71	-149.63	4,364.79	-112.24	326.86	239.88	86.99	3.758		
10,600.00	5,538.00	10,875.53	5,820.00	72.81	73.13	-149.63	4,464.79	-112.24	326.86	238.17	88.69	3.685		
10,700.00	5,538.00	10,975.53	5,820.00	74.23	74.54	-149.63	4,564.79	-112.24	326.86	236.46	90.40	3.616		
10,800.00	5,538.00	11,075.53	5,820.00	75.65	75.95	-149.63	4,664.79	-112.24	326.86	234.75	92.11	3.549		
10,900.00	5,538.00	11,175.53	5,820.00	77.07	77.37	-149.63	4,764.79	-112.24	326.86	233.04	93.82	3.484		
11,000.00	5,538.00	11,275.53	5,820.00	78.49	78.79	-149.63	4,864.79	-112.24	326.86	231.33	95.54	3.421		
11,100.00	5,538.00	11,375.53	5,820.00	79.92	80.21	-149.63	4,964.79	-112.24	326.86	229.61	97.25	3.361		
11,200.00	5,538.00	11,475.53	5,820.00	81.35	81.64	-149.63	5,064.79	-112.23	326.86	227.89	98.97	3.303		
11,300.00	5,538.00	11,575.53	5,820.00	82.77	83.06	-149.63	5,164.79	-112.23	326.86	226.18	100.69	3.246		
11,400.00	5,538.00	11,675.53	5,820.00	84.20	84.49	-149.63	5,264.79	-112.23	326.86	224.46	102.41	3.192		
11,500.00	5,538.00	11,775.54	5,820.00	85.64	85.91	-149.63	5,364.79	-112.23	326.86	222.74	104.13	3.139		
11,600.00	5,538.00	11,875.54	5,820.00	87.07	87.34	-149.63	5,464.79	-112.23	326.86	221.01	105.85	3.088		
11,700.00	5,538.00	11,975.54	5,820.00	88.50	88.77	-149.63	5,564.79	-112.23	326.86	219.29	107.57	3.039		
11,800.00	5,538.00	12,075.54	5,820.00	89.94	90.21	-149.63	5,664.79	-112.23	326.86	217.57	109.30	2.991		
11,900.00	5,538.00	12,175.54	5,820.00	91.37	91.64	-149.63	5,764.79	-112.23	326.86	215.84	111.02	2.944		
12,000.00	5,538.00	12,275.54	5,820.00	92.81	93.07	-149.63	5,864.79	-112.23	326.86	214.11	112.75	2.899		
12,100.00	5,538.00	12,375.54	5,820.00	94.25	94.51	-149.63	5,964.79	-112.23	326.86	212.39	114.48	2.855		
12,200.00	5,538.00	12,475.54	5,820.00	95.69	95.95	-149.63	6,064.79	-112.23	326.86	210.66	116.21	2.813		
12,300.00	5,538.00	12,575.54	5,820.00	97.13	97.39	-149.63	6,164.79	-112.23	326.86	208.93	117.94	2.772		
12,400.00	5,538.00	12,675.54	5,820.00	98.57	98.82	-149.63	6,264.79	-112.23	326.86	207.20	119.67	2.731		
12,500.00	5,538.00	12,775.54	5,820.00	100.01	100.26	-149.63	6,364.79	-112.23	326.86	205.47	121.40	2.693		
12,600.00	5,538.00	12,875.54	5,820.00	101.46	101.70	-149.63	6,464.79	-112.23	326.86	203.74	123.13	2.655		
12,700.00	5,538.00	12,975.54	5,820.00	102.90	103.15	-149.63	6,564.79	-112.23	326.86	202.00	124.86	2.618		
12,800.00	5,538.00	13,075.54	5,820.00	104.35	104.59	-149.63	6,664.79	-112.23	326.86	200.27	126.59	2.582		
12,900.00	5,538.00	13,175.54	5,820.00	105.79	106.03	-149.63	6,764.79	-112.23	326.86	198.54	128.33	2.547		
13,000.00	5,538.00	13,275.54	5,820.00	107.24	107.48	-149.63	6,864.79	-112.23	326.86	196.80	130.06	2.513		
13,100.00	5,538.00	13,375.54	5,820.00	108.68	108.92	-149.63	6,964.79	-112.23	326.86	195.07	131.80	2.480		
13,200.00	5,538.00	13,475.54	5,820.00	110.13	110.37	-149.63	7,064.79	-112.23	326.86	193.33	133.53	2.448		
13,300.00	5,538.00	13,575.54	5,820.00	111.58	111.81	-149.63	7,164.79	-112.23	326.86	191.59	135.27	2.416		
13,400.00	5,538.00	13,675.54	5,820.00	113.03	113.26	-149.63	7,264.79	-112.23	326.86	189.86	137.01	2.386		
13,500.00	5,538.00	13,775.54	5,820.00	114.48	114.71	-149.63	7,364.79	-112.23	326.86	188.12	138.74	2.356		
13,600.00	5,538.00	13,875.54	5,820.00	115.93	116.15	-149.63	7,464.79	-112.23	326.86	186.38	140.48	2.327		
13,650.75	5,538.00	13,926.28	5,820.00	116.66	116.89	-149.63	7,515.54	-112.23	326.86	185.50	141.36	2.312 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.02	-0.01	29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	90.02	-0.01	29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	90.02	-0.01	29.99	29.99	29.05	0.94	31.881		
300.00	300.00	300.00	300.00	0.81	0.81	90.02	-0.01	29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	399.75	399.73	1.11	1.11	-86.05	-1.69	30.41	30.29	28.07	2.21	13.680 ES		
500.00	499.84	499.49	499.33	1.41	1.41	-86.31	-6.74	31.67	31.19	28.39	2.80	11.150		
600.00	599.45	599.22	598.67	1.73	1.73	-86.72	-15.15	33.77	32.68	29.25	3.44	9.507		
700.00	698.70	698.93	697.64	2.06	2.06	-87.23	-26.91	36.71	34.78	30.65	4.13	8.423		
800.00	797.47	798.63	796.11	2.42	2.42	-87.80	-42.00	40.48	37.47	32.60	4.87	7.691		
900.00	895.76	898.50	894.33	2.82	2.82	-88.74	-59.56	44.87	40.60	34.94	5.66	7.179		
1,000.00	994.00	998.45	992.60	3.23	3.23	-89.70	-77.26	49.29	43.76	37.29	6.47	6.767		
1,100.00	1,092.25	1,098.40	1,090.87	3.65	3.64	-90.54	-94.96	53.71	46.93	39.63	7.29	6.433		
1,200.00	1,190.50	1,198.34	1,189.14	4.07	4.06	-91.28	-112.66	58.13	50.11	41.97	8.14	6.159		
1,300.00	1,288.74	1,298.29	1,287.41	4.50	4.49	-91.92	-130.35	62.55	53.29	44.31	8.98	5.932		
1,400.00	1,386.99	1,398.24	1,385.68	4.93	4.91	-92.49	-148.05	66.97	56.48	46.64	9.84	5.741		
1,500.00	1,485.24	1,498.19	1,483.95	5.36	5.34	-93.00	-165.75	71.39	59.68	48.98	10.70	5.578		
1,600.00	1,583.49	1,598.13	1,582.21	5.80	5.77	-93.46	-183.45	75.81	62.88	51.32	11.56	5.439		
1,700.00	1,681.73	1,698.08	1,680.48	6.23	6.21	-93.88	-201.14	80.23	66.08	53.66	12.43	5.318		
1,800.00	1,779.98	1,798.03	1,778.75	6.67	6.64	-94.25	-218.84	84.65	69.29	56.00	13.30	5.212		
1,900.00	1,878.23	1,897.98	1,877.02	7.11	7.07	-94.60	-236.54	89.07	72.50	58.34	14.16	5.119		
2,000.00	1,976.47	1,997.92	1,975.29	7.54	7.51	-94.91	-254.24	93.49	75.71	60.68	15.04	5.036		
2,100.00	2,074.72	2,097.87	2,073.56	7.98	7.94	-95.20	-271.93	97.91	78.93	63.02	15.91	4.962		
2,200.00	2,172.97	2,197.82	2,171.83	8.42	8.38	-95.46	-289.63	102.33	82.15	65.37	16.78	4.895		
2,300.00	2,271.21	2,297.77	2,270.10	8.86	8.81	-95.71	-307.33	106.75	85.36	67.71	17.65	4.836		
2,400.00	2,369.46	2,397.71	2,368.36	9.30	9.25	-95.94	-325.03	111.18	88.58	70.06	18.53	4.781		
2,500.00	2,467.71	2,497.66	2,466.63	9.74	9.69	-96.15	-342.72	115.60	91.80	72.40	19.40	4.732		
2,600.00	2,565.95	2,597.61	2,564.90	10.18	10.13	-96.35	-360.42	120.02	95.03	74.75	20.28	4.686		
2,700.00	2,664.20	2,697.56	2,663.17	10.62	10.56	-96.53	-378.12	124.44	98.25	77.10	21.15	4.645		
2,800.00	2,762.45	2,797.50	2,761.44	11.06	11.00	-96.70	-395.82	128.86	101.47	79.45	22.03	4.606		
2,900.00	2,860.70	2,897.45	2,859.71	11.51	11.44	-96.86	-413.51	133.28	104.70	81.79	22.90	4.571		
3,000.00	2,958.94	2,997.40	2,957.98	11.95	11.88	-97.02	-431.21	137.70	107.92	84.14	23.78	4.538		
3,100.00	3,057.19	3,097.35	3,056.25	12.39	12.31	-97.16	-448.91	142.12	111.15	86.49	24.66	4.508		
3,200.00	3,155.44	3,197.29	3,154.52	12.83	12.75	-97.30	-466.61	146.54	114.38	88.84	25.53	4.479		
3,300.00	3,253.68	3,297.24	3,252.78	13.27	13.19	-97.42	-484.30	150.96	117.61	91.19	26.41	4.453		
3,400.00	3,351.93	3,397.19	3,351.05	13.71	13.63	-97.55	-502.00	155.38	120.83	93.55	27.29	4.428		
3,500.00	3,450.18	3,497.14	3,449.32	14.16	14.07	-97.66	-519.70	159.80	124.06	95.90	28.17	4.405		
3,600.00	3,548.42	3,597.08	3,547.59	14.60	14.51	-97.77	-537.40	164.22	127.29	98.25	29.04	4.383		
3,700.00	3,646.67	3,697.03	3,645.86	15.04	14.94	-97.87	-555.09	168.64	130.52	100.60	29.92	4.362		
3,800.00	3,744.92	3,796.98	3,744.13	15.48	15.38	-97.97	-572.79	173.06	133.75	102.95	30.80	4.343		
3,900.00	3,843.16	3,896.93	3,842.40	15.93	15.82	-98.07	-590.49	177.49	136.98	105.31	31.68	4.325		
4,000.00	3,941.41	3,996.87	3,940.67	16.37	16.26	-98.15	-608.19	181.91	140.21	107.66	32.55	4.307		
4,100.00	4,039.66	4,096.82	4,038.94	16.81	16.70	-98.24	-625.88	186.33	143.44	110.01	33.43	4.291		
4,200.00	4,137.91	4,196.77	4,137.20	17.25	17.14	-98.32	-643.58	190.75	146.68	112.37	34.31	4.275		
4,300.00	4,236.15	4,296.72	4,235.47	17.70	17.58	-98.40	-661.28	195.17	149.91	114.72	35.19	4.260		
4,400.00	4,334.49	4,396.67	4,333.74	18.09	18.02	-98.33	-678.98	199.59	153.07	117.05	36.02	4.249		
4,500.00	4,433.33	4,496.57	4,431.97	18.36	18.46	-97.16	-696.67	204.01	155.82	119.07	36.75	4.240		
4,600.00	4,532.64	4,596.50	4,530.27	18.61	18.86	-94.87	-714.10	208.36	158.29	120.86	37.43	4.229		
4,700.00	4,632.30	4,696.86	4,629.46	18.85	19.13	-92.41	-728.85	212.05	160.49	122.55	37.94	4.230		
4,800.00	4,732.19	4,797.47	4,729.38	19.08	19.39	-90.00	-740.26	214.90	162.37	123.98	38.40	4.229		
4,900.00	4,832.18	4,898.35	4,829.91	19.33	19.63	88.34	-748.26	216.90	163.94	125.09	38.85	4.220		
5,000.00	4,932.18	4,999.57	4,931.02	19.54	19.86	89.94	-752.84	218.04	165.00	125.76	39.24	4.205		
5,100.00	5,032.17	5,100.73	5,032.17	19.75	20.11	90.43	-754.01	218.33	165.29	125.61	39.68	4.165		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,131.24	5,199.80	5,131.24	19.90	20.32	94.62	-754.01	218.33	165.86	125.98	39.88	4.159		
5,300.00	5,226.11	5,295.81	5,227.25	19.96	20.52	104.04	-753.84	218.33	171.22	131.71	39.50	4.334		
5,400.00	5,313.30	5,401.46	5,331.87	19.95	20.69	114.79	-740.50	218.33	184.55	146.22	38.33	4.814		
5,500.00	5,389.61	5,517.23	5,440.82	19.89	20.76	123.80	-702.04	218.33	202.87	166.61	36.27	5.594		
5,600.00	5,452.23	5,644.97	5,547.88	19.81	20.73	130.84	-632.96	218.33	222.71	189.55	33.16	6.716		
5,700.00	5,498.87	5,785.61	5,642.45	19.74	20.63	135.90	-529.43	218.33	240.43	211.08	29.34	8.193		
5,800.00	5,527.81	5,937.92	5,709.70	19.72	20.53	138.97	-393.38	218.33	252.72	226.55	26.17	9.656		
5,899.99	5,537.99	6,097.38	5,734.99	19.75	20.52	140.00	-236.57	218.33	257.16	231.37	25.79	9.973		
6,000.00	5,538.00	6,198.74	5,735.00	19.87	20.61	140.00	-135.21	218.33	257.16	231.06	26.09	9.856		
6,100.00	5,538.00	6,298.74	5,735.00	20.10	20.82	140.00	-35.21	218.33	257.16	230.63	26.53	9.693		
6,200.00	5,538.00	6,398.74	5,735.00	20.43	21.13	140.00	64.79	218.33	257.16	230.04	27.12	9.484		
6,300.00	5,538.00	6,498.74	5,735.00	20.86	21.54	140.00	164.79	218.33	257.16	229.31	27.84	9.236		
6,400.00	5,538.00	6,598.74	5,735.00	21.39	22.04	140.00	264.79	218.33	257.16	228.46	28.70	8.961		
6,500.00	5,538.00	6,698.74	5,735.00	22.00	22.63	140.00	364.79	218.33	257.16	227.48	29.67	8.666		
6,600.00	5,538.00	6,798.74	5,735.00	22.69	23.31	140.00	464.79	218.33	257.16	226.40	30.76	8.361		
6,700.00	5,538.00	6,898.74	5,735.00	23.45	24.05	140.00	564.79	218.33	257.16	225.22	31.93	8.053		
6,800.00	5,538.00	6,998.74	5,735.00	24.28	24.86	140.00	664.79	218.33	257.16	223.96	33.20	7.746		
6,900.00	5,538.00	7,098.74	5,735.00	25.17	25.73	140.00	764.79	218.33	257.16	222.62	34.54	7.446		
7,000.00	5,538.00	7,198.74	5,735.00	26.11	26.65	140.00	864.79	218.33	257.16	221.21	35.95	7.154		
7,100.00	5,538.00	7,298.74	5,735.00	27.10	27.62	140.00	964.79	218.33	257.16	219.74	37.41	6.873		
7,200.00	5,538.00	7,398.74	5,735.00	28.13	28.64	140.00	1,064.79	218.33	257.15	218.22	38.94	6.604		
7,300.00	5,538.00	7,498.74	5,735.00	29.19	29.69	140.00	1,164.79	218.33	257.15	216.65	40.51	6.348		
7,400.00	5,538.00	7,598.74	5,735.00	30.29	30.77	140.00	1,264.79	218.33	257.15	215.04	42.12	6.105		
7,500.00	5,538.00	7,698.74	5,735.00	31.43	31.89	140.00	1,364.79	218.33	257.15	213.39	43.77	5.875		
7,600.00	5,538.00	7,798.74	5,735.00	32.58	33.03	140.00	1,464.79	218.33	257.15	211.70	45.45	5.658		
7,700.00	5,538.00	7,898.74	5,735.00	33.77	34.20	140.00	1,564.79	218.33	257.15	209.99	47.16	5.452		
7,800.00	5,538.00	7,998.74	5,735.00	34.97	35.40	140.00	1,664.79	218.33	257.15	208.25	48.90	5.258		
7,900.00	5,538.00	8,098.74	5,735.00	36.20	36.61	140.00	1,764.79	218.33	257.15	206.49	50.67	5.075		
8,000.00	5,538.00	8,198.74	5,735.00	37.44	37.84	140.00	1,864.79	218.33	257.15	204.70	52.45	4.903		
8,100.00	5,538.00	8,298.74	5,735.00	38.70	39.09	140.00	1,964.79	218.33	257.15	202.90	54.25	4.740		
8,200.00	5,538.00	8,398.74	5,735.00	39.97	40.35	140.00	2,064.79	218.33	257.15	201.08	56.08	4.586		
8,300.00	5,538.00	8,498.74	5,735.00	41.26	41.62	140.00	2,164.79	218.33	257.15	199.24	57.91	4.440		
8,400.00	5,538.00	8,598.74	5,735.00	42.56	42.91	140.00	2,264.79	218.32	257.15	197.39	59.77	4.303		
8,500.00	5,538.00	8,698.74	5,735.00	43.87	44.21	140.00	2,364.79	218.32	257.15	195.52	61.63	4.172		
8,600.00	5,538.00	8,798.74	5,735.00	45.19	45.52	140.00	2,464.79	218.32	257.15	193.64	63.51	4.049		
8,700.00	5,538.00	8,898.74	5,735.00	46.51	46.84	140.00	2,564.79	218.32	257.15	191.76	65.40	3.932		
8,800.00	5,538.00	8,998.74	5,735.00	47.85	48.17	140.00	2,664.79	218.32	257.15	189.86	67.29	3.821		
8,900.00	5,538.00	9,098.74	5,735.00	49.20	49.51	140.00	2,764.79	218.32	257.15	187.95	69.20	3.716		
9,000.00	5,538.00	9,198.74	5,735.00	50.55	50.85	140.00	2,864.79	218.32	257.15	186.03	71.12	3.616		
9,100.00	5,538.00	9,298.74	5,735.00	51.91	52.20	140.00	2,964.79	218.32	257.15	184.11	73.04	3.521		
9,200.00	5,538.00	9,398.74	5,735.00	53.27	53.56	140.00	3,064.79	218.32	257.15	182.18	74.97	3.430		
9,300.00	5,538.00	9,498.74	5,735.00	54.64	54.92	140.00	3,164.79	218.32	257.15	180.24	76.91	3.344		
9,400.00	5,538.00	9,598.74	5,735.00	56.02	56.29	140.00	3,264.79	218.32	257.15	178.30	78.85	3.261		
9,500.00	5,538.00	9,698.74	5,735.00	57.39	57.67	140.00	3,364.79	218.32	257.15	176.35	80.80	3.182		
9,600.00	5,538.00	9,798.74	5,735.00	58.78	59.04	140.00	3,464.79	218.32	257.15	174.40	82.76	3.107		
9,700.00	5,538.00	9,898.74	5,735.00	60.17	60.43	140.00	3,564.79	218.32	257.15	172.44	84.72	3.035		
9,800.00	5,538.00	9,998.74	5,735.00	61.56	61.81	140.00	3,664.79	218.32	257.15	170.47	86.68	2.967		
9,900.00	5,538.00	10,098.74	5,735.00	62.96	63.20	140.00	3,764.79	218.32	257.15	168.50	88.65	2.901		
10,000.00	5,538.00	10,198.74	5,735.00	64.35	64.60	140.00	3,864.79	218.32	257.15	166.53	90.62	2.838		
10,100.00	5,538.00	10,298.74	5,735.00	65.76	66.00	140.00	3,964.79	218.32	257.15	164.55	92.60	2.777		
10,200.00	5,538.00	10,398.74	5,735.00	67.16	67.40	140.00	4,064.79	218.32	257.15	162.58	94.58	2.719		
10,300.00	5,538.00	10,498.74	5,735.00	68.57	68.80	140.00	4,164.79	218.32	257.15	160.59	96.56	2.663		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
10,400.00	5,538.00	10,598.74	5,735.00	69.98	70.21	140.00	4,264.79	218.32	257.15	158.61	98.55	2.609	
10,500.00	5,538.00	10,698.74	5,735.00	71.39	71.62	140.00	4,364.79	218.32	257.15	156.62	100.53	2.558	
10,600.00	5,538.00	10,798.74	5,735.00	72.81	73.03	140.00	4,464.79	218.32	257.15	154.63	102.53	2.508	
10,700.00	5,538.00	10,898.74	5,735.00	74.23	74.44	140.00	4,564.79	218.32	257.15	152.63	104.52	2.460	
10,800.00	5,538.00	10,998.74	5,735.00	75.65	75.86	140.00	4,664.79	218.32	257.15	150.63	106.52	2.414	
10,900.00	5,538.00	11,098.74	5,735.00	77.07	77.28	140.00	4,764.79	218.32	257.15	148.63	108.52	2.370	
11,000.00	5,538.00	11,198.74	5,735.00	78.49	78.70	140.00	4,864.79	218.32	257.15	146.63	110.52	2.327	
11,100.00	5,538.00	11,298.74	5,735.00	79.92	80.12	140.00	4,964.79	218.32	257.15	144.63	112.52	2.285	
11,200.00	5,538.00	11,398.74	5,735.00	81.35	81.54	140.00	5,064.79	218.32	257.15	142.62	114.53	2.245	
11,300.00	5,538.00	11,498.74	5,735.00	82.77	82.97	140.00	5,164.79	218.32	257.15	140.62	116.53	2.207	
11,400.00	5,538.00	11,598.74	5,735.00	84.20	84.39	140.00	5,264.79	218.32	257.15	138.61	118.54	2.169	
11,500.00	5,538.00	11,698.74	5,735.00	85.64	85.82	140.00	5,364.79	218.32	257.15	136.60	120.55	2.133	
11,600.00	5,538.00	11,798.74	5,735.00	87.07	87.25	140.00	5,464.79	218.32	257.15	134.59	122.56	2.098	
11,700.00	5,538.00	11,898.74	5,735.00	88.50	88.68	140.00	5,564.79	218.32	257.15	132.57	124.58	2.064	
11,800.00	5,538.00	11,998.74	5,735.00	89.94	90.12	140.00	5,664.79	218.32	257.15	130.56	126.59	2.031	
11,900.00	5,538.00	12,098.74	5,735.00	91.37	91.55	140.00	5,764.79	218.32	257.15	128.54	128.61	1.999	
12,000.00	5,538.00	12,198.74	5,735.00	92.81	92.99	140.00	5,864.79	218.32	257.15	126.52	130.63	1.969	
12,100.00	5,538.00	12,298.74	5,735.00	94.25	94.42	140.00	5,964.79	218.32	257.15	124.50	132.65	1.939	
12,200.00	5,538.00	12,398.74	5,735.00	95.69	95.86	140.00	6,064.79	218.32	257.15	122.48	134.67	1.910	
12,300.00	5,538.00	12,498.74	5,735.00	97.13	97.30	140.00	6,164.79	218.32	257.15	120.46	136.69	1.881	
12,400.00	5,538.00	12,598.74	5,735.00	98.57	98.74	140.00	6,264.79	218.32	257.15	118.44	138.71	1.854	
12,500.00	5,538.00	12,698.74	5,735.00	100.01	100.18	140.00	6,364.79	218.32	257.15	116.41	140.73	1.827	
12,600.00	5,538.00	12,798.74	5,735.00	101.46	101.62	140.00	6,464.79	218.32	257.15	114.39	142.76	1.801	
12,700.00	5,538.00	12,898.74	5,735.00	102.90	103.06	140.00	6,564.79	218.32	257.15	112.36	144.78	1.776	
12,800.00	5,538.00	12,998.74	5,735.00	104.35	104.50	140.00	6,664.79	218.32	257.15	110.34	146.81	1.752	
12,900.00	5,538.00	13,098.74	5,735.00	105.79	105.95	140.00	6,764.79	218.32	257.15	108.31	148.84	1.728	
13,000.00	5,538.00	13,198.74	5,735.00	107.24	107.39	140.00	6,864.79	218.32	257.15	106.28	150.87	1.704	
13,100.00	5,538.00	13,298.74	5,735.00	108.68	108.84	140.00	6,964.79	218.32	257.15	104.25	152.90	1.682	
13,200.00	5,538.00	13,398.74	5,735.00	110.13	110.28	140.00	7,064.79	218.32	257.15	102.22	154.93	1.660	
13,300.00	5,538.00	13,498.74	5,735.00	111.58	111.73	140.00	7,164.79	218.32	257.15	100.19	156.96	1.638	
13,400.00	5,538.00	13,598.74	5,735.00	113.03	113.18	140.00	7,264.79	218.32	257.15	98.16	158.99	1.617	
13,500.00	5,538.00	13,698.74	5,735.00	114.48	114.62	140.00	7,364.79	218.32	257.15	96.13	161.02	1.597	
13,600.00	5,538.00	13,798.74	5,735.00	115.93	116.07	140.00	7,464.79	218.32	257.15	94.10	163.05	1.577	
13,650.75	5,538.00	13,849.49	5,735.00	116.66	116.81	140.00	7,515.54	218.32	257.15	93.06	164.08	1.567 SF	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-179.11	-49.59	-0.77	49.60					
100.00	100.00	100.00	100.00	0.13	0.13	-179.11	-49.59	-0.77	49.60	49.33	0.27	186.224		
200.00	200.00	200.00	200.00	0.47	0.47	-179.11	-49.59	-0.77	49.60	48.66	0.94	52.730		
300.00	300.00	300.00	300.00	0.81	0.81	-179.11	-49.59	-0.77	49.60	47.99	1.61	30.713		
400.00	399.98	400.64	400.62	1.11	1.14	3.15	-48.89	0.85	47.16	44.90	2.26	20.882		
500.00	499.84	500.78	500.62	1.41	1.48	-3.41	-46.80	5.68	40.18	37.29	2.90	13.876		
600.00	599.45	599.95	599.48	1.73	1.81	-18.86	-43.68	12.88	30.40	26.87	3.53	8.624		
700.00	698.70	698.55	697.76	2.06	2.14	-51.10	-40.52	20.18	22.23	18.02	4.21	5.279		
732.39	730.75	730.37	729.47	2.17	2.25	-66.65	-39.49	22.54	21.47	17.00	4.47	4.802 CC, ES, SF		
800.00	797.47	796.58	795.46	2.42	2.48	-98.96	-37.37	27.44	25.20	20.20	5.00	5.038		
900.00	895.76	894.05	892.62	2.82	2.82	-127.07	-34.24	34.66	41.07	35.38	5.69	7.214		
1,000.00	994.00	991.48	989.73	3.23	3.16	-138.65	-31.11	41.88	61.29	54.95	6.34	9.663		
1,100.00	1,092.25	1,088.91	1,086.83	3.65	3.50	-144.39	-27.99	49.09	82.72	75.72	7.00	11.822		
1,200.00	1,190.50	1,186.33	1,183.94	4.07	3.84	-147.77	-24.86	56.31	104.61	96.95	7.66	13.659		
1,300.00	1,288.74	1,283.76	1,281.05	4.50	4.18	-149.97	-21.73	63.53	126.74	118.41	8.33	15.220		
1,400.00	1,386.99	1,381.18	1,378.16	4.93	4.52	-151.52	-18.60	70.74	148.98	139.99	9.00	16.555		
1,500.00	1,485.24	1,478.61	1,475.27	5.36	4.86	-152.66	-15.48	77.96	171.31	161.63	9.67	17.707		
1,600.00	1,583.49	1,576.04	1,572.38	5.80	5.20	-153.54	-12.35	85.18	193.68	183.33	10.35	18.708		
1,700.00	1,681.73	1,673.46	1,669.49	6.23	5.55	-154.24	-9.22	92.39	216.09	205.06	11.03	19.585		
1,800.00	1,779.98	1,770.89	1,766.59	6.67	5.89	-154.81	-6.10	99.61	238.53	226.81	11.72	20.360		
1,900.00	1,878.23	1,868.32	1,863.70	7.11	6.23	-155.28	-2.97	106.82	260.98	248.58	12.40	21.049		
2,000.00	1,976.47	1,965.74	1,960.81	7.54	6.58	-155.67	0.16	114.04	283.45	270.36	13.08	21.665		
2,100.00	2,074.72	2,063.17	2,057.92	7.98	6.92	-156.01	3.29	121.26	305.92	292.15	13.77	22.219		
2,200.00	2,172.97	2,160.60	2,155.03	8.42	7.26	-156.30	6.41	128.47	328.41	313.95	14.45	22.720		
2,300.00	2,271.21	2,258.02	2,252.14	8.86	7.60	-156.56	9.54	135.69	350.90	335.76	15.14	23.175		
2,400.00	2,369.46	2,355.45	2,349.24	9.30	7.95	-156.78	12.67	142.91	373.40	357.57	15.83	23.590		
2,500.00	2,467.71	2,452.88	2,446.35	9.74	8.29	-156.98	15.79	150.12	395.91	379.39	16.52	23.970		
2,600.00	2,565.95	2,550.30	2,543.46	10.18	8.63	-157.15	18.92	157.34	418.41	401.21	17.21	24.319		
2,700.00	2,664.20	2,647.73	2,640.57	10.62	8.98	-157.31	22.05	164.55	440.92	423.03	17.89	24.641		
2,800.00	2,762.45	2,745.15	2,737.68	11.06	9.32	-157.46	25.18	171.77	463.44	444.85	18.58	24.939		
2,900.00	2,860.70	2,842.58	2,834.79	11.51	9.67	-157.59	28.30	178.99	485.95	466.68	19.27	25.215		
3,000.00	2,958.94	2,940.01	2,931.90	11.95	10.01	-157.70	31.43	186.20	508.47	488.51	19.96	25.472		
3,100.00	3,057.19	3,037.43	3,029.00	12.39	10.35	-157.81	34.56	193.42	530.99	510.34	20.65	25.711		
3,200.00	3,155.44	3,134.86	3,126.11	12.83	10.70	-157.91	37.68	200.64	553.52	532.17	21.34	25.935		
3,300.00	3,253.68	3,232.29	3,223.22	13.27	11.04	-158.00	40.81	207.85	576.04	554.01	22.03	26.145		
3,400.00	3,351.93	3,329.71	3,320.33	13.71	11.38	-158.09	43.94	215.07	598.56	575.84	22.72	26.341		
3,500.00	3,450.18	3,427.14	3,417.44	14.16	11.73	-158.17	47.07	222.28	621.09	597.68	23.41	26.526		
3,600.00	3,548.42	3,524.57	3,514.55	14.60	12.07	-158.24	50.19	229.50	643.62	619.51	24.10	26.701		
3,700.00	3,646.67	3,621.99	3,611.66	15.04	12.41	-158.31	53.32	236.72	666.14	641.35	24.80	26.865		
3,800.00	3,744.92	3,719.42	3,708.76	15.48	12.76	-158.37	56.45	243.93	688.67	663.19	25.49	27.020		
3,900.00	3,843.16	3,816.85	3,805.87	15.93	13.10	-158.43	59.57	251.15	711.20	685.02	26.18	27.168		
4,000.00	3,941.41	3,914.27	3,902.98	16.37	13.44	-158.49	62.70	258.37	733.73	706.86	26.87	27.307		
4,100.00	4,039.66	4,011.70	4,000.09	16.81	13.79	-158.54	65.83	265.58	756.26	728.70	27.56	27.439		
4,200.00	4,137.91	4,109.13	4,097.20	17.25	14.13	-158.59	68.96	272.80	778.80	750.54	28.25	27.565		
4,300.00	4,236.15	4,206.55	4,194.31	17.70	14.48	-158.64	72.08	280.01	801.33	772.38	28.94	27.685		
4,400.00	4,334.49	4,304.08	4,291.51	18.09	14.82	-158.75	75.21	287.24	823.43	793.81	29.61	27.805		
4,500.00	4,433.33	4,402.19	4,389.31	18.36	15.17	-158.85	78.36	294.51	842.70	812.48	30.22	27.881		
4,600.00	4,532.64	4,500.87	4,487.66	18.61	15.51	-158.84	81.53	301.81	858.77	827.94	30.84	27.848		
4,700.00	4,632.30	4,600.16	4,586.63	18.85	15.86	-158.72	84.72	309.17	871.63	840.18	31.45	27.712		
4,800.00	4,732.19	4,698.32	4,683.00	19.08	21.32	-91.14	-751.75	317.68	848.18	834.35	13.83	61.315		
4,900.00	4,832.18	4,798.57	4,783.00	19.33	21.33	90.00	-753.00	317.68	753.81	738.67	15.13	49.812		
5,000.00	4,932.18	4,898.57	4,883.00	19.54	21.33	90.00	-753.00	317.68	661.10	644.26	16.84	39.250		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3103 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
5,100.00	5,032.17	6,169.35	5,538.00	19.75	21.33	93.19	-752.78	317.68	570.87	551.72	19.15	29.812						
5,200.00	5,131.24	6,156.89	5,538.00	19.90	21.24	108.62	-740.32	317.68	485.27	463.13	22.15	21.912						
5,300.00	5,226.11	6,125.76	5,538.00	19.96	21.02	115.32	-709.19	317.68	409.04	383.19	25.85	15.823						
5,400.00	5,313.30	6,077.11	5,538.00	19.95	20.69	115.77	-660.54	317.68	347.17	317.12	30.05	11.552						
5,500.00	5,389.61	6,012.72	5,538.00	19.89	20.29	111.85	-596.15	317.68	303.41	269.38	34.02	8.918						
5,600.00	5,452.23	5,934.95	5,538.00	19.81	19.86	105.15	-518.38	317.68	278.19	241.41	36.79	7.563						
5,700.00	5,498.87	5,846.46	5,537.99	19.74	19.43	97.77	-429.89	317.68	267.52	229.57	37.95	7.049						
5,800.00	5,527.81	5,750.35	5,528.66	19.72	19.05	90.17	-334.37	317.68	264.64	226.52	38.13	6.941						
5,802.28	5,528.26	5,748.24	5,528.25	19.72	19.04	90.00	-332.30	317.68	264.64	226.52	38.12	6.942						
5,899.99	5,537.99	5,660.49	5,504.21	19.75	18.75	82.74	-248.02	317.68	267.10	229.42	37.67	7.089						
6,000.00	5,538.00	5,578.94	5,469.48	19.87	18.51	75.48	-174.32	317.68	276.15	239.33	36.83	7.499						
6,100.00	5,538.00	5,509.68	5,431.25	20.10	18.33	68.03	-116.63	317.68	296.75	261.06	35.69	8.315						
6,200.00	5,538.00	5,450.00	5,392.43	20.43	18.18	61.19	-71.35	317.68	331.30	296.69	34.61	9.571						
6,300.00	5,538.00	5,400.00	5,356.08	20.86	18.06	55.49	-37.04	317.68	379.29	345.33	33.96	11.168						
6,400.00	5,538.00	5,365.07	5,328.82	21.39	17.97	51.68	-15.21	317.68	438.40	404.44	33.95	12.911						
6,500.00	5,538.00	5,332.31	5,301.98	22.00	17.89	48.27	3.56	317.68	506.19	472.13	34.06	14.860						
6,600.00	5,538.00	5,300.00	5,274.40	22.69	17.81	45.11	20.38	317.68	580.53	546.35	34.18	16.983						
6,700.00	5,538.00	5,281.58	5,258.22	23.45	17.76	43.41	29.20	317.68	659.67	625.13	34.55	19.096						
6,800.00	5,538.00	5,250.00	5,229.81	24.28	17.68	40.65	42.96	317.68	742.76	708.13	34.62	21.453						
6,900.00	5,538.00	5,250.00	5,229.81	25.17	17.68	40.65	42.96	317.68	828.28	793.18	35.10	23.595						
7,000.00	5,538.00	5,229.73	5,211.15	26.11	17.63	39.00	50.88	317.68	916.14	880.90	35.24	25.997						
7,100.00	5,538.00	5,216.71	5,199.01	27.10	17.59	37.98	55.58	317.68	1,005.79	970.37	35.42	28.396						
7,200.00	5,538.00	5,200.00	5,183.26	28.13	17.55	36.72	61.16	317.68	1,096.88	1,061.34	35.54	30.866						
7,300.00	5,538.00	5,200.00	5,183.26	29.19	17.55	36.72	61.16	317.68	1,189.06	1,153.30	35.76	33.256						
7,400.00	5,538.00	5,200.00	5,183.26	30.29	17.55	36.72	61.16	317.68	1,282.42	1,246.48	35.93	35.690						
7,500.00	5,538.00	5,177.77	5,162.05	31.43	17.49	35.14	67.81	317.68	1,376.06	1,340.10	35.96	38.270						
7,600.00	5,538.00	5,170.40	5,154.95	32.58	17.47	34.64	69.81	317.68	1,470.62	1,434.56	36.06	40.783						



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	129.96	-49.61	59.21	77.25					
100.00	100.00	100.00	100.00	0.13	0.13	129.96	-49.61	59.21	77.25	76.98	0.27	290.019		
200.00	200.00	200.00	200.00	0.47	0.47	129.96	-49.61	59.21	77.25	76.31	0.94	82.120		
300.00	300.00	300.00	300.00	0.81	0.81	129.96	-49.61	59.21	77.25	75.63	1.61	47.832		
400.00	399.98	398.33	398.32	1.11	1.13	-47.93	-49.23	60.85	77.11	74.86	2.26	34.183		
442.10	442.04	439.63	439.58	1.24	1.26	-49.89	-48.84	62.52	77.07	74.53	2.53	30.425 CC		
500.00	499.84	496.26	496.11	1.41	1.45	-53.66	-48.10	65.76	77.24	74.32	2.92	26.428 ES		
600.00	599.45	593.39	592.88	1.73	1.78	-62.85	-46.23	73.83	79.17	75.50	3.67	21.559		
700.00	698.70	689.33	688.13	2.06	2.12	-74.33	-43.66	84.95	85.15	80.65	4.50	18.933		
800.00	797.47	786.11	783.93	2.42	2.47	-86.31	-40.56	98.37	96.31	91.09	5.22	18.449		
900.00	895.76	882.98	879.80	2.82	2.83	-97.04	-37.43	111.89	111.41	105.51	5.90	18.883		
1,000.00	994.00	979.80	975.61	3.23	3.19	-105.25	-34.31	125.40	129.61	123.03	6.57	19.712		
1,100.00	1,092.25	1,076.61	1,071.43	3.65	3.56	-111.40	-31.19	138.92	149.79	142.54	7.25	20.656		
1,200.00	1,190.50	1,173.43	1,167.25	4.07	3.93	-116.07	-28.07	152.43	171.26	163.32	7.94	21.580		
1,300.00	1,288.74	1,270.25	1,263.07	4.50	4.30	-119.70	-24.94	165.94	193.58	184.96	8.63	22.436		
1,400.00	1,386.99	1,367.06	1,358.89	4.93	4.68	-122.58	-21.82	179.46	216.50	207.18	9.33	23.214		
1,500.00	1,485.24	1,463.88	1,454.70	5.36	5.05	-124.91	-18.70	192.97	239.84	229.81	10.03	23.912		
1,600.00	1,583.49	1,560.69	1,550.52	5.80	5.42	-126.82	-15.57	206.48	263.49	252.76	10.74	24.538		
1,700.00	1,681.73	1,657.51	1,646.34	6.23	5.80	-128.42	-12.45	220.00	287.38	275.93	11.45	25.099		
1,800.00	1,779.98	1,754.33	1,742.16	6.67	6.18	-129.78	-9.33	233.51	311.45	299.28	12.16	25.603		
1,900.00	1,878.23	1,851.14	1,837.98	7.11	6.55	-130.94	-6.20	247.02	335.65	322.77	12.88	26.058		
2,000.00	1,976.47	1,947.96	1,933.79	7.54	6.93	-131.94	-3.08	260.54	359.97	346.37	13.60	26.468		
2,100.00	2,074.72	2,044.78	2,029.61	7.98	7.30	-132.82	0.04	274.05	384.38	370.06	14.32	26.841		
2,200.00	2,172.97	2,141.59	2,125.43	8.42	7.68	-133.60	3.17	287.56	408.87	393.83	15.04	27.180		
2,300.00	2,271.21	2,238.41	2,221.25	8.86	8.06	-134.28	6.29	301.08	433.42	417.65	15.77	27.490		
2,400.00	2,369.46	2,335.23	2,317.07	9.30	8.43	-134.89	9.41	314.59	458.02	441.53	16.49	27.775		
2,500.00	2,467.71	2,432.04	2,412.88	9.74	8.81	-135.44	12.54	328.10	482.66	465.45	17.22	28.036		
2,600.00	2,565.95	2,528.86	2,508.70	10.18	9.19	-135.94	15.66	341.62	507.34	489.40	17.94	28.277		
2,700.00	2,664.20	2,625.68	2,604.52	10.62	9.57	-136.39	18.78	355.13	532.06	513.39	18.67	28.501		
2,800.00	2,762.45	2,722.49	2,700.34	11.06	9.94	-136.80	21.91	368.64	556.80	537.41	19.40	28.708		
2,900.00	2,860.70	2,819.31	2,796.16	11.51	10.32	-137.18	25.03	382.16	581.57	561.45	20.12	28.900		
3,000.00	2,958.94	2,916.13	2,891.97	11.95	10.70	-137.52	28.15	395.67	606.36	585.51	20.85	29.080		
3,100.00	3,057.19	3,012.94	2,987.79	12.39	11.08	-137.84	31.27	409.18	631.17	609.59	21.58	29.247		
3,200.00	3,155.44	3,109.76	3,083.61	12.83	11.46	-138.14	34.40	422.70	655.99	633.69	22.31	29.404		
3,300.00	3,253.68	3,206.58	3,179.43	13.27	11.83	-138.41	37.52	436.21	680.84	657.80	23.04	29.551		
3,400.00	3,351.93	3,303.39	3,275.25	13.71	12.21	-138.66	40.64	449.72	705.69	681.92	23.77	29.690		
3,500.00	3,450.18	3,400.21	3,371.06	14.16	12.59	-138.90	43.77	463.24	730.56	706.06	24.50	29.820		
3,600.00	3,548.42	3,497.03	3,466.88	14.60	12.97	-139.12	46.89	476.75	755.43	730.20	25.23	29.943		
3,700.00	3,646.67	3,593.84	3,562.70	15.04	13.35	-139.33	50.01	490.26	780.32	754.36	25.96	30.059		
3,800.00	3,744.92	3,690.66	3,658.52	15.48	13.72	-139.52	53.14	503.78	805.22	778.53	26.69	30.169		
3,900.00	3,843.16	3,787.48	3,754.33	15.93	14.10	-139.70	56.26	517.29	830.12	802.70	27.42	30.273		
4,000.00	3,941.41	3,884.29	3,850.15	16.37	14.48	-139.87	59.38	530.80	855.03	826.88	28.15	30.371		
4,100.00	4,039.66	3,981.11	3,945.97	16.81	14.86	-140.04	62.51	544.32	879.95	851.07	28.88	30.465		
4,200.00	4,137.91	4,077.92	4,041.79	17.25	15.24	-140.19	65.63	557.83	904.87	875.26	29.62	30.554		
4,300.00	4,236.15	4,174.74	4,137.61	17.70	15.62	-140.33	68.75	571.34	929.80	899.46	30.35	30.639		
4,400.00	4,334.49	4,271.65	4,233.52	18.09	16.00	-140.62	71.88	584.87	954.38	923.33	31.05	30.737		
4,500.00	4,433.33	4,369.14	4,330.00	18.36	16.38	-140.90	75.02	598.48	976.63	944.96	31.67	30.833		
4,600.00	4,532.64	4,467.17	4,427.02	18.61	16.76	-141.02	78.19	612.16	996.24	963.94	32.30	30.844		
4,700.00	4,632.30	4,563.56	4,523.32	18.85	17.18	-140.95	81.76	627.62	1,012.74	979.73	33.01	30.676		
4,800.00	4,732.19	4,718.63	4,676.75	19.08	17.55	-140.82	84.68	640.27	1,023.54	989.83	33.72	30.358		
4,900.00	4,832.18	4,823.84	4,776.00	19.33	17.86	-140.62	-753.00	647.66	975.90	952.14	23.76	41.070		
5,000.00	4,932.18	4,923.84	4,876.00	19.54	18.06	-140.42	-753.00	647.66	998.67	972.75	25.92	34.669		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-3104 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis				Distance									
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
5,100.00	5,032.17	6,263.62	5,606.00	19.75	22.55	91.61	-752.78	647.66	826.35	797.98	28.37	29.130					
5,200.00	5,131.24	6,251.16	5,606.00	19.90	22.47	99.93	-740.32	647.66	760.90	729.98	30.92	24.606					
5,300.00	5,226.11	6,220.03	5,606.00	19.96	22.26	104.38	-709.19	647.66	705.61	672.29	33.32	21.178					
5,400.00	5,313.30	6,171.38	5,606.00	19.95	21.95	105.64	-660.54	647.66	662.76	627.43	35.33	18.761					
5,500.00	5,389.61	6,106.99	5,606.00	19.89	21.57	104.59	-596.15	647.66	632.77	596.03	36.75	17.220					
5,600.00	5,452.23	6,029.22	5,606.00	19.81	21.17	102.19	-518.38	647.66	614.18	576.63	37.55	16.357					
5,700.00	5,498.87	5,939.77	5,605.97	19.74	20.77	99.42	-428.93	647.66	604.19	566.36	37.83	15.970					
5,800.00	5,527.81	5,829.65	5,593.18	19.72	20.37	95.88	-319.76	647.66	598.39	560.45	37.93	15.775					
5,899.99	5,537.99	5,729.42	5,561.85	19.75	20.07	92.09	-224.72	647.66	595.19	557.26	37.94	15.690					
5,957.53	5,538.24	5,676.77	5,538.24	19.82	19.93	90.00	-177.68	647.66	594.62	556.68	37.94	15.674 SF					
6,000.00	5,538.00	5,641.17	5,519.65	19.87	19.85	88.23	-147.34	647.66	595.03	557.11	37.92	15.693					
6,100.00	5,538.00	5,568.97	5,475.80	20.10	19.68	84.03	-90.05	647.66	600.37	562.46	37.91	15.835					
6,200.00	5,538.00	5,510.89	5,435.04	20.43	19.55	80.18	-48.72	647.66	614.05	576.12	37.93	16.190					
6,300.00	5,538.00	5,464.24	5,399.13	20.86	19.44	76.85	-18.96	647.66	637.67	599.68	37.99	16.784					
6,400.00	5,538.00	5,426.51	5,368.23	21.39	19.36	74.07	2.68	647.66	671.64	633.51	38.13	17.615					
6,500.00	5,538.00	5,400.00	5,345.62	22.00	19.30	72.07	16.52	647.66	715.45	677.13	38.33	18.667					
6,600.00	5,538.00	5,370.15	5,319.36	22.69	19.23	69.81	30.70	647.66	767.99	729.51	38.48	19.959					
6,700.00	5,538.00	5,350.00	5,301.20	23.45	19.18	68.29	39.42	647.66	828.05	789.36	38.69	21.400					
6,800.00	5,538.00	5,330.69	5,283.49	24.28	19.13	66.83	47.10	647.66	894.37	855.50	38.87	23.011					
6,900.00	5,538.00	5,315.21	5,269.08	25.17	19.10	65.67	52.79	647.66	965.83	926.80	39.03	24.743					
7,000.00	5,538.00	5,300.00	5,254.78	26.11	19.06	64.53	57.95	647.66	1,041.52	1,002.35	39.17	26.589					
7,100.00	5,538.00	5,300.00	5,254.78	27.10	19.06	64.53	57.95	647.66	1,120.78	1,081.41	39.37	28.470					
7,200.00	5,538.00	5,279.93	5,235.68	28.13	19.01	63.05	64.13	647.66	1,202.62	1,163.20	39.42	30.509					
7,300.00	5,538.00	5,270.86	5,226.98	29.19	18.99	62.39	66.67	647.66	1,286.92	1,247.41	39.51	32.570					
7,400.00	5,538.00	5,250.00	5,206.80	30.29	18.94	60.88	71.95	647.66	1,373.36	1,333.82	39.54	34.735					
7,500.00	5,538.00	5,250.00	5,206.80	31.43	18.94	60.88	71.95	647.66	1,461.06	1,421.41	39.65	36.851					





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-148.19	-49.59	-30.76	58.36					
100.00	100.00	100.00	100.00	0.13	0.13	-148.19	-49.59	-30.76	58.36	58.09	0.27	219.105		
200.00	200.00	200.00	200.00	0.47	0.47	-148.19	-49.59	-30.76	58.36	57.42	0.94	62.041		
300.00	300.00	300.00	300.00	0.81	0.81	-148.19	-49.59	-30.76	58.36	56.74	1.61	36.136		
400.00	399.98	401.86	401.84	1.11	1.15	36.34	-48.45	-29.36	55.26	52.94	2.32	23.818		
500.00	499.84	502.07	501.95	1.41	1.49	38.51	-45.58	-25.85	46.80	43.83	2.98	15.730		
600.00	599.45	601.34	601.11	1.73	1.81	45.26	-42.63	-22.24	35.71	32.10	3.61	9.891		
700.00	698.70	700.15	699.81	2.06	2.14	64.62	-39.69	-18.64	23.81	19.55	4.25	5.598		
778.19	775.97	777.01	776.58	2.34	2.40	101.27	-37.40	-15.85	18.80	14.05	4.75	3.958 CC, ES		
800.00	797.47	798.38	797.93	2.42	2.48	114.07	-36.76	-15.07	19.31	14.42	4.89	3.951		
900.00	895.76	896.06	895.50	2.82	2.81	153.99	-33.86	-11.51	32.11	26.55	5.56	5.772		
1,000.00	994.00	993.69	993.03	3.23	3.14	168.38	-30.95	-7.96	51.27	45.06	6.22	8.250		
1,100.00	1,092.25	1,091.33	1,090.55	3.65	3.47	174.81	-28.04	-4.40	71.85	64.98	6.87	10.465		
1,200.00	1,190.50	1,188.96	1,188.08	4.07	3.80	178.35	-25.14	-0.85	92.91	85.39	7.52	12.354		
1,300.00	1,288.74	1,286.59	1,285.60	4.50	4.13	-179.42	-22.23	2.71	114.18	106.00	8.18	13.962		
1,400.00	1,386.99	1,384.22	1,383.12	4.93	4.46	-177.88	-19.32	6.26	135.57	126.73	8.84	15.338		
1,500.00	1,485.24	1,481.86	1,480.65	5.36	4.79	-176.77	-16.42	9.82	157.02	147.52	9.50	16.525		
1,600.00	1,583.49	1,579.49	1,578.17	5.80	5.13	-175.93	-13.51	13.37	178.52	168.35	10.17	17.559		
1,700.00	1,681.73	1,677.12	1,675.70	6.23	5.46	-175.26	-10.61	16.92	200.04	189.21	10.83	18.466		
1,800.00	1,779.98	1,774.75	1,773.22	6.67	5.79	-174.73	-7.70	20.48	221.59	210.09	11.50	19.268		
1,900.00	1,878.23	1,872.39	1,870.75	7.11	6.12	-174.29	-4.79	24.03	243.15	230.98	12.17	19.981		
2,000.00	1,976.47	1,970.02	1,968.27	7.54	6.46	-173.92	-1.89	27.59	264.72	251.88	12.84	20.619		
2,100.00	2,074.72	2,067.65	2,065.79	7.98	6.79	-173.61	1.02	31.14	286.30	272.79	13.51	21.194		
2,200.00	2,172.97	2,165.28	2,163.32	8.42	7.12	-173.34	3.93	34.70	307.89	293.71	14.18	21.713		
2,300.00	2,271.21	2,262.92	2,260.84	8.86	7.45	-173.10	6.83	38.25	329.49	314.63	14.85	22.186		
2,400.00	2,369.46	2,360.55	2,358.37	9.30	7.79	-172.90	9.74	41.80	351.08	335.56	15.52	22.617		
2,500.00	2,467.71	2,458.18	2,455.89	9.74	8.12	-172.72	12.65	45.36	372.69	356.49	16.20	23.012		
2,600.00	2,565.95	2,555.81	2,553.42	10.18	8.45	-172.55	15.55	48.91	394.29	377.43	16.87	23.375		
2,700.00	2,664.20	2,653.44	2,650.94	10.62	8.78	-172.41	18.46	52.47	415.90	398.36	17.54	23.710		
2,800.00	2,762.45	2,751.08	2,748.46	11.06	9.12	-172.28	21.36	56.02	437.51	419.30	18.21	24.020		
2,900.00	2,860.70	2,848.71	2,845.99	11.51	9.45	-172.16	24.27	59.58	459.13	440.24	18.89	24.307		
3,000.00	2,958.94	2,946.34	2,943.51	11.95	9.78	-172.05	27.18	63.13	480.74	461.18	19.56	24.575		
3,100.00	3,057.19	3,043.97	3,041.04	12.39	10.12	-171.96	30.08	66.68	502.36	482.12	20.24	24.825		
3,200.00	3,155.44	3,141.61	3,138.56	12.83	10.45	-171.87	32.99	70.24	523.97	503.06	20.91	25.058		
3,300.00	3,253.68	3,239.24	3,236.09	13.27	10.78	-171.78	35.90	73.79	545.59	524.01	21.58	25.277		
3,400.00	3,351.93	3,336.87	3,333.61	13.71	11.11	-171.71	38.80	77.35	567.21	544.95	22.26	25.482		
3,500.00	3,450.18	3,434.50	3,431.14	14.16	11.45	-171.64	41.71	80.90	588.83	565.90	22.93	25.675		
3,600.00	3,548.42	3,532.14	3,528.66	14.60	11.78	-171.57	44.62	84.46	610.45	586.84	23.61	25.857		
3,700.00	3,646.67	3,629.77	3,626.18	15.04	12.11	-171.51	47.52	88.01	632.07	607.79	24.28	26.028		
3,800.00	3,744.92	3,727.40	3,723.71	15.48	12.44	-171.45	50.43	91.56	653.70	628.74	24.96	26.191		
3,900.00	3,843.16	3,825.03	3,821.23	15.93	12.78	-171.40	53.33	95.12	675.32	649.68	25.63	26.344		
4,000.00	3,941.41	3,922.67	3,918.76	16.37	13.11	-171.35	56.24	98.67	696.94	670.63	26.31	26.490		
4,100.00	4,039.66	4,020.30	4,016.28	16.81	13.44	-171.30	59.15	102.23	718.57	691.58	26.99	26.628		
4,200.00	4,137.91	4,117.93	4,113.81	17.25	13.78	-171.25	62.05	105.78	740.19	712.53	27.66	26.760		
4,300.00	4,236.15	4,215.56	4,211.33	17.70	14.11	-171.21	64.96	109.34	761.82	733.48	28.34	26.885		
4,400.00	4,334.49	4,313.29	4,308.95	18.09	14.44	-171.20	67.87	112.89	782.98	753.99	28.99	27.007		
4,500.00	4,433.33	4,411.62	4,407.17	18.36	14.78	-171.18	70.80	116.47	801.14	771.55	29.59	27.071		
4,600.00	4,532.64	4,510.51	4,505.95	18.61	15.11	-171.11	73.74	120.07	815.91	785.71	30.20	27.019		
4,700.00	4,632.30	4,609.83	4,605.16	18.85	15.45	-171.00	76.70	123.69	827.26	796.45	30.80	26.856		
4,800.00	4,732.19	4,709.48	4,704.70	19.08	15.79	-170.85	79.66	127.32	835.18	803.77	31.41	26.590		
4,900.00	4,832.18	4,809.32	4,804.43	19.33	16.13	5.33	82.64	130.95	839.72	807.67	32.04	26.206		
5,000.00	4,932.18	4,909.21	4,904.21	19.54	16.47	5.55	85.61	134.59	843.03	810.38	32.65	25.821		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,032.17	6,443.54	5,820.00	19.75	21.71	104.59	-752.63	140.63	792.68	783.03	9.66	82.097		
5,200.00	5,131.24	6,431.08	5,820.00	19.90	21.62	149.87	-740.18	140.61	694.31	684.48	9.83	70.652		
5,300.00	5,226.11	6,399.96	5,820.00	19.96	21.40	159.83	-709.05	140.56	600.30	590.36	9.95	60.362		
5,400.00	5,313.30	6,351.30	5,820.00	19.95	21.10	163.11	-660.40	140.48	514.19	504.09	10.10	50.893		
5,500.00	5,389.61	6,286.91	5,820.00	19.89	20.71	164.16	-596.00	140.37	439.16	428.77	10.39	42.273		
5,600.00	5,452.23	6,209.14	5,820.00	19.81	20.29	164.15	-518.24	140.24	377.97	367.10	10.86	34.791		
5,700.00	5,498.87	6,118.22	5,819.98	19.74	19.89	163.61	-427.31	140.09	332.71	321.18	11.54	28.843		
5,800.00	5,527.81	5,913.21	5,778.52	19.72	19.21	158.91	-227.88	139.76	285.92	266.15	19.77	14.462		
5,899.99	5,537.99	5,763.96	5,701.42	19.75	18.85	151.99	-100.69	139.55	228.68	201.59	27.08	8.444		
6,000.00	5,538.00	5,657.55	5,625.95	19.87	18.59	135.51	-25.95	139.42	164.72	132.74	31.98	5.151		
6,100.00	5,538.00	5,586.72	5,567.95	20.10	18.41	109.13	14.62	139.36	104.07	67.82	36.25	2.871		
6,166.60	5,538.00	5,552.33	5,537.93	20.32	18.33	89.95	31.39	139.33	86.29	47.91	38.38	2.248 SF		
6,200.00	5,538.00	5,537.84	5,524.97	20.43	18.29	81.41	37.85	139.32	91.32	53.29	38.03	2.401		
6,300.00	5,538.00	5,500.00	5,490.30	20.86	18.19	61.06	53.01	139.29	149.03	113.27	35.76	4.168		
6,400.00	5,538.00	5,476.33	5,468.09	21.39	18.12	50.97	61.20	139.28	231.89	196.49	35.40	6.550		
6,500.00	5,538.00	5,450.00	5,442.98	22.00	18.05	42.22	69.11	139.27	322.32	287.07	35.25	9.144		
6,600.00	5,538.00	5,450.00	5,442.98	22.69	18.05	42.22	69.11	139.27	415.96	380.32	35.64	11.673		
6,700.00	5,538.00	5,426.75	5,420.51	23.45	17.99	36.27	75.04	139.26	510.97	475.41	35.57	14.367		
6,800.00	5,538.00	5,415.93	5,409.95	24.28	17.96	33.95	77.45	139.25	607.28	571.64	35.65	17.036		
6,900.00	5,538.00	5,400.00	5,394.34	25.17	17.92	30.97	80.61	139.25	704.40	668.73	35.67	19.750		
7,000.00	5,538.00	5,400.00	5,394.34	26.11	17.92	30.97	80.61	139.25	801.88	766.09	35.79	22.407		
7,100.00	5,538.00	5,400.00	5,394.34	27.10	17.92	30.97	80.61	139.25	899.92	864.04	35.88	25.084		
7,200.00	5,538.00	5,400.00	5,394.34	28.13	17.92	30.97	80.61	139.25	998.34	962.39	35.95	27.773		
7,300.00	5,538.00	5,381.54	5,376.13	29.19	17.87	28.04	83.66	139.24	1,096.57	1,060.63	35.94	30.512		
7,400.00	5,538.00	5,377.03	5,371.68	30.29	17.86	27.40	84.31	139.24	1,195.25	1,159.26	35.99	33.213		
7,500.00	5,538.00	5,373.02	5,367.71	31.43	17.85	26.85	84.86	139.24	1,294.09	1,258.05	36.03	35.913		
7,600.00	5,538.00	5,369.43	5,364.14	32.58	17.84	26.37	85.32	139.24	1,393.06	1,356.97	36.08	38.609		
7,700.00	5,538.00	5,350.00	5,344.82	33.77	17.79	24.05	87.39	139.24	1,492.47	1,456.38	36.09	41.359		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	149.50	-49.60	29.22	57.57					
100.00	100.00	100.00	100.00	0.13	0.13	149.50	-49.60	29.22	57.57	57.30	0.27	216.143		
200.00	200.00	200.00	200.00	0.47	0.47	149.50	-49.60	29.22	57.57	56.63	0.94	61.202		
300.00	300.00	300.00	300.00	0.81	0.81	149.50	-49.60	29.22	57.57	55.95	1.61	35.648		
400.00	399.98	399.45	399.43	1.11	1.13	-28.97	-49.11	30.87	56.48	54.23	2.24	25.186		
500.00	499.84	498.46	498.30	1.41	1.46	-36.94	-47.63	35.80	53.88	51.00	2.88	18.726		
600.00	599.45	596.60	596.07	1.73	1.80	-51.21	-45.20	43.92	52.13	48.52	3.61	14.453		
601.29	600.74	597.86	597.33	1.73	1.80	-51.44	-45.16	44.04	52.13	48.51	3.62	14.412 CC, ES		
700.00	698.70	694.88	693.79	2.06	2.14	-70.01	-42.19	53.96	54.18	49.83	4.35	12.465		
800.00	797.47	792.71	791.06	2.42	2.48	-88.90	-39.19	63.98	61.40	56.33	5.07	12.107		
900.00	895.76	890.01	887.80	2.82	2.83	-104.77	-36.20	73.94	74.56	68.79	5.77	12.912		
1,000.00	994.00	987.26	984.49	3.23	3.17	-115.63	-33.22	83.90	91.84	85.39	6.46	14.227		
1,100.00	1,092.25	1,084.50	1,081.18	3.65	3.52	-122.95	-30.23	93.85	111.34	104.21	7.13	15.615		
1,200.00	1,190.50	1,181.75	1,177.87	4.07	3.88	-128.05	-27.25	103.81	132.07	124.26	7.81	16.914		
1,300.00	1,288.74	1,279.00	1,274.56	4.50	4.23	-131.77	-24.27	113.77	153.54	145.05	8.49	18.084		
1,400.00	1,386.99	1,376.25	1,371.25	4.93	4.58	-134.56	-21.28	123.73	175.48	166.30	9.18	19.122		
1,500.00	1,485.24	1,473.49	1,467.94	5.36	4.94	-136.74	-18.30	133.68	197.73	187.86	9.87	20.041		
1,600.00	1,583.49	1,570.74	1,564.63	5.80	5.29	-138.48	-15.31	143.64	220.20	209.64	10.56	20.854		
1,700.00	1,681.73	1,667.99	1,661.32	6.23	5.65	-139.89	-12.33	153.60	242.82	231.57	11.25	21.576		
1,800.00	1,779.98	1,765.24	1,758.01	6.67	6.00	-141.07	-9.35	163.56	265.56	253.61	11.95	22.221		
1,900.00	1,878.23	1,862.49	1,854.71	7.11	6.36	-142.05	-6.36	173.51	288.39	275.74	12.65	22.798		
2,000.00	1,976.47	1,959.73	1,951.40	7.54	6.71	-142.90	-3.38	183.47	311.29	297.94	13.35	23.318		
2,100.00	2,074.72	2,056.98	2,048.09	7.98	7.07	-143.63	-0.39	193.43	334.25	320.20	14.05	23.788		
2,200.00	2,172.97	2,154.23	2,144.78	8.42	7.42	-144.26	2.59	203.39	357.25	342.50	14.75	24.215		
2,300.00	2,271.21	2,251.48	2,241.47	8.86	7.78	-144.82	5.57	213.34	380.29	364.83	15.46	24.604		
2,400.00	2,369.46	2,348.72	2,338.16	9.30	8.13	-145.31	8.56	223.30	403.35	387.19	16.16	24.960		
2,500.00	2,467.71	2,445.97	2,434.85	9.74	8.49	-145.75	11.54	233.26	426.45	409.58	16.86	25.287		
2,600.00	2,565.95	2,543.22	2,531.54	10.18	8.84	-146.15	14.53	243.21	449.56	431.99	17.57	25.588		
2,700.00	2,664.20	2,640.47	2,628.23	10.62	9.20	-146.51	17.51	253.17	472.69	454.42	18.27	25.866		
2,800.00	2,762.45	2,737.71	2,724.92	11.06	9.56	-146.83	20.49	263.13	495.84	476.86	18.98	26.124		
2,900.00	2,860.70	2,834.96	2,821.61	11.51	9.91	-147.12	23.48	273.09	519.00	499.32	19.69	26.363		
3,000.00	2,958.94	2,932.21	2,918.30	11.95	10.27	-147.39	26.46	283.04	542.18	521.78	20.39	26.587		
3,100.00	3,057.19	3,029.46	3,014.99	12.39	10.62	-147.64	29.45	293.00	565.36	544.26	21.10	26.795		
3,200.00	3,155.44	3,126.70	3,111.68	12.83	10.98	-147.87	32.43	302.96	588.55	566.75	21.81	26.989		
3,300.00	3,253.68	3,223.95	3,208.37	13.27	11.34	-148.08	35.41	312.92	611.75	589.24	22.51	27.172		
3,400.00	3,351.93	3,321.20	3,305.06	13.71	11.69	-148.27	38.40	322.87	634.96	611.74	23.22	27.344		
3,500.00	3,450.18	3,418.45	3,401.75	14.16	12.05	-148.46	41.38	332.83	658.18	634.25	23.93	27.505		
3,600.00	3,548.42	3,515.69	3,498.44	14.60	12.41	-148.63	44.37	342.79	681.40	656.76	24.64	27.657		
3,700.00	3,646.67	3,612.94	3,595.13	15.04	12.76	-148.78	47.35	352.75	704.62	679.28	25.35	27.801		
3,800.00	3,744.92	3,710.19	3,691.82	15.48	13.12	-148.93	50.33	362.70	727.86	701.80	26.05	27.937		
3,900.00	3,843.16	3,807.44	3,788.51	15.93	13.47	-149.07	53.32	372.66	751.09	724.33	26.76	28.066		
4,000.00	3,941.41	3,904.68	3,885.20	16.37	13.83	-149.20	56.30	382.62	774.33	746.86	27.47	28.188		
4,100.00	4,039.66	4,001.93	3,981.89	16.81	14.19	-149.32	59.29	392.57	797.57	769.39	28.18	28.303		
4,200.00	4,137.91	4,099.18	4,078.59	17.25	14.54	-149.44	62.27	402.53	820.82	791.93	28.89	28.414		
4,300.00	4,236.15	4,196.43	4,175.28	17.70	14.90	-149.55	65.25	412.49	844.07	814.47	29.60	28.519		
4,400.00	4,334.49	4,293.77	4,272.06	18.09	15.26	-149.76	68.24	422.46	866.92	836.64	30.28	28.629		
4,500.00	4,433.33	4,391.70	4,369.43	18.36	15.62	-149.95	71.24	432.48	887.16	856.26	30.90	28.712		
4,600.00	4,532.64	4,490.17	4,467.33	18.61	15.98	-149.99	74.27	442.57	904.43	872.91	31.52	28.696		
4,700.00	4,632.30	4,589.06	4,565.66	18.85	16.34	-149.90	77.30	452.69	918.73	886.59	32.14	28.587		
4,800.00	4,732.19	4,688.27	4,664.30	19.08	16.70	-149.67	80.34	462.85	930.06	897.30	32.76	28.391		
4,900.00	4,832.18	4,803.84	4,779.30	19.33	17.09	26.70	83.63	473.83	937.98	904.50	33.48	28.016		
5,000.00	4,932.18	6,375.59	5,735.00	19.54	22.35	90.00	-753.00	483.05	910.73	891.43	19.31	47.167		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,100.00	5,032.17	6,375.37	5,735.00	19.75	22.34	92.73	-752.78	483.05	823.94	802.69	21.25	38.783	
5,200.00	5,131.24	6,362.91	5,735.00	19.90	22.26	107.11	-740.32	483.05	741.24	717.77	23.47	31.588	
5,300.00	5,226.11	6,331.78	5,735.00	19.96	22.05	115.41	-709.19	483.05	666.24	640.39	25.86	25.768	
5,400.00	5,313.30	6,283.13	5,735.00	19.95	21.73	119.15	-660.54	483.05	602.28	574.00	28.28	21.296	
5,500.00	5,389.61	6,218.74	5,735.00	19.89	21.35	119.87	-596.15	483.05	551.55	521.02	30.53	18.068	
5,600.00	5,452.23	6,140.97	5,735.00	19.81	20.94	118.78	-518.38	483.05	514.65	482.30	32.35	15.907	
5,700.00	5,498.87	6,048.95	5,734.93	19.74	20.52	116.77	-426.36	483.05	490.56	456.95	33.61	14.597	
5,800.00	5,527.81	5,896.37	5,710.37	19.72	19.96	111.29	-276.32	483.05	470.77	435.60	35.17	13.384	
5,899.99	5,537.99	5,769.78	5,657.71	19.75	19.60	105.50	-161.54	483.05	452.41	415.81	36.60	12.362	
6,000.00	5,538.00	5,668.55	5,596.65	19.87	19.35	97.77	-81.02	483.05	437.36	399.80	37.56	11.644	
6,100.00	5,538.00	5,593.90	5,542.23	20.10	19.17	90.56	-30.00	483.05	430.06	391.97	38.09	11.290	
6,108.61	5,538.00	5,588.47	5,538.00	20.13	19.16	90.00	-26.60	483.05	430.01	391.89	38.12	11.279 SF	
6,200.00	5,538.00	5,538.65	5,497.57	20.43	19.04	84.63	2.47	483.05	436.38	398.08	38.30	11.395	
6,300.00	5,538.00	5,500.00	5,464.39	20.86	18.94	80.29	22.29	483.05	458.95	420.60	38.35	11.967	
6,400.00	5,538.00	5,464.83	5,433.00	21.39	18.86	76.28	38.14	483.05	497.30	459.00	38.30	12.985	
6,500.00	5,538.00	5,439.43	5,409.70	22.00	18.79	73.39	48.25	483.05	549.15	510.87	38.28	14.345	
6,600.00	5,538.00	5,418.95	5,390.58	22.69	18.74	71.08	55.56	483.05	611.64	573.38	38.27	15.983	
6,700.00	5,538.00	5,400.00	5,372.63	23.45	18.69	68.97	61.66	483.05	682.20	643.95	38.25	17.835	
6,800.00	5,538.00	5,400.00	5,372.63	24.28	18.69	68.97	61.66	483.05	758.96	720.60	38.36	19.784	
6,900.00	5,538.00	5,376.27	5,349.87	25.17	18.63	66.37	68.37	483.05	839.82	801.54	38.28	21.939	
7,000.00	5,538.00	5,366.12	5,340.05	26.11	18.61	65.28	70.92	483.05	924.30	886.01	38.29	24.140	
7,100.00	5,538.00	5,350.00	5,324.35	27.10	18.56	63.58	74.58	483.05	1,011.45	973.19	38.26	26.435	
7,200.00	5,538.00	5,350.00	5,324.35	28.13	18.56	63.58	74.58	483.05	1,100.49	1,062.17	38.32	28.721	
7,300.00	5,538.00	5,350.00	5,324.35	29.19	18.56	63.58	74.58	483.05	1,191.27	1,152.91	38.36	31.056	
7,400.00	5,538.00	5,350.00	5,324.35	30.29	18.56	63.58	74.58	483.05	1,283.42	1,245.02	38.39	33.428	
7,500.00	5,538.00	5,331.62	5,306.33	31.43	18.52	61.69	78.15	483.05	1,376.23	1,337.87	38.36	35.872	
7,600.00	5,538.00	5,326.83	5,301.61	32.58	18.50	61.20	78.98	483.05	1,470.12	1,431.74	38.39	38.299	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	119.07	-49.59	89.20	102.06					
100.00	100.00	100.00	100.00	0.13	0.13	119.07	-49.59	89.20	102.06	101.79	0.27	383.178		
200.00	200.00	200.00	200.00	0.47	0.47	119.07	-49.59	89.20	102.06	101.12	0.94	108.499		
300.00	300.00	300.00	300.00	0.81	0.81	119.07	-49.59	89.20	102.06	100.44	1.61	63.197 CC		
400.00	399.98	397.27	397.25	1.11	1.12	-58.28	-49.29	90.82	102.44	100.18	2.26	45.235 ES		
500.00	499.84	494.16	494.02	1.41	1.44	-62.32	-48.37	95.66	103.95	101.00	2.95	35.281		
600.00	599.45	590.30	589.80	1.73	1.77	-68.65	-46.85	103.64	107.61	103.91	3.70	29.110		
700.00	698.70	685.31	684.15	2.06	2.11	-76.54	-44.76	114.62	114.85	110.35	4.50	25.523		
800.00	797.47	778.87	776.64	2.42	2.45	-84.96	-42.14	128.43	127.09	121.76	5.33	23.851		
900.00	895.76	875.12	871.52	2.82	2.81	-93.25	-39.11	144.36	143.88	137.89	6.00	23.993		
1,000.00	994.00	971.59	966.61	3.23	3.19	-99.96	-36.07	160.33	163.20	156.54	6.66	24.508		
1,100.00	1,092.25	1,068.06	1,061.70	3.65	3.57	-105.23	-33.03	176.30	184.26	176.93	7.33	25.130		
1,200.00	1,190.50	1,164.54	1,156.79	4.07	3.95	-109.41	-29.99	192.27	206.54	198.53	8.01	25.785		
1,300.00	1,288.74	1,261.01	1,251.89	4.50	4.34	-112.78	-26.96	208.25	229.67	220.97	8.70	26.389		
1,400.00	1,386.99	1,357.48	1,346.98	4.93	4.73	-115.53	-23.92	224.22	253.42	244.02	9.40	26.947		
1,500.00	1,485.24	1,453.96	1,442.07	5.36	5.12	-117.82	-20.88	240.19	277.64	267.53	10.11	27.453		
1,600.00	1,583.49	1,550.43	1,537.17	5.80	5.51	-119.73	-17.85	256.17	302.22	291.39	10.83	27.910		
1,700.00	1,681.73	1,646.90	1,632.26	6.23	5.90	-121.37	-14.81	272.14	327.06	315.51	11.55	28.322		
1,800.00	1,779.98	1,743.37	1,727.35	6.67	6.30	-122.77	-11.77	288.11	352.12	339.85	12.27	28.693		
1,900.00	1,878.23	1,839.85	1,822.45	7.11	6.69	-123.98	-8.73	304.09	377.35	364.35	13.00	29.029		
2,000.00	1,976.47	1,936.32	1,917.54	7.54	7.08	-125.05	-5.70	320.06	402.72	388.99	13.73	29.333		
2,100.00	2,074.72	2,032.79	2,012.63	7.98	7.48	-125.98	-2.66	336.03	428.21	413.75	14.46	29.610		
2,200.00	2,172.97	2,129.27	2,107.72	8.42	7.87	-126.82	0.38	352.00	453.79	438.60	15.20	29.863		
2,300.00	2,271.21	2,225.74	2,202.82	8.86	8.27	-127.56	3.42	367.98	479.45	463.52	15.93	30.094		
2,400.00	2,369.46	2,322.21	2,297.91	9.30	8.66	-128.23	6.45	383.95	505.19	488.52	16.67	30.306		
2,500.00	2,467.71	2,418.69	2,393.00	9.74	9.06	-128.83	9.49	399.92	530.97	513.57	17.41	30.501		
2,600.00	2,565.95	2,515.16	2,488.10	10.18	9.45	-129.38	12.53	415.90	556.81	538.67	18.15	30.682		
2,700.00	2,664.20	2,611.63	2,583.19	10.62	9.85	-129.88	15.57	431.87	582.70	563.81	18.89	30.849		
2,800.00	2,762.45	2,708.10	2,678.28	11.06	10.25	-130.34	18.60	447.84	608.62	588.99	19.63	31.004		
2,900.00	2,860.70	2,804.58	2,773.37	11.51	10.64	-130.76	21.64	463.82	634.57	614.20	20.37	31.148		
3,000.00	2,958.94	2,901.05	2,868.47	11.95	11.04	-131.14	24.68	479.79	660.55	639.44	21.12	31.283		
3,100.00	3,057.19	2,997.52	2,963.56	12.39	11.43	-131.50	27.71	495.76	686.56	664.70	21.86	31.409		
3,200.00	3,155.44	3,094.00	3,058.65	12.83	11.83	-131.83	30.75	511.73	712.59	689.99	22.60	31.527		
3,300.00	3,253.68	3,190.47	3,153.75	13.27	12.23	-132.14	33.79	527.71	738.65	715.30	23.35	31.637		
3,400.00	3,351.93	3,286.94	3,248.84	13.71	12.62	-132.43	36.83	543.68	764.72	740.63	24.09	31.741		
3,500.00	3,450.18	3,383.42	3,343.93	14.16	13.02	-132.70	39.86	559.65	790.81	765.97	24.84	31.839		
3,600.00	3,548.42	3,479.89	3,439.03	14.60	13.42	-132.95	42.90	575.63	816.91	791.33	25.58	31.932		
3,700.00	3,646.67	3,576.36	3,534.12	15.04	13.81	-133.18	45.94	591.60	843.03	816.70	26.33	32.019		
3,800.00	3,744.92	3,672.83	3,629.21	15.48	14.21	-133.40	48.98	607.57	869.16	842.08	27.08	32.101		
3,900.00	3,843.16	3,769.31	3,724.30	15.93	14.61	-133.61	52.01	623.55	895.30	867.48	27.82	32.180		
4,000.00	3,941.41	3,865.78	3,819.40	16.37	15.00	-133.81	55.05	639.52	921.45	892.88	28.57	32.254		
4,100.00	4,039.66	3,962.25	3,914.49	16.81	15.40	-134.00	58.09	655.49	947.61	918.29	29.32	32.325		
4,200.00	4,137.91	4,058.73	4,009.58	17.25	15.80	-134.17	61.12	671.46	973.78	943.72	30.06	32.392		
4,300.00	4,236.15	4,155.20	4,104.68	17.70	16.19	-134.34	64.16	687.44	999.96	969.15	30.81	32.455		
4,400.00	4,334.49	4,251.77	4,199.86	18.09	16.59	-134.67	67.20	703.43	1,025.82	994.29	31.53	32.539		
4,500.00	4,433.33	4,348.90	4,295.61	18.36	16.99	-135.03	70.26	719.51	1,049.57	1,017.42	32.16	32.640		
4,600.00	4,532.64	4,446.56	4,391.87	18.61	17.39	-135.21	73.34	735.68	1,070.92	1,038.14	32.78	32.667		
4,700.00	4,632.30	4,544.63	4,488.54	18.85	17.80	-135.23	76.42	751.92	1,089.86	1,056.45	33.41	32.624		
4,800.00	4,732.19	4,667.46	4,609.79	19.08	18.22	-135.02	80.08	771.15	1,105.77	1,071.65	34.12	32.409		
4,900.00	4,832.18	4,810.47	4,751.82	19.33	18.62	41.29	83.18	787.45	1,115.80	1,080.93	34.87	31.997		
5,000.00	4,932.18	4,907.81	4,848.00	19.54	19.00	90.00	-753.01	799.16	1,095.27	1,068.59	26.68	41.050		
5,100.00	5,032.17	5,007.59	4,948.00	19.75	19.25	91.57	-752.79	799.16	1,024.33	995.59	28.74	35.637		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,200.00	5,131.24	6,395.14	5,734.00	19.90	23.45	100.05	-740.33	799.16	959.17	928.34	30.83	31.111	
5,300.00	5,226.11	6,364.01	5,734.00	19.96	23.25	105.28	-709.20	799.16	902.58	869.83	32.75	27.557	
5,400.00	5,313.30	6,315.35	5,734.00	19.95	22.96	107.78	-660.55	799.16	856.55	822.20	34.36	24.932	
5,500.00	5,389.61	6,250.96	5,734.00	19.89	22.60	108.27	-596.16	799.16	821.77	786.21	35.56	23.112	
5,600.00	5,452.23	6,173.20	5,734.00	19.81	22.22	107.51	-518.39	799.16	797.55	761.24	36.31	21.965	
5,700.00	5,498.87	6,080.40	5,733.90	19.74	21.84	106.12	-425.59	799.16	782.28	745.60	36.68	21.326	
5,800.00	5,527.81	5,928.58	5,709.07	19.72	21.34	102.56	-276.36	799.16	770.03	732.90	37.12	20.742	
5,899.99	5,537.99	5,802.56	5,656.49	19.75	21.02	98.99	-162.17	799.17	759.00	721.46	37.54	20.218	
6,000.00	5,538.00	5,701.71	5,595.61	19.87	20.80	94.42	-81.97	799.17	750.24	712.37	37.87	19.813	
6,100.00	5,538.00	5,627.26	5,541.35	20.10	20.64	90.26	-31.09	799.17	746.15	707.98	38.16	19.552	
6,106.82	5,538.00	5,622.96	5,538.01	20.12	20.63	90.00	-28.39	799.17	746.13	707.94	38.18	19.540	
6,200.00	5,538.00	5,572.13	5,496.79	20.43	20.52	86.84	1.33	799.17	749.95	711.48	38.47	19.494 SF	
6,300.00	5,538.00	5,530.51	5,461.02	20.86	20.43	84.11	22.58	799.17	763.45	724.63	38.82	19.667	
6,400.00	5,538.00	5,500.00	5,433.78	21.39	20.36	82.05	36.32	799.17	787.25	748.02	39.23	20.068	
6,500.00	5,538.00	5,472.97	5,409.01	22.00	20.30	80.19	47.13	799.17	821.13	781.49	39.64	20.715	
6,600.00	5,538.00	5,450.00	5,387.55	22.69	20.25	78.60	55.30	799.17	864.31	824.27	40.04	21.587	
6,700.00	5,538.00	5,435.67	5,373.98	23.45	20.21	77.60	59.91	799.17	915.70	875.28	40.42	22.654	
6,800.00	5,538.00	5,421.64	5,360.58	24.28	20.18	76.62	64.07	799.17	974.19	933.45	40.75	23.909	
6,900.00	5,538.00	5,400.00	5,339.70	25.17	20.13	75.12	69.77	799.17	1,038.79	997.81	40.98	25.348	
7,000.00	5,538.00	5,400.00	5,339.70	26.11	20.13	75.12	69.77	799.17	1,108.19	1,066.94	41.26	26.861	
7,100.00	5,538.00	5,400.00	5,339.70	27.10	20.13	75.12	69.77	799.17	1,181.99	1,140.51	41.48	28.497	
7,200.00	5,538.00	5,383.15	5,323.30	28.13	20.09	73.95	73.60	799.17	1,259.07	1,217.47	41.60	30.267	
7,300.00	5,538.00	5,376.40	5,316.69	29.19	20.07	73.48	74.99	799.17	1,339.16	1,297.44	41.73	32.093	
7,400.00	5,538.00	5,370.41	5,310.81	30.29	20.06	73.06	76.14	799.17	1,421.69	1,379.85	41.83	33.984	
7,500.00	5,538.00	5,350.00	5,290.70	31.43	20.01	71.66	79.58	799.17	1,506.53	1,464.65	41.88	35.971	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	112.60	-49.60	119.19	129.10					
100.00	100.00	100.00	100.00	0.13	0.13	112.60	-49.60	119.19	129.10	128.83	0.27	484.694		
200.00	200.00	200.00	200.00	0.47	0.47	112.60	-49.60	119.19	129.10	128.16	0.94	137.243		
300.00	300.00	300.00	300.00	0.81	0.81	112.60	-49.60	119.19	129.10	127.48	1.61	79.939 CC, ES		
400.00	399.98	396.18	396.17	1.11	1.12	-64.38	-49.40	120.79	129.79	127.52	2.27	57.206		
500.00	499.84	492.01	491.87	1.41	1.43	-67.31	-48.78	125.57	132.12	129.16	2.96	44.666		
600.00	599.45	587.15	586.67	1.73	1.76	-71.89	-47.76	133.45	136.78	133.08	3.71	36.903		
700.00	698.70	681.24	680.12	2.06	2.09	-77.65	-46.36	144.31	144.75	140.26	4.50	32.197		
800.00	797.47	773.99	771.83	2.42	2.43	-83.97	-44.59	157.99	157.04	151.73	5.31	29.592		
900.00	895.76	865.23	861.57	2.82	2.78	-90.27	-42.48	174.31	174.43	168.32	6.12	28.521		
1,000.00	994.00	955.21	949.51	3.23	3.15	-95.50	-40.05	193.17	196.89	189.99	6.90	28.528		
1,100.00	1,092.25	1,044.78	1,036.43	3.65	3.54	-99.59	-37.28	214.63	223.71	216.07	7.64	29.283		
1,200.00	1,190.50	1,139.57	1,128.14	4.07	3.98	-102.96	-34.21	238.38	252.55	244.27	8.28	30.502		
1,300.00	1,288.74	1,234.36	1,219.86	4.50	4.42	-105.65	-31.14	262.12	282.04	273.12	8.92	31.618		
1,400.00	1,386.99	1,329.14	1,311.57	4.93	4.87	-107.83	-28.08	285.87	312.00	302.40	9.60	32.507		
1,500.00	1,485.24	1,423.93	1,403.28	5.36	5.32	-109.64	-25.01	309.61	342.30	332.01	10.29	33.267		
1,600.00	1,583.49	1,518.72	1,495.00	5.80	5.77	-111.15	-21.95	333.36	372.86	361.87	11.00	33.911		
1,700.00	1,681.73	1,613.51	1,586.71	6.23	6.23	-112.43	-18.88	357.10	403.62	391.91	11.71	34.462		
1,800.00	1,779.98	1,708.30	1,678.43	6.67	6.69	-113.53	-15.81	380.84	434.54	422.11	12.44	34.934		
1,900.00	1,878.23	1,803.08	1,770.14	7.11	7.15	-114.49	-12.75	404.59	465.59	452.42	13.17	35.343		
2,000.00	1,976.47	1,897.87	1,861.86	7.54	7.62	-115.33	-9.68	428.33	496.75	482.83	13.91	35.699		
2,100.00	2,074.72	1,992.66	1,953.57	7.98	8.08	-116.06	-6.62	452.08	527.98	513.32	14.66	36.011		
2,200.00	2,172.97	2,087.45	2,045.29	8.42	8.55	-116.72	-3.55	475.82	559.29	543.88	15.41	36.286		
2,300.00	2,271.21	2,182.24	2,137.00	8.86	9.01	-117.31	-0.48	499.56	590.66	574.49	16.17	36.530		
2,400.00	2,369.46	2,277.02	2,228.72	9.30	9.48	-117.84	2.58	523.31	622.07	605.14	16.93	36.748		
2,500.00	2,467.71	2,371.81	2,320.43	9.74	9.95	-118.31	5.65	547.05	653.53	635.84	17.69	36.943		
2,600.00	2,565.95	2,466.60	2,412.15	10.18	10.42	-118.75	8.71	570.80	685.03	666.57	18.45	37.119		
2,700.00	2,664.20	2,561.39	2,503.86	10.62	10.88	-119.14	11.78	594.54	716.56	697.34	19.22	37.278		
2,800.00	2,762.45	2,656.18	2,595.58	11.06	11.35	-119.50	14.85	618.29	748.12	728.13	19.99	37.423		
2,900.00	2,860.70	2,750.96	2,687.29	11.51	11.82	-119.84	17.91	642.03	779.70	758.94	20.76	37.555		
3,000.00	2,958.94	2,845.75	2,779.01	11.95	12.29	-120.14	20.98	665.77	811.30	789.77	21.53	37.675		
3,100.00	3,057.19	2,940.54	2,870.72	12.39	12.76	-120.43	24.05	689.52	842.93	820.62	22.31	37.786		
3,200.00	3,155.44	3,035.33	2,962.43	12.83	13.23	-120.69	27.11	713.26	874.57	851.49	23.08	37.888		
3,300.00	3,253.68	3,130.12	3,054.15	13.27	13.70	-120.94	30.18	737.01	906.23	882.37	23.86	37.983		
3,400.00	3,351.93	3,224.90	3,145.86	13.71	14.17	-121.17	33.24	760.75	937.90	913.26	24.64	38.070		
3,500.00	3,450.18	3,319.69	3,237.58	14.16	14.64	-121.38	36.31	784.49	969.58	944.17	25.41	38.151		
3,600.00	3,548.42	3,414.48	3,329.29	14.60	15.11	-121.58	39.38	808.24	1,001.28	975.08	26.19	38.226		
3,700.00	3,646.67	3,509.27	3,421.01	15.04	15.58	-121.77	42.44	831.98	1,032.98	1,006.01	26.97	38.297		
3,800.00	3,744.92	3,604.06	3,512.72	15.48	16.06	-121.94	45.51	855.73	1,064.69	1,036.94	27.75	38.363		
3,900.00	3,843.16	3,698.84	3,604.44	15.93	16.53	-122.11	48.57	879.47	1,096.42	1,067.88	28.53	38.424		
4,000.00	3,941.41	3,793.63	3,696.15	16.37	17.00	-122.27	51.64	903.22	1,128.15	1,098.83	29.32	38.482		
4,100.00	4,039.66	3,888.42	3,787.87	16.81	17.47	-122.42	54.71	926.96	1,159.89	1,129.79	30.10	38.536		
4,200.00	4,137.91	3,983.21	3,879.58	17.25	17.94	-122.56	57.77	950.70	1,191.63	1,160.75	30.88	38.587		
4,300.00	4,236.15	4,078.00	3,971.30	17.70	18.41	-122.69	60.84	974.45	1,223.38	1,191.72	31.66	38.636		
4,400.00	4,334.49	4,172.88	4,063.10	18.09	18.88	-123.09	63.91	998.21	1,254.89	1,222.48	32.41	38.717		
4,500.00	4,433.33	4,268.29	4,155.42	18.36	19.36	-123.59	66.99	1,022.12	1,284.79	1,251.74	33.06	38.868		
4,600.00	4,532.64	4,364.22	4,248.24	18.61	19.84	-123.93	70.10	1,046.14	1,312.85	1,279.16	33.69	38.970		
4,700.00	4,632.30	4,495.93	4,376.01	18.85	20.43	-124.01	74.19	1,077.84	1,338.35	1,303.82	34.53	38.754		
4,800.00	4,732.19	4,660.57	4,537.48	19.08	20.97	-123.91	78.29	1,109.61	1,357.72	1,322.31	35.40	38.348		
4,900.00	4,832.18	4,828.73	4,704.02	19.33	21.46	52.30	81.25	1,132.51	1,370.27	1,334.06	36.21	37.844		
5,000.00	4,932.18	6,475.64	5,735.00	19.54	25.79	90.13	-755.53	1,147.25	1,357.14	1,325.84	31.30	43.355		
5,100.00	5,032.17	6,475.42	5,735.00	19.75	25.78	91.20	-755.31	1,147.25	1,300.49	1,267.46	33.03	39.375		

CC - Min centre to center distance or convergent point, SF - min separation factor, ES - min ellipse separation



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1903
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1903	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design											Sec 30-T10N-R57W - Horsetail #30E-3138 - Hz - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor			
5,200.00	5,131.24	6,462.96	5,735.00	19.90	25.71	97.03	-742.85	1,147.28	1,249.76	1,215.12	34.63	36.087			
5,300.00	5,226.11	6,431.83	5,735.00	19.96	25.54	100.69	-711.72	1,147.35	1,206.85	1,170.91	35.94	33.580			
5,400.00	5,313.30	6,383.18	5,735.00	19.95	25.30	102.46	-663.07	1,147.46	1,172.86	1,135.97	36.89	31.794			
5,500.00	5,389.61	6,318.79	5,735.00	19.89	24.99	102.81	-598.68	1,147.61	1,147.77	1,110.30	37.48	30.626			
5,600.00	5,452.23	6,241.02	5,735.00	19.81	24.67	102.25	-520.91	1,147.79	1,130.68	1,092.93	37.75	29.953			
5,700.00	5,498.87	6,148.62	5,734.92	19.74	24.35	101.25	-428.51	1,148.00	1,120.12	1,082.35	37.77	29.653			
5,800.00	5,527.81	5,996.18	5,710.16	19.72	23.94	98.71	-278.65	1,148.35	1,111.79	1,073.95	37.84	29.379			
5,899.99	5,537.99	5,869.75	5,657.43	19.75	23.68	96.20	-164.08	1,148.62	1,104.36	1,066.40	37.96	29.094			
6,000.00	5,538.00	5,768.67	5,596.38	19.87	23.49	93.05	-83.72	1,148.80	1,098.52	1,060.41	38.11	28.824			
6,100.00	5,538.00	5,694.11	5,542.00	20.10	23.36	90.21	-32.81	1,148.92	1,095.89	1,057.54	38.35	28.574			
6,103.99	5,538.00	5,691.58	5,540.03	20.11	23.36	90.11	-31.22	1,148.92	1,095.88	1,057.52	38.37	28.563			
6,200.00	5,538.00	5,638.95	5,497.38	20.43	23.26	87.88	-0.41	1,148.99	1,098.64	1,059.94	38.70	28.389			
6,300.00	5,538.00	5,600.00	5,463.94	20.86	23.19	86.13	19.54	1,149.04	1,108.06	1,068.89	39.17	28.289 SF			
6,400.00	5,538.00	5,565.21	5,432.88	21.39	23.12	84.52	35.19	1,149.08	1,124.75	1,085.01	39.74	28.305			
6,500.00	5,538.00	5,539.84	5,409.61	22.00	23.07	83.32	45.29	1,149.10	1,148.87	1,108.48	40.39	28.444			
6,600.00	5,538.00	5,519.38	5,390.50	22.69	23.03	82.34	52.60	1,149.12	1,180.27	1,139.19	41.09	28.727			
6,700.00	5,538.00	5,500.00	5,372.15	23.45	22.99	81.40	58.82	1,149.13	1,218.58	1,176.79	41.79	29.161			
6,800.00	5,538.00	5,500.00	5,372.15	24.28	22.99	81.40	58.82	1,149.13	1,263.38	1,220.87	42.51	29.720			
6,900.00	5,538.00	5,476.73	5,349.82	25.17	22.94	80.26	65.39	1,149.15	1,313.78	1,270.65	43.13	30.461			
7,000.00	5,538.00	5,466.59	5,340.01	26.11	22.92	79.76	67.94	1,149.15	1,369.54	1,325.81	43.73	31.319			
7,100.00	5,538.00	5,450.00	5,323.85	27.10	22.89	78.95	71.69	1,149.16	1,430.02	1,385.77	44.26	32.313			
7,200.00	5,538.00	5,450.00	5,323.85	28.13	22.89	78.95	71.69	1,149.16	1,494.52	1,449.76	44.76	33.389			





# WOG

## Anticollision Report

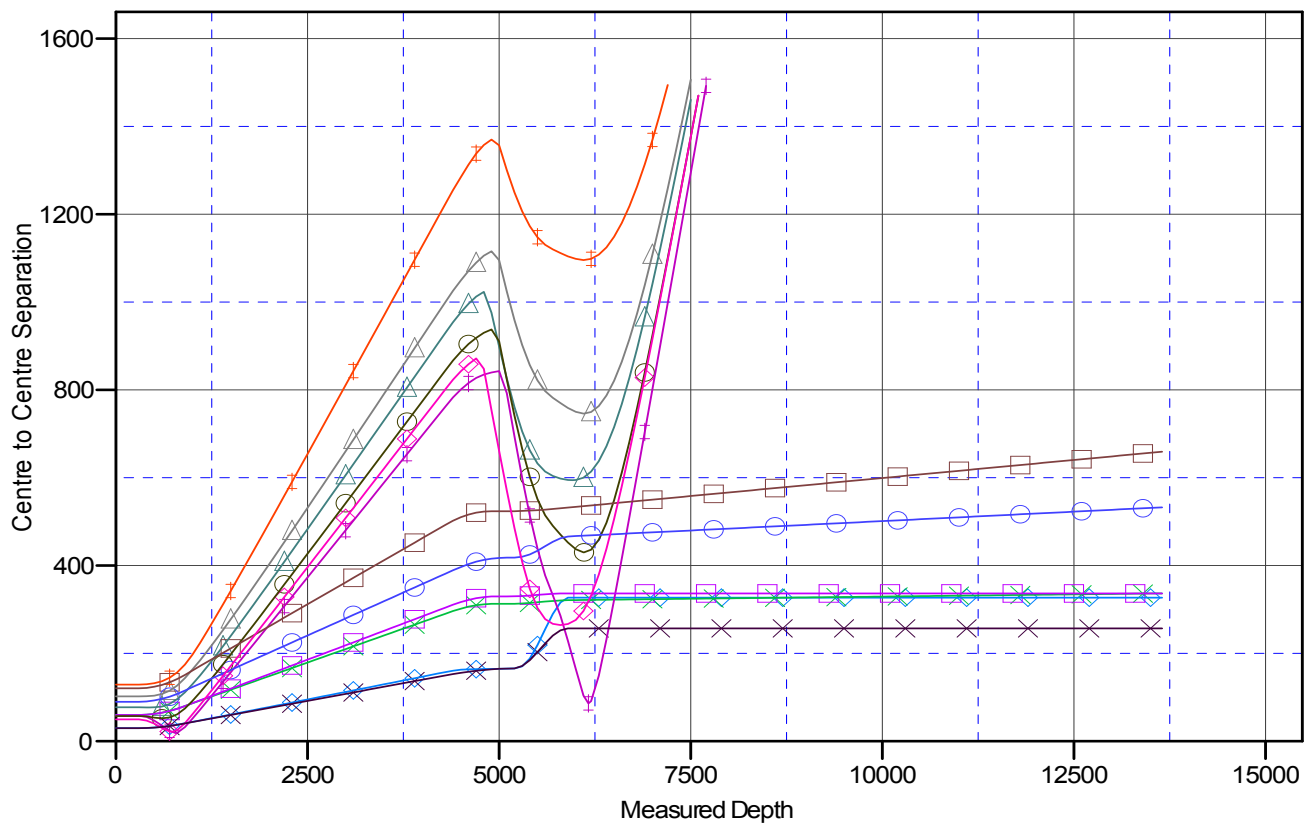
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1903  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1903  
**TVD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**MD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 3.00 sigma  
**Database:** LandmarkEDM  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to KBE @ 4827.40usft (Original Well Ele)  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30E-1903  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Ladder Plot



### LEGEND

- |  |                                  |                                  |
|--|----------------------------------|----------------------------------|
| ◆ Horsetail #30E-1935, Hz, APDV0         | ◆ Horsetail #30E-3135, Hz, APDV0 | ◆ Horsetail #30E-1901, Hz, APDV0 |
| ✱ Horsetail #30E-1902, Hz, APDV0         | ✱ Horsetail #30E-3138, Hz, APDV0 | ○ Horsetail #30E-1934, Hz, APDV0 |
| ▲ Horsetail #30E-3104, Hz, APDV0         | □ Horsetail #30E-1904, Hz, APDV0 | ◆ Horsetail #30E-3103, Hz, APDV0 |
| ▲ Horsetail #30E-3137 Dropped, Hz, APDV0 | ○ Horsetail #30E-3136, Hz, APDV0 | ✱ Horsetail #30E-1936, Hz, APDV0 |



# WOG

## Anticollision Report

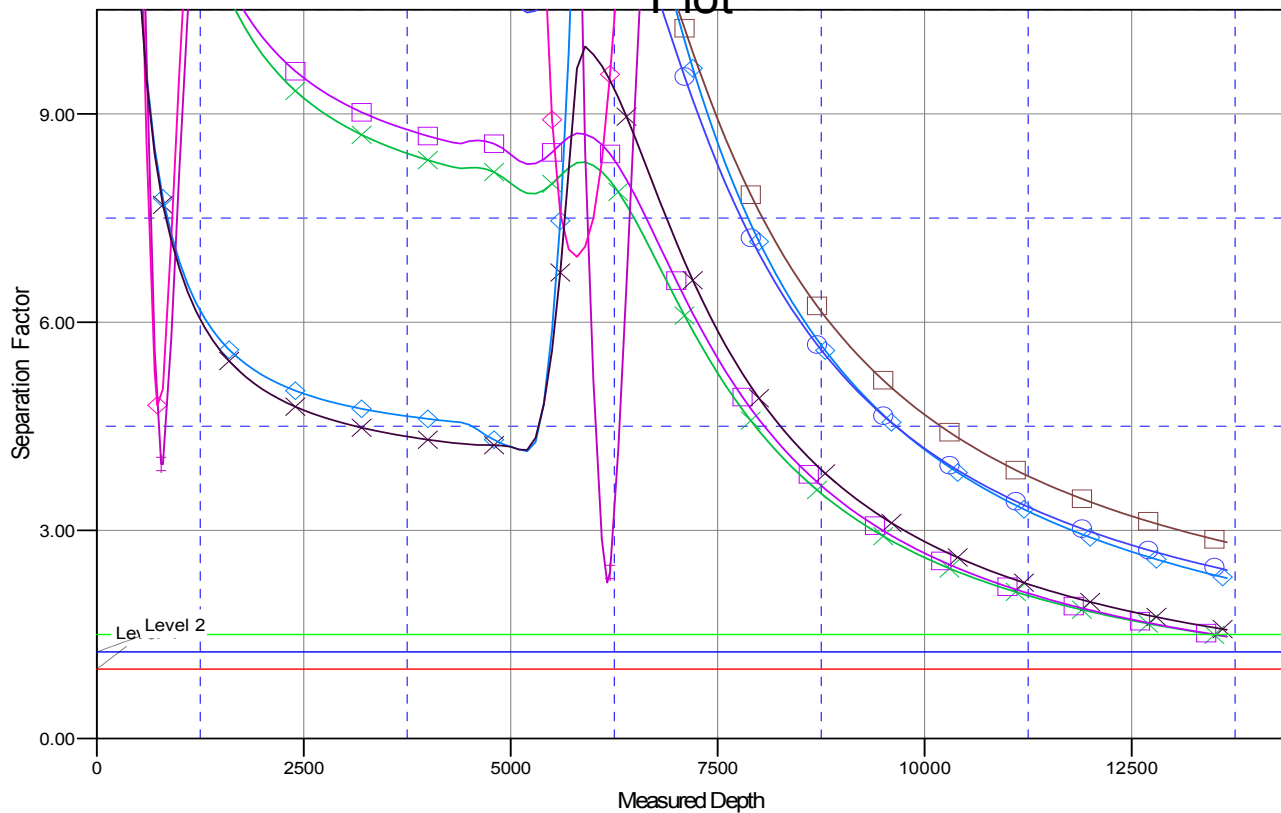
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1903  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1903  
**TVD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**MD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 3.00 sigma  
**Database:** LandmarkEDM  
**Offset TVD Reference:** Offset Datum

Reference Depths are relative to KBE @ 4827.40usft (Original Well Ele)  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30E-1903  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Separation Factor Plot



### LEGEND

- |   |                                   |                                   |
|---|-----------------------------------|-----------------------------------|
| ◆ Horsetail #30E-1935, Hz, APD V0         | ✦ Horsetail #30E-3135, Hz, APD V0 | ▣ Horsetail #30E-1901, Hz, APD V0 |
| ✕ Horsetail #30E-1902, Hz, APD V0         | ✧ Horsetail #30E-3138, Hz, APD V0 | ○ Horsetail #30E-1934, Hz, APD V0 |
| ▲ Horsetail #30E-3104, Hz, APD V0         | ◻ Horsetail #30E-1904, Hz, APD V0 | ◇ Horsetail #30E-3103, Hz, APD V0 |
| ▲ Horsetail #30E-3137 Dropped, Hz, APD V0 | ● Horsetail #30E-3136, Hz, APD V0 | ✕ Horsetail #30E-1936, Hz, APD V0 |