



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 30-T10N-R57W**

**Horsetail #30G-3144**

**Hz**

**APD**

## **Anticollision Report**

**13 October, 2015**



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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

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

Survey Tool Program		Date	10/13/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,835.79	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 #30G-1909 - Hz - APD	300.00	300.00	157.93	156.32	97.795	CC, ES
Horsetail #30G-1909 - Hz - APD	5,600.00	6,122.23	1,092.30	1,053.95	28.482	SF
Horsetail #30G-1910 - Hz - APD	300.00	300.00	102.73	101.11	63.610	CC, ES
Horsetail #30G-1910 - Hz - APD	5,685.43	6,110.25	738.74	700.36	19.250	SF
Horsetail #30G-1911 - Hz - APD	619.50	623.32	51.84	48.06	13.713	CC, ES
Horsetail #30G-1911 - Hz - APD	5,592.22	6,109.29	399.63	361.47	10.472	SF
Horsetail #30G-1912 - Hz - APD	812.52	812.00	12.53	7.37	2.431	CC, ES
Horsetail #30G-1912 - Hz - APD	5,685.98	6,131.68	74.17	35.67	1.927	SF
Horsetail #30G-1942 - Hz - APD	300.00	300.00	129.80	128.19	80.376	CC, ES
Horsetail #30G-1942 - Hz - APD	6,200.00	5,800.00	905.16	864.82	22.441	SF
Horsetail #30G-1943 - Hz - APD	360.56	361.52	77.81	75.80	38.813	CC
Horsetail #30G-1943 - Hz - APD	400.00	401.53	77.83	75.57	34.419	ES
Horsetail #30G-1943 - Hz - APD	6,200.00	5,835.29	599.91	559.11	14.703	SF
Horsetail #30G-1944 - Hz - APD	748.22	750.64	21.87	17.18	4.659	CC, ES, SF
Horsetail #30G-3109 - Hz - APD	300.00	300.00	149.95	148.33	92.849	CC, ES
Horsetail #30G-3109 - Hz - APD	13,835.79	13,617.62	848.63	611.33	3.576	SF
Horsetail #30G-3110 - Hz - APD	200.00	200.00	89.97	89.03	95.645	CC
Horsetail #30G-3110 - Hz - APD	400.00	401.98	90.54	88.24	39.335	ES
Horsetail #30G-3110 - Hz - APD	13,835.79	13,682.96	511.95	275.91	2.169	SF
Horsetail #30G-3111 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30G-3111 - Hz - APD	600.00	602.67	30.36	26.57	8.012	ES
Horsetail #30G-3111 - Hz - APD	13,835.79	13,629.31	256.75	88.23	1.524	SF
Horsetail #30G-3112 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30G-3112 - Hz - APD	13,835.79	13,723.52	209.72	7.84	1.039	Level 2, ES, SF
Horsetail #30G-3139 - Hz - APD	300.00	300.00	239.91	238.30	148.559	CC, ES
Horsetail #30G-3139 - Hz - APD	8,900.00	9,016.90	1,549.47	1,447.33	15.170	SF
Horsetail #30G-3140 - Hz - APD	300.00	300.00	209.92	208.31	129.989	CC, ES
Horsetail #30G-3140 - Hz - APD	13,835.79	13,848.41	1,334.57	1,090.88	5.477	SF
Horsetail #30G-3142 - Hz - APD	300.00	300.00	119.96	118.34	74.279	CC, ES
Horsetail #30G-3142 - Hz - APD	13,835.79	13,811.41	660.75	417.47	2.716	SF
Horsetail #30G-3143 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30G-3143 - Hz - APD	500.00	503.02	60.77	57.75	20.162	ES
Horsetail #30G-3143 - Hz - APD	13,835.79	13,903.39	342.27	105.09	1.443	Level 3, SF

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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

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 31-T10N-R57W						
Maddy #1-31 - Wellbore #1 - Wellbore #1	13,280.19	5,694.10	962.09	838.62	7.792	CC
Maddy #1-31 - Wellbore #1 - Wellbore #1	13,300.00	5,694.10	962.29	838.43	7.769	ES
Maddy #1-31 - Wellbore #1 - Wellbore #1	13,400.00	5,694.10	969.52	844.37	7.747	SF

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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-71.70	49.59	-149.95	157.93				
100.00	100.00	100.00	100.00	0.13	0.13	-71.70	49.59	-149.95	157.93	157.67	0.27	592.960	
200.00	200.00	200.00	200.00	0.47	0.47	-71.70	49.59	-149.95	157.93	156.99	0.94	167.899	
300.00	300.00	300.00	300.00	0.81	0.81	-71.70	49.59	-149.95	157.93	156.32	1.61	97.795	CC, ES
400.00	399.98	398.00	397.96	1.13	1.11	-147.26	47.44	-151.25	160.00	157.75	2.25	71.255	
500.00	499.84	495.00	494.66	1.47	1.42	-150.63	41.09	-155.11	166.60	163.70	2.90	57.458	
600.00	599.45	590.01	588.90	1.81	1.75	-155.54	30.81	-161.36	178.78	175.14	3.63	49.197	
700.00	698.81	682.41	679.86	2.16	2.08	-161.21	16.98	-169.76	196.91	192.47	4.44	44.371	
800.00	798.16	776.88	772.27	2.51	2.43	-166.78	0.22	-179.95	218.73	213.56	5.17	42.323	
900.00	897.50	872.30	865.59	2.87	2.84	-171.41	-16.79	-190.29	242.32	236.46	5.86	41.348	
1,000.00	996.84	967.71	958.90	3.23	3.26	-175.22	-33.80	-200.63	267.19	260.65	6.54	40.863	
1,100.00	1,096.19	1,063.13	1,052.22	3.59	3.68	-178.40	-50.81	-210.97	293.01	285.80	7.20	40.667	
1,200.00	1,195.53	1,158.54	1,145.53	3.96	4.11	-178.94	-67.82	-221.31	319.54	311.67	7.87	40.609	
1,300.00	1,294.88	1,253.96	1,238.85	4.33	4.54	-176.69	-84.84	-231.65	346.63	338.10	8.53	40.636	
1,400.00	1,394.22	1,349.37	1,332.17	4.70	4.97	-174.75	-101.85	-241.99	374.15	364.96	9.19	40.713	
1,500.00	1,493.57	1,444.79	1,425.48	5.06	5.41	-173.09	-118.86	-252.33	402.02	392.17	9.85	40.814	
1,600.00	1,592.91	1,540.21	1,518.80	5.43	5.84	-171.63	-135.87	-262.67	430.16	419.65	10.51	40.927	
1,700.00	1,692.26	1,635.62	1,612.11	5.80	6.28	-170.35	-152.88	-273.01	458.53	447.36	11.17	41.043	
1,800.00	1,791.60	1,731.04	1,705.43	6.17	6.72	-169.22	-169.89	-283.35	487.09	475.25	11.83	41.158	
1,900.00	1,890.94	1,826.45	1,798.75	6.54	7.16	-168.22	-186.90	-293.69	515.80	503.30	12.50	41.269	
2,000.00	1,990.29	1,921.87	1,892.06	6.91	7.60	-167.32	-203.92	-304.03	544.64	531.48	13.16	41.374	
2,100.00	2,089.63	2,017.28	1,985.38	7.28	8.04	-166.51	-220.93	-314.37	573.60	559.77	13.83	41.474	
2,200.00	2,188.98	2,112.70	2,078.69	7.65	8.48	-165.78	-237.94	-324.71	602.65	588.15	14.50	41.569	
2,300.00	2,288.32	2,208.12	2,172.01	8.02	8.92	-165.12	-254.95	-335.05	631.78	616.61	15.17	41.657	
2,400.00	2,387.67	2,303.53	2,265.33	8.39	9.36	-164.51	-271.96	-345.39	660.98	645.15	15.84	41.739	
2,500.00	2,487.01	2,398.95	2,358.64	8.76	9.80	-163.95	-288.97	-355.73	690.25	673.74	16.51	41.817	
2,600.00	2,586.35	2,494.36	2,451.96	9.13	10.24	-163.44	-305.98	-366.07	719.57	702.39	17.18	41.889	
2,700.00	2,685.70	2,589.78	2,545.27	9.50	10.68	-162.97	-323.00	-376.41	748.94	731.09	17.85	41.957	
2,800.00	2,785.04	2,685.20	2,638.59	9.87	11.13	-162.54	-340.01	-386.75	778.35	759.83	18.52	42.020	
2,900.00	2,884.39	2,780.61	2,731.91	10.24	11.57	-162.14	-357.02	-397.09	807.80	788.60	19.20	42.079	
3,000.00	2,983.73	2,876.03	2,825.22	10.61	12.01	-161.76	-374.03	-407.43	837.28	817.41	19.87	42.135	
3,100.00	3,083.08	2,971.44	2,918.54	10.98	12.45	-161.41	-391.04	-417.77	866.80	846.25	20.55	42.187	
3,200.00	3,182.42	3,066.86	3,011.85	11.35	12.89	-161.08	-408.05	-428.11	896.34	875.12	21.22	42.236	
3,300.00	3,281.76	3,162.27	3,105.17	11.72	13.34	-160.78	-425.06	-438.45	925.91	904.01	21.90	42.282	
3,400.00	3,381.11	3,257.69	3,198.49	12.10	13.78	-160.49	-442.08	-448.79	955.50	932.92	22.58	42.325	
3,500.00	3,480.45	3,353.11	3,291.80	12.47	14.22	-160.22	-459.09	-459.13	985.11	961.86	23.25	42.366	
3,600.00	3,579.80	3,448.52	3,385.12	12.84	14.67	-159.97	-476.10	-469.46	1,014.74	990.81	23.93	42.405	
3,700.00	3,679.14	3,543.94	3,478.43	13.21	15.11	-159.73	-493.11	-479.80	1,044.38	1,019.78	24.61	42.442	
3,800.00	3,778.49	3,639.35	3,571.75	13.58	15.55	-159.50	-510.12	-490.14	1,074.05	1,048.76	25.29	42.476	
3,900.00	3,877.83	3,734.77	3,665.07	13.95	15.99	-159.29	-527.13	-500.48	1,103.72	1,077.76	25.96	42.509	

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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		
4,000.00	3,977.18	3,830.18	3,758.38	14.32	16.44	159.09	-544.14	-510.82	1,133.41	1,106.77	26.64	42.540		
4,100.00	4,076.52	3,925.60	3,851.70	14.69	16.88	158.89	-561.16	-521.16	1,163.11	1,135.79	27.32	42.569		
4,200.00	4,175.86	4,021.02	3,945.01	15.06	17.32	158.71	-578.17	-531.50	1,192.83	1,164.83	28.00	42.597		
4,300.00	4,275.21	4,116.43	4,038.33	15.43	17.77	158.54	-595.18	-541.84	1,222.55	1,193.87	28.68	42.623		
4,400.00	4,374.55	4,211.85	4,131.65	15.80	18.21	158.37	-612.19	-552.18	1,252.29	1,222.92	29.36	42.648		
4,500.00	4,473.90	4,307.26	4,224.96	16.18	18.65	158.21	-629.20	-562.52	1,282.03	1,251.99	30.04	42.672		
4,600.00	4,573.24	4,402.68	4,318.28	16.55	19.10	158.06	-646.21	-572.86	1,311.78	1,281.06	30.72	42.695		
4,700.00	4,672.59	4,498.09	4,411.59	16.92	19.54	157.92	-663.22	-583.20	1,341.54	1,310.13	31.41	42.716		
4,800.00	4,772.06	6,237.56	5,538.00	17.24	20.90	-165.20	133.17	-605.86	1,325.67	1,295.53	30.14	43.984		
4,900.00	4,871.83	6,239.37	5,538.00	17.51	20.90	-164.81	134.97	-605.86	1,276.14	1,244.49	31.65	40.322		
5,000.00	4,971.78	6,240.24	5,538.00	17.76	20.91	-164.49	135.84	-605.86	1,229.68	1,196.58	33.10	37.146		
5,100.00	5,071.78	6,240.32	5,538.00	18.02	20.91	-90.00	135.92	-605.86	1,187.23	1,152.73	34.50	34.412		
5,200.00	5,171.78	6,240.32	5,538.00	18.32	20.91	-90.00	135.92	-605.86	1,151.64	1,115.84	35.80	32.165		
5,300.00	5,271.66	6,237.12	5,538.00	18.59	20.90	91.75	132.72	-605.86	1,123.89	1,086.96	36.93	30.437		
5,400.00	5,369.38	6,216.61	5,538.00	18.85	20.85	92.83	112.22	-605.86	1,104.89	1,067.17	37.72	29.292		
5,500.00	5,461.39	6,177.84	5,538.00	19.10	20.77	92.09	73.44	-605.86	1,094.77	1,056.59	38.18	28.674		
5,588.01	5,534.96	6,129.72	5,538.00	19.31	20.71	90.26	25.32	-605.85	1,092.26	1,053.91	38.34	28.486		
5,600.00	5,544.31	6,122.23	5,538.00	19.34	20.70	89.95	17.83	-605.85	1,092.30	1,053.95	38.35	28.482 SF		
5,700.00	5,615.11	6,051.82	5,538.00	19.58	20.66	87.02	-52.58	-605.85	1,095.25	1,056.90	38.35	28.558		
5,800.00	5,671.17	5,969.20	5,538.00	19.83	20.67	83.99	-135.20	-605.84	1,100.91	1,062.59	38.32	28.731		
5,900.00	5,710.44	5,889.29	5,536.78	20.12	20.74	81.64	-215.08	-605.83	1,106.92	1,068.53	38.40	28.828		
6,000.00	5,731.48	5,820.54	5,527.56	20.47	20.82	79.77	-283.16	-605.83	1,113.12	1,074.53	38.59	28.842		
6,100.00	5,735.00	5,750.00	5,508.89	20.88	20.92	78.32	-351.13	-605.83	1,119.39	1,080.51	38.88	28.791		
6,200.00	5,735.00	5,700.00	5,490.17	21.38	20.99	77.38	-397.47	-605.82	1,128.44	1,089.19	39.25	28.752		
6,300.00	5,735.00	5,635.89	5,459.83	21.97	21.08	75.88	-453.90	-605.82	1,141.44	1,101.86	39.58	28.838		
6,400.00	5,735.00	5,586.70	5,431.97	22.64	21.15	74.52	-494.43	-605.81	1,159.14	1,119.22	39.92	29.035		
6,500.00	5,735.00	5,550.00	5,408.78	23.38	21.20	73.40	-522.85	-605.81	1,181.96	1,141.69	40.27	29.350		
6,600.00	5,735.00	5,500.00	5,374.06	24.20	21.25	71.75	-558.81	-605.81	1,210.12	1,169.61	40.51	29.871		
6,700.00	5,735.00	5,473.54	5,354.34	25.07	21.27	70.82	-576.45	-605.81	1,243.71	1,202.90	40.81	30.477		
6,800.00	5,735.00	5,450.00	5,336.07	26.01	21.29	69.97	-591.28	-605.81	1,282.74	1,241.67	41.07	31.231		
6,900.00	5,735.00	5,420.24	5,312.03	26.98	21.30	68.87	-608.82	-605.81	1,326.90	1,285.66	41.25	32.170		
7,000.00	5,735.00	5,400.00	5,295.13	28.01	21.31	68.11	-619.96	-605.81	1,375.99	1,334.56	41.43	33.211		
7,100.00	5,735.00	5,379.14	5,277.27	29.07	21.32	67.31	-630.74	-605.81	1,429.63	1,388.06	41.57	34.394		
7,200.00	5,735.00	5,350.00	5,251.64	30.17	21.32	66.17	-644.58	-605.80	1,487.59	1,445.98	41.61	35.749		
7,300.00	5,735.00	5,350.00	5,251.64	31.30	21.32	66.17	-644.58	-605.80	1,549.09	1,507.29	41.81	37.053		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-1910 - 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	-61.14	49.58	-89.97	102.73									
100.00	100.00	100.00	100.00	0.13	0.13	-61.14	49.58	-89.97	102.73	102.46	0.27	385.683						
200.00	200.00	200.00	200.00	0.47	0.47	-61.14	49.58	-89.97	102.73	101.79	0.94	109.208						
300.00	300.00	300.00	300.00	0.81	0.81	-61.14	49.58	-89.97	102.73	101.11	1.61	63.610	CC, ES					
400.00	399.98	400.96	400.94	1.13	1.11	-137.12	47.84	-90.34	103.50	101.26	2.24	46.113						
500.00	499.84	501.37	501.21	1.47	1.41	-141.77	42.66	-91.44	106.30	103.44	2.86	37.154						
600.00	599.45	600.71	600.16	1.81	1.73	-148.81	34.16	-93.25	112.42	108.91	3.51	32.018						
700.00	698.81	698.64	697.35	2.16	2.06	-157.07	22.50	-95.73	122.68	118.48	4.20	29.227						
800.00	798.16	795.25	792.79	2.51	2.41	-165.28	7.82	-98.85	135.98	131.07	4.91	27.680						
900.00	897.50	891.39	887.30	2.87	2.79	-172.90	-9.43	-102.52	152.60	146.95	5.65	27.004						
1,000.00	996.84	988.00	982.20	3.23	3.18	-179.13	-27.08	-106.28	171.57	165.20	6.38	26.902						
1,100.00	1,096.19	1,084.61	1,077.11	3.59	3.59	175.90	-44.72	-110.03	192.15	185.06	7.09	27.098						
1,200.00	1,195.53	1,181.21	1,172.02	3.96	3.99	171.90	-62.36	-113.79	213.87	206.08	7.79	27.449						
1,300.00	1,294.88	1,277.82	1,266.93	4.33	4.41	168.63	-80.00	-117.54	236.42	227.93	8.49	27.850						
1,400.00	1,394.22	1,374.43	1,361.84	4.70	4.82	165.93	-97.65	-121.29	259.58	250.40	9.18	28.275						
1,500.00	1,493.57	1,471.03	1,456.74	5.06	5.24	163.67	-115.29	-125.05	283.20	273.33	9.87	28.693						
1,600.00	1,592.91	1,567.64	1,551.65	5.43	5.66	161.76	-132.93	-128.80	307.18	296.62	10.56	29.094						
1,700.00	1,692.26	1,664.25	1,646.56	5.80	6.08	160.12	-150.57	-132.56	331.43	320.19	11.25	29.471						
1,800.00	1,791.60	1,760.85	1,741.47	6.17	6.50	158.71	-168.22	-136.31	355.91	343.97	11.93	29.824						
1,900.00	1,890.94	1,857.46	1,836.38	6.54	6.92	157.48	-185.86	-140.06	380.56	367.94	12.62	30.151						
2,000.00	1,990.29	1,954.07	1,931.28	6.91	7.35	156.40	-203.50	-143.82	405.36	392.05	13.31	30.455						
2,100.00	2,089.63	2,050.67	2,026.19	7.28	7.77	155.44	-221.15	-147.57	430.29	416.29	14.00	30.736						
2,200.00	2,188.98	2,147.28	2,121.10	7.65	8.19	154.58	-238.79	-151.32	455.31	440.62	14.69	30.996						
2,300.00	2,288.32	2,243.89	2,216.01	8.02	8.62	153.82	-256.43	-155.08	480.42	465.04	15.38	31.237						
2,400.00	2,387.67	2,340.50	2,310.92	8.39	9.04	153.13	-274.07	-158.83	505.60	489.53	16.07	31.460						
2,500.00	2,487.01	2,437.10	2,405.83	8.76	9.47	152.51	-291.72	-162.59	530.84	514.08	16.76	31.668						
2,600.00	2,586.35	2,533.71	2,500.73	9.13	9.89	151.94	-309.36	-166.34	556.14	538.69	17.45	31.862						
2,700.00	2,685.70	2,630.32	2,595.64	9.50	10.32	151.42	-327.00	-170.09	581.48	563.34	18.15	32.042						
2,800.00	2,785.04	2,726.92	2,690.55	9.87	10.75	150.95	-344.64	-173.85	606.87	588.03	18.84	32.210						
2,900.00	2,884.39	2,823.53	2,785.46	10.24	11.17	150.51	-362.29	-177.60	632.29	612.75	19.53	32.368						
3,000.00	2,983.73	2,920.14	2,880.37	10.61	11.60	150.11	-379.93	-181.35	657.74	637.51	20.23	32.515						
3,100.00	3,083.08	3,016.74	2,975.27	10.98	12.03	149.73	-397.57	-185.11	683.22	662.30	20.92	32.654						
3,200.00	3,182.42	3,113.35	3,070.18	11.35	12.45	149.39	-415.21	-188.86	708.73	687.11	21.62	32.784						
3,300.00	3,281.76	3,209.96	3,165.09	11.72	12.88	149.07	-432.86	-192.62	734.26	711.94	22.31	32.906						
3,400.00	3,381.11	3,306.56	3,260.00	12.10	13.31	148.76	-450.50	-196.37	759.80	736.79	23.01	33.022						
3,500.00	3,480.45	3,403.17	3,354.91	12.47	13.73	148.48	-468.14	-200.12	785.37	761.67	23.71	33.131						
3,600.00	3,579.80	3,499.78	3,449.81	12.84	14.16	148.22	-485.78	-203.88	810.95	786.55	24.40	33.234						
3,700.00	3,679.14	3,596.39	3,544.72	13.21	14.59	147.97	-503.43	-207.63	836.55	811.45	25.10	33.332						
3,800.00	3,778.49	3,692.99	3,639.63	13.58	15.02	147.74	-521.07	-211.39	862.16	836.37	25.79	33.424						
3,900.00	3,877.83	3,789.60	3,734.54	13.95	15.44	147.52	-538.71	-215.14	887.79	861.30	26.49	33.512						
4,000.00	3,977.18	3,886.21	3,829.45	14.32	15.87	147.31	-556.35	-218.89	913.43	886.24	27.19	33.595						
4,100.00	4,076.52	3,982.81	3,924.36	14.69	16.30	147.12	-574.00	-222.65	939.07	911.19	27.89	33.674						
4,200.00	4,175.86	4,079.42	4,019.26	15.06	16.73	146.93	-591.64	-226.40	964.73	936.14	28.58	33.750						
4,300.00	4,275.21	4,176.03	4,114.17	15.43	17.15	146.76	-609.28	-230.15	990.39	961.11	29.28	33.822						
4,400.00	4,374.55	4,272.63	4,209.08	15.80	17.58	146.59	-626.92	-233.91	1,016.07	986.09	29.98	33.891						
4,500.00	4,473.90	4,369.24	4,303.99	16.18	18.01	146.43	-644.57	-237.66	1,041.75	1,011.07	30.68	33.956						
4,600.00	4,573.24	4,489.84	4,422.64	16.55	18.48	146.27	-665.68	-242.15	1,066.88	1,035.37	31.51	33.856						
4,700.00	4,672.59	4,635.46	4,566.88	16.92	18.86	146.25	-685.09	-246.28	1,088.23	1,055.86	32.37	33.616						
4,800.00	4,772.06	4,783.82	4,714.69	17.24	19.22	146.52	-697.46	-248.92	1,104.12	1,070.99	33.13	33.327						
4,900.00	4,871.83	6,286.93	6,266.00	17.51	20.71	-165.26	132.68	-252.66	1,039.04	1,011.55	27.49	37.792						
5,000.00	4,971.78	6,287.58	5,606.00	17.76	20.71	-164.74	133.54	-252.66	973.36	943.97	29.38	33.127						
5,100.00	5,071.78	6,287.67	5,606.00	18.02	20.71	-90.18	133.62	-252.66	911.60	880.27	31.34	29.091						



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	6,287.67	5,606.00	18.32	20.71	-90.18	133.62	-252.66	856.84	823.52	33.32	25.713		
5,300.00	5,271.66	6,284.47	5,606.00	18.59	20.70	92.89	130.42	-252.65	810.81	775.60	35.21	23.028		
5,400.00	5,369.38	6,263.96	5,606.00	18.85	20.63	95.48	109.92	-252.58	775.65	738.90	36.75	21.106		
5,500.00	5,461.39	6,225.19	5,606.00	19.10	20.49	95.33	71.14	-252.46	752.71	714.93	37.78	19.924		
5,600.00	5,544.31	6,169.57	5,606.00	19.34	20.33	93.05	15.53	-252.28	741.28	703.00	38.28	19.364		
5,685.43	5,605.65	6,110.25	5,606.00	19.54	20.19	90.04	-43.79	-252.09	738.74	700.36	38.38	19.250 SF		
5,700.00	5,615.11	6,099.16	5,606.00	19.58	20.17	89.47	-54.88	-252.05	738.80	700.43	38.37	19.256		
5,800.00	5,671.17	6,016.54	5,606.00	19.83	20.06	85.59	-137.50	-251.79	741.65	703.36	38.29	19.369		
5,900.00	5,710.44	5,932.82	5,604.48	20.12	20.01	82.41	-221.19	-251.52	746.42	708.18	38.24	19.518		
6,000.00	5,731.48	5,857.30	5,593.29	20.47	20.02	79.75	-295.80	-251.28	752.31	714.06	38.25	19.670		
6,100.00	5,735.00	5,784.58	5,572.43	20.88	20.05	77.59	-365.40	-251.05	759.05	720.73	38.32	19.808		
6,200.00	5,735.00	5,718.18	5,545.09	21.38	20.10	75.59	-425.87	-250.86	769.59	731.23	38.36	20.061		
6,300.00	5,735.00	5,659.66	5,514.80	21.97	20.15	73.41	-475.89	-250.70	785.71	747.39	38.32	20.505		
6,400.00	5,735.00	5,600.00	5,478.33	22.64	20.20	70.85	-523.07	-250.55	808.41	770.27	38.14	21.197		
6,500.00	5,735.00	5,565.30	5,454.72	23.38	20.23	69.23	-548.49	-250.47	837.98	799.95	38.03	22.034		
6,600.00	5,735.00	5,527.88	5,427.43	24.20	20.25	67.40	-574.08	-250.38	874.79	836.95	37.84	23.117		
6,700.00	5,735.00	5,500.00	5,405.94	25.07	20.27	66.00	-591.83	-250.33	918.58	880.87	37.70	24.363		
6,800.00	5,735.00	5,468.06	5,380.18	26.01	20.28	64.35	-610.73	-250.27	968.81	931.31	37.50	25.836		
6,900.00	5,735.00	5,450.00	5,365.13	26.98	20.29	63.41	-620.70	-250.23	1,024.98	987.55	37.43	27.385		
7,000.00	5,735.00	5,423.17	5,342.15	28.01	20.29	62.00	-634.53	-250.19	1,086.29	1,049.03	37.26	29.153		
7,100.00	5,735.00	5,400.00	5,321.75	29.07	20.30	60.79	-645.52	-250.15	1,152.26	1,115.12	37.14	31.027		
7,200.00	5,735.00	5,400.00	5,321.75	30.17	20.30	60.79	-645.52	-250.15	1,222.30	1,185.05	37.25	32.815		
7,300.00	5,735.00	5,374.42	5,298.69	31.30	20.29	59.44	-656.58	-250.12	1,295.51	1,258.40	37.11	34.913		
7,400.00	5,735.00	5,350.00	5,276.19	32.45	20.29	58.17	-666.07	-250.09	1,371.99	1,335.00	36.99	37.093		
7,500.00	5,735.00	5,350.00	5,276.19	33.63	20.29	58.17	-666.07	-250.09	1,450.71	1,413.61	37.10	39.106		
7,600.00	5,735.00	5,350.00	5,276.19	34.84	20.29	58.17	-666.07	-250.09	1,531.91	1,494.72	37.19	41.188		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-31.17	49.57	-29.99	57.93					
100.00	100.00	100.00	100.00	0.13	0.13	-31.17	49.57	-29.99	57.93	57.67	0.27	217.509		
200.00	200.00	200.00	200.00	0.47	0.47	-31.17	49.57	-29.99	57.93	56.99	0.94	61.588		
300.00	300.00	300.00	300.00	0.81	0.81	-31.17	49.57	-29.99	57.93	56.32	1.61	35.873		
400.00	399.98	401.84	401.82	1.13	1.12	-107.98	47.78	-29.70	56.80	54.50	2.30	24.711		
500.00	499.84	503.25	503.08	1.47	1.42	-115.78	42.45	-28.86	54.06	51.06	2.99	18.057		
600.00	599.45	603.83	603.26	1.81	1.74	-129.88	33.67	-27.46	51.90	48.24	3.66	14.192		
619.50	618.85	623.32	622.63	1.88	1.81	-133.33	31.57	-27.12	51.84	48.06	3.78	13.713 CC, ES		
700.00	698.81	703.29	701.96	2.16	2.08	-148.88	21.58	-25.53	53.57	49.30	4.26	12.568		
800.00	798.16	801.68	799.12	2.51	2.43	-168.17	6.30	-23.10	60.25	55.34	4.90	12.291		
900.00	897.50	899.07	894.82	2.87	2.82	175.48	-11.56	-20.26	72.75	67.10	5.65	12.884		
1,000.00	996.84	996.38	990.38	3.23	3.22	164.23	-29.70	-17.37	89.52	83.10	6.41	13.955		
1,100.00	1,096.19	1,093.69	1,085.94	3.59	3.63	156.66	-47.84	-14.49	108.61	101.45	7.16	15.171		
1,200.00	1,195.53	1,191.00	1,181.50	3.96	4.04	151.39	-65.99	-11.60	129.00	121.11	7.88	16.365		
1,300.00	1,294.88	1,288.31	1,277.06	4.33	4.46	147.56	-84.13	-8.71	150.15	141.56	8.60	17.468		
1,400.00	1,394.22	1,385.62	1,372.62	4.70	4.88	144.68	-102.27	-5.82	171.79	162.49	9.30	18.466		
1,500.00	1,493.57	1,482.93	1,468.18	5.06	5.30	142.45	-120.42	-2.94	193.75	183.75	10.01	19.361		
1,600.00	1,592.91	1,580.24	1,563.74	5.43	5.73	140.67	-138.56	-0.05	215.94	205.23	10.71	20.161		
1,700.00	1,692.26	1,677.55	1,659.30	5.80	6.15	139.22	-156.71	2.84	238.29	228.88	11.41	20.876		
1,800.00	1,791.60	1,774.86	1,754.86	6.17	6.58	138.02	-174.85	5.73	260.76	248.64	12.12	21.517		
1,900.00	1,890.94	1,872.17	1,850.42	6.54	7.01	137.01	-192.99	8.61	283.32	270.50	12.82	22.094		
2,000.00	1,990.29	1,969.48	1,945.98	6.91	7.43	136.15	-211.14	11.50	305.95	292.42	13.53	22.614		
2,100.00	2,089.63	2,066.79	2,041.54	7.28	7.86	135.41	-229.28	14.39	328.64	314.40	14.24	23.085		
2,200.00	2,188.98	2,164.10	2,137.10	7.65	8.29	134.77	-247.42	17.28	351.37	336.43	14.94	23.513		
2,300.00	2,288.32	2,261.41	2,232.66	8.02	8.72	134.20	-265.57	20.16	374.14	358.49	15.65	23.904		
2,400.00	2,387.67	2,358.72	2,328.22	8.39	9.15	133.70	-283.71	23.05	396.95	380.59	16.36	24.262		
2,500.00	2,487.01	2,456.03	2,423.78	8.76	9.58	133.25	-301.85	25.94	419.77	402.70	17.07	24.590		
2,600.00	2,586.35	2,553.34	2,519.34	9.13	10.01	132.85	-320.00	28.83	442.62	424.84	17.78	24.893		
2,700.00	2,685.70	2,650.65	2,614.90	9.50	10.45	132.48	-338.14	31.71	465.49	447.00	18.49	25.172		
2,800.00	2,785.04	2,747.96	2,710.46	9.87	10.88	132.16	-356.28	34.60	488.38	469.17	19.20	25.431		
2,900.00	2,884.39	2,845.27	2,806.02	10.24	11.31	131.86	-374.43	37.49	511.27	491.36	19.92	25.672		
3,000.00	2,983.73	2,942.58	2,901.58	10.61	11.74	131.58	-392.57	40.38	534.18	513.56	20.63	25.896		
3,100.00	3,083.08	3,039.89	2,997.14	10.98	12.17	131.33	-410.72	43.26	557.10	535.76	21.34	26.104		
3,200.00	3,182.42	3,137.20	3,092.70	11.35	12.60	131.10	-428.86	46.15	580.03	557.98	22.05	26.300		
3,300.00	3,281.76	3,234.51	3,188.26	11.72	13.04	130.89	-447.00	49.04	602.97	580.20	22.77	26.483		
3,400.00	3,381.11	3,331.82	3,283.82	12.10	13.47	130.69	-465.15	51.93	625.92	602.44	23.48	26.654		
3,500.00	3,480.45	3,429.13	3,379.38	12.47	13.90	130.51	-483.29	54.81	648.87	624.67	24.20	26.816		
3,600.00	3,579.80	3,526.44	3,474.94	12.84	14.33	130.34	-501.43	57.70	671.83	646.92	24.91	26.968		
3,700.00	3,679.14	3,623.75	3,570.50	13.21	14.77	130.18	-519.58	60.59	694.79	669.17	25.63	27.112		
3,800.00	3,778.49	3,721.06	3,666.06	13.58	15.20	130.03	-537.72	63.48	717.76	691.42	26.34	27.248		
3,900.00	3,877.83	3,818.37	3,761.62	13.95	15.63	129.89	-555.86	66.37	740.73	713.67	27.06	27.376		
4,000.00	3,977.18	3,915.68	3,857.18	14.32	16.06	129.75	-574.01	69.25	763.71	735.94	27.77	27.498		
4,100.00	4,076.52	4,012.99	3,952.74	14.69	16.50	129.63	-592.15	72.14	786.69	758.20	28.49	27.613		
4,200.00	4,175.86	4,110.30	4,048.30	15.06	16.93	129.51	-610.29	75.03	809.67	780.47	29.21	27.723		
4,300.00	4,275.21	4,207.61	4,143.86	15.43	17.36	129.40	-628.44	77.92	832.66	802.74	29.92	27.828		
4,400.00	4,374.55	4,304.92	4,239.42	15.80	17.80	129.30	-646.58	80.80	855.65	825.01	30.64	27.927		
4,500.00	4,473.90	4,422.92	4,355.50	16.18	18.23	129.22	-667.48	84.13	877.93	846.48	31.46	27.908		
4,600.00	4,573.24	4,555.50	4,486.79	16.55	18.58	129.33	-685.58	87.01	896.73	864.46	32.27	27.787		
4,700.00	4,672.59	4,689.69	4,620.40	16.92	18.90	129.66	-697.76	88.95	911.70	878.66	33.05	27.589		
4,800.00	4,772.06	6,219.78	5,538.00	17.24	20.54	-166.75	131.51	86.29	859.45	839.40	20.04	42.881		
4,900.00	4,871.83	6,221.55	5,538.00	17.51	20.55	-165.78	133.28	86.28	775.14	753.16	21.98	35.260		
5,000.00	4,971.78	6,222.41	5,538.00	17.76	20.55	-164.93	134.14	86.28	692.93	668.72	24.20	28.628		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-1911 - 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	5,071.78	6,222.49	5,538.00	18.02	20.55	-90.25	134.22	86.28	614.12	587.34	26.78	22.933					
5,200.00	5,171.78	6,222.49	5,538.00	18.32	20.55	-90.25	134.22	86.28	542.13	512.34	29.79	18.201					
5,300.00	5,271.66	6,219.29	5,538.00	18.59	20.54	94.17	131.02	86.29	480.33	447.26	33.07	14.526					
5,400.00	5,369.38	6,198.78	5,538.00	18.85	20.45	97.13	110.51	86.38	433.82	397.79	36.03	12.042					
5,500.00	5,461.39	6,160.01	5,538.00	19.10	20.32	95.16	71.74	86.56	406.95	369.07	37.88	10.743					
5,592.22	5,538.26	6,109.29	5,538.00	19.32	20.16	89.94	21.02	86.78	399.63	361.47	38.16	10.472	SF				
5,600.00	5,544.31	6,104.40	5,538.00	19.34	20.14	89.39	16.13	86.80	399.68	361.55	38.13	10.483					
5,700.00	5,615.11	6,033.99	5,538.00	19.58	19.98	81.52	-54.28	87.12	406.94	369.79	37.16	10.952					
5,800.00	5,671.17	5,951.37	5,538.00	19.83	19.86	73.68	-136.90	87.48	421.12	385.34	35.78	11.771					
5,900.00	5,710.44	5,870.87	5,536.89	20.12	19.79	67.92	-217.37	87.84	435.65	401.08	34.57	12.602					
6,000.00	5,731.48	5,800.00	5,527.49	20.47	19.78	63.61	-287.56	88.15	450.10	416.54	33.56	13.411					
6,100.00	5,735.00	5,734.98	5,510.56	20.88	19.80	60.66	-350.29	88.43	464.27	431.39	32.88	14.119					
6,200.00	5,735.00	5,672.80	5,487.18	21.38	19.83	58.17	-407.87	88.69	484.52	452.36	32.16	15.068					
6,300.00	5,735.00	5,616.95	5,460.47	21.97	19.88	55.49	-456.89	88.91	513.13	481.74	31.40	16.343					
6,400.00	5,735.00	5,567.61	5,432.62	22.64	19.92	52.86	-497.60	89.09	550.36	519.60	30.76	17.891					
6,500.00	5,735.00	5,524.43	5,405.19	23.38	19.95	50.44	-530.93	89.24	595.90	565.55	30.34	19.638					
6,600.00	5,735.00	5,486.82	5,379.11	24.20	19.98	48.28	-558.02	89.36	649.06	618.89	30.17	21.514					
6,700.00	5,735.00	5,450.00	5,351.76	25.07	20.00	46.16	-582.65	89.47	708.94	678.83	30.11	23.548					
6,800.00	5,735.00	5,425.56	5,332.67	26.01	20.02	44.77	-597.91	89.54	774.52	744.12	30.39	25.484					
6,900.00	5,735.00	5,400.00	5,311.97	26.98	20.03	43.33	-612.89	89.60	844.95	814.29	30.66	27.556					
7,000.00	5,735.00	5,378.72	5,294.18	28.01	20.04	42.16	-624.58	89.65	919.44	888.43	31.01	29.650					
7,100.00	5,735.00	5,350.00	5,269.46	29.07	20.04	40.61	-639.18	89.72	997.41	966.22	31.20	31.972					
7,200.00	5,735.00	5,350.00	5,269.46	30.17	20.04	40.61	-639.18	89.72	1,078.04	1,046.19	31.84	33.856					
7,300.00	5,735.00	5,327.03	5,249.13	31.30	20.04	39.40	-649.86	89.77	1,160.97	1,128.91	32.06	36.213					
7,400.00	5,735.00	5,300.00	5,224.63	32.45	20.04	38.02	-661.27	89.82	1,246.21	1,214.01	32.20	38.700					
7,500.00	5,735.00	5,300.00	5,224.63	33.63	20.04	38.02	-661.27	89.82	1,332.65	1,299.97	32.67	40.785					
7,600.00	5,735.00	5,300.00	5,224.63	34.84	20.04	38.02	-661.27	89.82	1,420.86	1,387.78	33.09	42.945					
7,700.00	5,735.00	5,280.02	5,206.15	36.06	20.03	37.04	-668.88	89.85	1,510.05	1,476.81	33.24	45.432					





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	31.18	49.55	29.99	57.92					
100.00	100.00	100.00	100.00	0.13	0.13	31.18	49.55	29.99	57.92	57.65	0.27	217.458		
200.00	200.00	200.00	200.00	0.47	0.47	31.18	49.55	29.99	57.92	56.98	0.94	61.574		
300.00	300.00	300.00	300.00	0.81	0.81	31.18	49.55	29.99	57.92	56.30	1.61	35.865		
400.00	399.98	401.03	401.01	1.13	1.11	-42.90	47.96	30.80	55.72	53.45	2.27	24.588		
500.00	499.84	501.76	501.59	1.47	1.42	-41.88	43.22	33.21	49.13	46.20	2.93	16.765		
600.00	599.45	601.89	601.33	1.81	1.74	-39.38	35.39	37.20	38.24	34.62	3.62	10.553		
700.00	698.81	701.22	699.91	2.16	2.08	-30.62	24.56	42.72	24.08	19.79	4.29	5.612		
800.00	798.16	799.74	797.21	2.51	2.44	13.56	10.81	49.72	12.76	7.78	4.98	2.562		
812.52	810.59	812.00	809.28	2.55	2.49	24.04	8.89	50.70	12.53	7.37	5.15	2.431 CC, ES		
900.00	897.50	897.23	892.92	2.87	2.83	76.50	-5.72	58.14	22.15	15.96	6.19	3.576		
1,000.00	996.84	994.83	988.37	3.23	3.24	92.57	-23.85	67.37	42.08	35.29	6.79	6.200		
1,100.00	1,096.19	1,092.46	1,083.86	3.59	3.67	98.19	-41.98	76.60	63.14	55.74	7.40	8.534		
1,200.00	1,195.53	1,190.10	1,179.35	3.96	4.10	100.98	-60.11	85.84	84.49	76.45	8.04	10.512		
1,300.00	1,294.88	1,287.73	1,274.84	4.33	4.53	102.65	-78.24	95.07	105.96	97.26	8.70	12.178		
1,400.00	1,394.22	1,385.36	1,370.33	4.70	4.97	103.75	-96.37	104.30	127.48	118.10	9.38	13.597		
1,500.00	1,493.57	1,482.99	1,465.81	5.06	5.41	104.54	-114.51	113.54	149.03	138.97	10.06	14.814		
1,600.00	1,592.91	1,580.62	1,561.30	5.43	5.86	105.13	-132.64	122.77	170.61	159.86	10.75	15.868		
1,700.00	1,692.26	1,678.26	1,656.79	5.80	6.30	105.58	-150.77	132.00	192.20	180.75	11.45	16.786		
1,800.00	1,791.60	1,775.89	1,752.28	6.17	6.75	105.94	-168.90	141.24	213.79	201.64	12.15	17.594		
1,900.00	1,890.94	1,873.52	1,847.77	6.54	7.19	106.24	-187.03	150.47	235.40	222.54	12.86	18.308		
2,000.00	1,990.29	1,971.15	1,943.25	6.91	7.64	106.49	-205.17	159.71	257.00	243.44	13.57	18.943		
2,100.00	2,089.63	2,068.78	2,038.74	7.28	8.09	106.70	-223.30	168.94	278.62	264.34	14.28	19.513		
2,200.00	2,188.98	2,166.42	2,134.23	7.65	8.54	106.87	-241.43	178.17	300.23	285.24	14.99	20.025		
2,300.00	2,288.32	2,264.05	2,229.72	8.02	8.99	107.03	-259.56	187.41	321.85	306.14	15.71	20.489		
2,400.00	2,387.67	2,361.68	2,325.21	8.39	9.44	107.16	-277.69	196.64	343.47	327.04	16.43	20.910		
2,500.00	2,487.01	2,459.31	2,420.69	8.76	9.89	107.28	-295.82	205.88	365.09	347.95	17.15	21.294		
2,600.00	2,586.35	2,556.94	2,516.18	9.13	10.34	107.39	-313.96	215.11	386.72	368.85	17.87	21.646		
2,700.00	2,685.70	2,654.58	2,611.67	9.50	10.79	107.48	-332.09	224.34	408.34	389.75	18.59	21.969		
2,800.00	2,785.04	2,752.21	2,707.16	9.87	11.24	107.57	-350.22	233.58	429.96	410.66	19.31	22.267		
2,900.00	2,884.39	2,849.84	2,802.65	10.24	11.70	107.65	-368.35	242.81	451.59	431.56	20.03	22.543		
3,000.00	2,983.73	2,947.47	2,898.13	10.61	12.15	107.72	-386.48	252.05	473.22	452.46	20.76	22.799		
3,100.00	3,083.08	3,045.10	2,993.62	10.98	12.60	107.78	-404.62	261.28	494.84	473.36	21.48	23.036		
3,200.00	3,182.42	3,142.74	3,089.11	11.35	13.05	107.84	-422.75	270.51	516.47	494.26	22.21	23.258		
3,300.00	3,281.76	3,240.37	3,184.60	11.72	13.51	107.89	-440.88	279.75	538.10	515.17	22.93	23.465		
3,400.00	3,381.11	3,338.00	3,280.09	12.10	13.96	107.94	-459.01	288.98	559.73	536.07	23.66	23.659		
3,500.00	3,480.45	3,435.63	3,375.57	12.47	14.41	107.99	-477.14	298.21	581.36	556.97	24.39	23.840		
3,600.00	3,579.80	3,533.26	3,471.06	12.84	14.86	108.03	-495.28	307.45	602.99	577.87	25.11	24.011		
3,700.00	3,679.14	3,630.89	3,566.55	13.21	15.32	108.07	-513.41	316.68	624.62	598.78	25.84	24.172		
3,800.00	3,778.49	3,728.53	3,662.04	13.58	15.77	108.11	-531.54	325.92	646.25	619.68	26.57	24.324		
3,900.00	3,877.83	3,826.16	3,757.53	13.95	16.22	108.14	-549.67	335.15	667.88	640.58	27.30	24.467		
4,000.00	3,977.18	3,923.79	3,853.01	14.32	16.68	108.17	-567.80	344.38	689.51	661.48	28.03	24.603		
4,100.00	4,076.52	4,021.42	3,948.50	14.69	17.13	108.20	-585.94	353.62	711.14	682.38	28.75	24.732		
4,200.00	4,175.86	4,119.05	4,043.99	15.06	17.58	108.23	-604.07	362.85	732.77	703.28	29.48	24.854		
4,300.00	4,275.21	4,216.69	4,139.48	15.43	18.04	108.26	-622.20	372.09	754.40	724.18	30.21	24.970		
4,400.00	4,374.55	4,314.32	4,234.97	15.80	18.49	108.28	-640.33	381.32	776.03	745.09	30.94	25.080		
4,500.00	4,473.90	4,425.69	4,344.01	16.18	18.93	108.33	-660.52	391.60	797.28	765.54	31.74	25.116		
4,600.00	4,573.24	4,555.53	4,472.02	16.55	19.29	108.56	-679.78	401.41	815.32	782.73	32.58	25.022		
4,700.00	4,672.59	4,686.82	4,602.33	16.92	19.64	108.99	-693.99	408.65	829.50	796.11	33.38	24.847		
4,800.00	4,772.06	6,306.79	5,606.00	17.24	20.85	-172.63	133.00	411.82	836.41	825.59	10.82	77.311		
4,900.00	4,871.83	6,308.57	5,606.00	17.51	20.86	-169.80	134.78	411.81	737.57	726.31	11.26	65.496		
5,000.00	4,971.78	6,309.43	5,606.00	17.76	20.86	-166.30	135.64	411.81	638.51	626.76	11.75	54.340		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,071.78	6,309.51	5,606.00	18.02	20.86	-90.22	135.72	411.81	539.35	527.03	12.32	43.771		
5,200.00	5,171.78	6,309.51	5,606.00	18.32	20.86	-90.22	135.72	411.81	440.52	427.36	13.16	33.473		
5,300.00	5,271.66	6,306.31	5,606.00	18.59	20.85	116.50	132.52	411.82	342.48	327.95	14.52	23.579		
5,400.00	5,369.38	6,285.80	5,606.00	18.85	20.79	133.56	112.01	411.90	247.98	231.06	16.93	14.651		
5,500.00	5,461.39	6,247.03	5,606.00	19.10	20.70	132.78	73.24	412.04	162.53	140.68	21.85	7.438		
5,600.00	5,544.31	6,191.42	5,606.00	19.34	20.57	117.80	17.63	412.25	96.48	64.40	32.08	3.008		
5,685.98	5,606.01	6,131.68	5,606.00	19.54	20.50	89.99	-42.11	412.48	74.17	35.67	38.50	1.927 SF		
5,700.00	5,615.11	6,121.01	5,606.00	19.58	20.49	84.59	-52.78	412.52	74.72	36.89	37.83	1.975		
5,800.00	5,671.17	6,038.39	5,606.00	19.83	20.46	52.36	-135.40	412.83	98.72	71.41	27.31	3.615		
5,900.00	5,710.44	5,953.61	5,604.84	20.12	20.49	36.97	-220.15	413.15	129.22	108.99	20.23	6.387		
6,000.00	5,731.48	5,877.72	5,594.30	20.47	20.56	29.17	-295.24	413.44	158.70	142.05	16.65	9.533		
6,100.00	5,735.00	5,800.00	5,572.33	20.88	20.65	24.50	-369.71	413.72	187.02	171.27	15.74	11.879		
6,200.00	5,735.00	5,737.74	5,546.89	21.38	20.72	21.50	-426.50	413.93	224.76	207.20	17.56	12.801		
6,300.00	5,735.00	5,678.73	5,516.69	21.97	20.79	18.75	-477.15	414.12	273.70	253.85	19.85	13.791		
6,400.00	5,735.00	5,627.54	5,485.99	22.64	20.85	16.57	-518.09	414.28	331.91	309.59	22.32	14.868		
6,500.00	5,735.00	5,583.50	5,456.47	23.38	20.89	14.90	-550.76	414.40	397.60	373.01	24.59	16.168		
6,600.00	5,735.00	5,550.00	5,432.23	24.20	20.92	13.75	-573.87	414.49	469.26	442.50	26.76	17.536		
6,700.00	5,735.00	5,513.30	5,404.03	25.07	20.95	12.62	-597.35	414.58	545.55	517.42	28.13	19.393		
6,800.00	5,735.00	5,485.35	5,381.49	26.01	20.96	11.84	-613.86	414.64	625.60	596.14	29.45	21.241		
6,900.00	5,735.00	5,450.00	5,351.76	26.98	20.98	10.94	-632.98	414.71	708.83	678.64	30.20	23.474		
7,000.00	5,735.00	5,450.00	5,351.76	28.01	20.98	10.94	-632.98	414.71	794.22	762.51	31.70	25.052		
7,100.00	5,735.00	5,421.63	5,327.01	29.07	20.98	10.29	-646.83	414.76	881.45	849.25	32.20	27.373		
7,200.00	5,735.00	5,400.00	5,307.65	30.17	20.98	9.83	-656.48	414.80	970.49	937.75	32.73	29.647		
7,300.00	5,735.00	5,400.00	5,307.65	31.30	20.98	9.83	-656.48	414.80	1,060.89	1,027.35	33.54	31.634		
7,400.00	5,735.00	5,378.13	5,287.68	32.45	20.97	9.40	-665.41	414.83	1,152.21	1,118.36	33.85	34.038		
7,500.00	5,735.00	5,350.00	5,261.49	33.63	20.96	8.89	-675.65	414.87	1,244.96	1,210.93	34.03	36.583		
7,600.00	5,735.00	5,350.00	5,261.49	34.84	20.96	8.89	-675.65	414.87	1,337.81	1,303.27	34.54	38.733		
7,700.00	5,735.00	5,350.00	5,261.49	36.06	20.96	8.89	-675.65	414.87	1,431.62	1,396.65	34.97	40.941		
7,800.00	5,735.00	5,350.00	5,261.49	37.30	20.96	8.89	-675.65	414.87	1,526.21	1,490.88	35.33	43.194		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-67.54	49.59	-119.96	129.80					
100.00	100.00	100.00	100.00	0.13	0.13	-67.54	49.59	-119.96	129.80	129.54	0.27	487.344		
200.00	200.00	200.00	200.00	0.47	0.47	-67.54	49.59	-119.96	129.80	128.86	0.94	137.994		
300.00	300.00	300.00	300.00	0.81	0.81	-67.54	49.59	-119.96	129.80	128.19	1.61	80.376 CC, ES		
400.00	399.98	400.00	399.95	1.13	1.11	-143.50	47.15	-120.90	131.17	128.93	2.24	58.582		
500.00	499.84	499.00	498.64	1.47	1.43	-148.02	39.93	-123.69	135.85	132.99	2.86	47.438		
600.00	599.45	596.07	594.88	1.81	1.76	-154.66	28.23	-128.21	145.39	141.82	3.56	40.811		
700.00	698.81	691.53	688.86	2.16	2.11	-162.23	12.58	-134.25	160.63	156.31	4.32	37.145		
800.00	798.16	787.89	783.54	2.51	2.46	-168.83	-4.08	-140.68	178.86	173.81	5.05	35.387		
900.00	897.50	884.24	878.23	2.87	2.85	-174.20	-20.74	-147.12	199.03	193.26	5.77	34.515		
1,000.00	996.84	980.60	972.91	3.23	3.26	-178.57	-37.40	-153.55	220.60	214.14	6.46	34.123		
1,100.00	1,096.19	1,076.95	1,067.60	3.59	3.66	177.83	-54.07	-159.98	243.21	236.05	7.15	34.010		
1,200.00	1,195.53	1,173.30	1,162.28	3.96	4.08	174.85	-70.73	-166.42	266.58	258.75	7.83	34.027		
1,300.00	1,294.88	1,269.66	1,256.97	4.33	4.49	172.34	-87.39	-172.85	290.54	282.02	8.51	34.128		
1,400.00	1,394.22	1,366.01	1,351.65	4.70	4.91	170.21	-104.05	-179.29	314.94	305.75	9.19	34.271		
1,500.00	1,493.57	1,462.37	1,446.33	5.06	5.33	168.39	-120.71	-185.72	339.71	329.84	9.87	34.432		
1,600.00	1,592.91	1,558.72	1,541.02	5.43	5.75	166.82	-137.38	-192.16	364.75	354.21	10.54	34.599		
1,700.00	1,692.26	1,655.08	1,635.70	5.80	6.17	165.44	-154.04	-198.59	390.02	378.80	11.22	34.765		
1,800.00	1,791.60	1,751.43	1,730.39	6.17	6.59	164.24	-170.70	-205.02	415.48	403.58	11.90	34.926		
1,900.00	1,890.94	1,847.79	1,825.07	6.54	7.01	163.17	-187.36	-211.46	441.09	428.51	12.57	35.079		
2,000.00	1,990.29	1,944.14	1,919.76	6.91	7.43	162.22	-204.03	-217.89	466.82	453.57	13.25	35.225		
2,100.00	2,089.63	2,040.50	2,014.44	7.28	7.86	161.36	-220.69	-224.33	492.67	478.74	13.93	35.361		
2,200.00	2,188.98	2,136.85	2,109.13	7.65	8.28	160.60	-237.35	-230.76	518.61	504.00	14.61	35.490		
2,300.00	2,288.32	2,233.20	2,203.81	8.02	8.70	159.90	-254.01	-237.20	544.63	529.33	15.29	35.610		
2,400.00	2,387.67	2,329.56	2,298.50	8.39	9.13	159.27	-270.68	-243.63	570.71	554.74	15.98	35.723		
2,500.00	2,487.01	2,425.91	2,393.18	8.76	9.55	158.69	-287.34	-250.06	596.86	580.20	16.66	35.828		
2,600.00	2,586.35	2,522.27	2,487.86	9.13	9.98	158.16	-304.00	-256.50	623.06	605.71	17.34	35.927		
2,700.00	2,685.70	2,618.62	2,582.55	9.50	10.40	157.68	-320.66	-262.93	649.30	631.27	18.03	36.020		
2,800.00	2,785.04	2,714.98	2,677.23	9.87	10.82	157.23	-337.32	-269.37	675.58	656.87	18.71	36.106		
2,900.00	2,884.39	2,811.33	2,771.92	10.24	11.25	156.82	-353.99	-275.80	701.90	682.50	19.40	36.188		
3,000.00	2,983.73	2,907.69	2,866.60	10.61	11.67	156.43	-370.65	-282.24	728.25	708.17	20.08	36.265		
3,100.00	3,083.08	3,004.04	2,961.29	10.98	12.10	156.07	-387.31	-288.67	754.63	733.86	20.77	36.337		
3,200.00	3,182.42	3,100.40	3,055.97	11.35	12.52	155.74	-403.97	-295.10	781.03	759.58	21.45	36.405		
3,300.00	3,281.76	3,196.75	3,150.66	11.72	12.95	155.43	-420.64	-301.54	807.46	785.32	22.14	36.469		
3,400.00	3,381.11	3,293.11	3,245.34	12.10	13.37	155.14	-437.30	-307.97	833.90	811.08	22.83	36.530		
3,500.00	3,480.45	3,389.46	3,340.03	12.47	13.80	154.86	-453.96	-314.41	860.37	836.86	23.52	36.587		
3,600.00	3,579.80	3,485.81	3,434.71	12.84	14.23	154.60	-470.62	-320.84	886.86	862.65	24.20	36.641		
3,700.00	3,679.14	3,582.17	3,529.40	13.21	14.65	154.36	-487.29	-327.28	913.36	888.46	24.89	36.693		
3,800.00	3,778.49	3,678.52	3,624.08	13.58	15.08	154.13	-503.95	-333.71	939.87	914.29	25.58	36.742		
3,900.00	3,877.83	3,774.88	3,718.76	13.95	15.50	153.92	-520.61	-340.14	966.40	940.13	26.27	36.788		
4,000.00	3,977.18	3,871.23	3,813.45	14.32	15.93	153.71	-537.27	-346.58	992.94	965.98	26.96	36.832		
4,100.00	4,076.52	3,967.59	3,908.13	14.69	16.35	153.52	-553.94	-353.01	1,019.49	991.84	27.65	36.874		
4,200.00	4,175.86	4,063.94	4,002.82	15.06	16.78	153.33	-570.60	-359.45	1,046.05	1,017.71	28.34	36.914		
4,300.00	4,275.21	4,160.30	4,097.50	15.43	17.21	153.16	-587.26	-365.88	1,072.62	1,043.59	29.03	36.952		
4,400.00	4,374.55	4,256.65	4,192.19	15.80	17.63	152.99	-603.92	-372.32	1,099.20	1,069.48	29.72	36.989		
4,500.00	4,473.90	4,353.01	4,286.87	16.18	18.06	152.83	-620.58	-378.75	1,125.79	1,095.38	30.41	37.023		
4,600.00	4,573.24	4,449.36	4,381.56	16.55	18.48	152.68	-637.25	-385.18	1,152.38	1,121.28	31.10	37.056		
4,700.00	4,672.59	4,545.71	4,476.24	16.92	18.91	152.53	-653.91	-391.62	1,178.99	1,147.20	31.79	37.088		
4,800.00	4,772.06	4,646.86	4,625.38	17.24	19.36	152.54	-670.70	-400.42	1,202.45	1,169.78	32.68	36.799		
4,900.00	4,871.83	4,856.16	4,783.73	17.51	19.76	152.56	-692.76	-406.62	1,218.09	1,184.65	33.44	36.426		
5,000.00	4,971.78	6,418.00	5,735.00	17.76	21.11	-164.77	132.52	-413.11	1,179.14	1,149.70	29.44	40.051		
5,100.00	5,071.78	6,418.08	5,735.00	18.02	21.11	-90.22	132.60	-413.11	1,117.26	1,086.14	31.13	35.893		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	6,418.08	5,735.00	18.32	21.11	-90.22	132.60	-413.11	1,060.96	1,028.10	32.85	32.293	
5,300.00	5,271.66	6,414.88	5,735.00	18.59	21.10	93.26	129.40	-413.10	1,011.48	976.94	34.54	29.286	
5,400.00	5,369.38	6,394.38	5,735.00	18.85	21.03	96.91	108.90	-413.02	970.61	934.60	36.01	26.956	
5,500.00	5,461.39	6,355.60	5,735.00	19.10	20.92	98.22	70.12	-412.87	939.82	902.64	37.18	25.279	
5,600.00	5,544.31	6,299.99	5,735.00	19.34	20.78	97.65	14.51	-412.66	919.10	881.12	37.98	24.198	
5,700.00	5,615.11	6,229.58	5,735.00	19.58	20.67	95.86	-55.90	-412.40	907.05	868.53	38.52	23.546	
5,800.00	5,671.17	6,146.96	5,735.00	19.83	20.61	93.56	-138.52	-412.09	901.34	862.46	38.88	23.181	
5,900.00	5,710.44	6,052.87	5,732.39	20.12	20.61	91.29	-232.52	-411.73	899.34	860.13	39.20	22.940	
5,956.75	5,724.68	5,999.61	5,724.36	20.30	20.63	89.98	-285.15	-411.53	899.06	859.64	39.42	22.809	
6,000.00	5,731.48	5,960.39	5,715.04	20.47	20.66	88.99	-323.24	-411.39	899.21	859.64	39.57	22.723	
6,100.00	5,735.00	5,874.11	5,684.64	20.88	20.74	86.79	-403.87	-411.08	900.76	860.80	39.96	22.543	
6,200.00	5,735.00	5,800.00	5,648.21	21.38	20.82	84.49	-468.34	-410.84	905.16	864.82	40.34	22.441 SF	
6,300.00	5,735.00	5,735.41	5,609.27	21.97	20.88	82.04	-519.82	-410.65	914.15	873.51	40.64	22.491	
6,400.00	5,735.00	5,683.01	5,573.20	22.64	20.92	79.80	-557.79	-410.50	929.12	888.25	40.87	22.733	
6,500.00	5,735.00	5,639.74	5,540.65	23.38	20.95	77.80	-586.29	-410.40	950.92	909.91	41.02	23.184	
6,600.00	5,735.00	5,600.00	5,508.77	24.20	20.97	75.88	-610.00	-410.31	979.95	938.88	41.07	23.860	
6,700.00	5,735.00	5,573.89	5,486.88	25.07	20.98	74.57	-624.23	-410.25	1,016.13	975.02	41.11	24.716	
6,800.00	5,735.00	5,550.00	5,466.25	26.01	20.98	73.36	-636.27	-410.21	1,059.20	1,018.09	41.10	25.769	
6,900.00	5,735.00	5,527.17	5,446.04	26.98	20.98	72.18	-646.88	-410.17	1,108.60	1,067.56	41.04	27.012	
7,000.00	5,735.00	5,500.00	5,421.41	28.01	20.98	70.77	-658.34	-410.12	1,163.84	1,122.93	40.90	28.453	
7,100.00	5,735.00	5,500.00	5,421.41	29.07	20.98	70.77	-658.34	-410.12	1,224.08	1,183.14	40.95	29.895	
7,200.00	5,735.00	5,478.91	5,401.90	30.17	20.97	69.67	-666.34	-410.09	1,288.80	1,248.00	40.81	31.584	
7,300.00	5,735.00	5,466.70	5,390.46	31.30	20.96	69.03	-670.62	-410.08	1,357.51	1,316.79	40.72	33.337	
7,400.00	5,735.00	5,450.00	5,374.66	32.45	20.95	68.16	-676.02	-410.06	1,429.68	1,389.08	40.60	35.214	
7,500.00	5,735.00	5,450.00	5,374.66	33.63	20.95	68.16	-676.02	-410.06	1,504.76	1,464.17	40.59	37.070	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-50.42	49.57	-59.98	77.81					
100.00	100.00	100.00	100.00	0.13	0.13	-50.42	49.57	-59.98	77.81	77.55	0.27	292.153		
200.00	200.00	200.00	200.00	0.47	0.47	-50.42	49.57	-59.98	77.81	76.87	0.94	82.724		
300.00	300.00	300.00	300.00	0.81	0.81	-50.42	49.57	-59.98	77.81	76.20	1.61	48.184		
360.56	360.56	361.52	361.52	1.00	0.99	-125.58	48.92	-60.02	77.81	75.80	2.00	38.813 CC		
400.00	399.98	401.53	401.51	1.13	1.11	-126.94	47.78	-60.10	77.83	75.57	2.26	34.419 ES		
500.00	499.84	502.55	502.38	1.47	1.42	-133.27	42.43	-60.46	78.51	75.62	2.89	27.131		
600.00	599.45	602.58	602.02	1.81	1.74	-143.21	33.65	-61.05	81.69	78.15	3.53	23.110		
700.00	698.81	701.30	699.99	2.16	2.07	-155.01	21.58	-61.87	89.02	84.82	4.20	21.215		
800.00	798.16	798.80	796.28	2.51	2.42	-166.54	6.36	-62.89	99.99	95.09	4.90	20.415		
900.00	897.50	895.99	892.01	2.87	2.80	-176.33	-10.39	-64.02	114.66	109.03	5.63	20.353		
1,000.00	996.84	993.18	987.74	3.23	3.19	176.21	-27.14	-65.15	131.93	125.57	6.36	20.730		
1,100.00	1,096.19	1,090.37	1,083.47	3.59	3.59	170.51	-43.89	-66.28	150.90	143.82	7.08	21.306		
1,200.00	1,195.53	1,187.56	1,179.20	3.96	3.99	166.09	-60.64	-67.41	171.01	163.22	7.79	21.953		
1,300.00	1,294.88	1,284.76	1,274.93	4.33	4.39	162.61	-77.39	-68.53	191.90	183.40	8.49	22.596		
1,400.00	1,394.22	1,381.95	1,370.67	4.70	4.80	159.81	-94.15	-69.66	213.34	204.15	9.19	23.213		
1,500.00	1,493.57	1,479.14	1,466.40	5.06	5.21	157.52	-110.90	-70.79	235.17	225.29	9.89	23.787		
1,600.00	1,592.91	1,576.33	1,562.13	5.43	5.62	155.62	-127.65	-71.92	257.31	246.73	10.58	24.316		
1,700.00	1,692.26	1,673.52	1,657.86	5.80	6.03	154.02	-144.40	-73.05	279.68	268.40	11.28	24.801		
1,800.00	1,791.60	1,770.72	1,753.59	6.17	6.44	152.66	-161.15	-74.18	302.22	290.25	11.97	25.243		
1,900.00	1,890.94	1,867.91	1,849.32	6.54	6.86	151.49	-177.90	-75.31	324.90	312.23	12.67	25.647		
2,000.00	1,990.29	1,965.10	1,945.05	6.91	7.27	150.47	-194.65	-76.44	347.70	334.33	13.36	26.017		
2,100.00	2,089.63	2,062.29	2,040.78	7.28	7.68	149.57	-211.40	-77.56	370.58	356.52	14.06	26.355		
2,200.00	2,188.98	2,159.49	2,136.51	7.65	8.10	148.78	-228.15	-78.69	393.55	378.79	14.76	26.665		
2,300.00	2,288.32	2,256.68	2,232.25	8.02	8.52	148.08	-244.90	-79.82	416.57	401.12	15.46	26.950		
2,400.00	2,387.67	2,353.87	2,327.98	8.39	8.93	147.45	-261.65	-80.95	439.65	423.50	16.16	27.213		
2,500.00	2,487.01	2,451.06	2,423.71	8.76	9.35	146.88	-278.41	-82.08	462.78	445.92	16.86	27.456		
2,600.00	2,586.35	2,548.25	2,519.44	9.13	9.76	146.37	-295.16	-83.21	485.94	468.39	17.55	27.681		
2,700.00	2,685.70	2,645.45	2,615.17	9.50	10.18	145.90	-311.91	-84.34	509.14	490.88	18.26	27.890		
2,800.00	2,785.04	2,742.64	2,710.90	9.87	10.60	145.47	-328.66	-85.47	532.37	513.41	18.96	28.085		
2,900.00	2,884.39	2,839.83	2,806.63	10.24	11.01	145.08	-345.41	-86.59	555.62	535.96	19.66	28.266		
3,000.00	2,983.73	2,937.02	2,902.36	10.61	11.43	144.73	-362.16	-87.72	578.89	558.53	20.36	28.435		
3,100.00	3,083.08	3,034.21	2,998.09	10.98	11.85	144.39	-378.91	-88.85	602.19	581.13	21.06	28.593		
3,200.00	3,182.42	3,131.41	3,093.83	11.35	12.27	144.09	-395.66	-89.98	625.50	603.74	21.76	28.742		
3,300.00	3,281.76	3,228.60	3,189.56	11.72	12.68	143.80	-412.41	-91.11	648.83	626.36	22.47	28.882		
3,400.00	3,381.11	3,325.79	3,285.29	12.10	13.10	143.54	-429.16	-92.24	672.17	649.00	23.17	29.013		
3,500.00	3,480.45	3,422.98	3,381.02	12.47	13.52	143.29	-445.91	-93.37	695.53	671.65	23.87	29.137		
3,600.00	3,579.80	3,520.18	3,476.75	12.84	13.94	143.06	-462.66	-94.50	718.89	694.32	24.57	29.254		
3,700.00	3,679.14	3,617.37	3,572.48	13.21	14.35	142.84	-479.42	-95.63	742.27	716.99	25.28	29.364		
3,800.00	3,778.49	3,714.56	3,668.21	13.58	14.77	142.64	-496.17	-96.75	765.66	739.67	25.98	29.469		
3,900.00	3,877.83	3,811.75	3,763.94	13.95	15.19	142.45	-512.92	-97.88	789.05	762.36	26.69	29.568		
4,000.00	3,977.18	3,908.94	3,859.67	14.32	15.61	142.27	-529.67	-99.01	812.45	785.06	27.39	29.662		
4,100.00	4,076.52	4,006.14	3,955.41	14.69	16.03	142.10	-546.42	-100.14	835.86	807.77	28.09	29.751		
4,200.00	4,175.86	4,103.33	4,051.14	15.06	16.44	141.94	-563.17	-101.27	859.28	830.48	28.80	29.837		
4,300.00	4,275.21	4,200.52	4,146.87	15.43	16.86	141.78	-579.92	-102.40	882.70	853.20	29.50	29.918		
4,400.00	4,374.55	4,297.71	4,242.60	15.80	17.28	141.64	-596.67	-103.53	906.13	875.92	30.21	29.995		
4,500.00	4,473.90	4,394.90	4,338.33	16.18	17.70	141.50	-613.42	-104.66	929.56	898.65	30.91	30.069		
4,600.00	4,573.24	4,492.10	4,434.06	16.55	18.12	141.37	-630.17	-105.78	953.00	921.38	31.62	30.139		
4,700.00	4,672.59	4,589.29	4,529.79	16.92	18.53	141.25	-646.92	-106.91	976.44	944.12	32.33	30.207		
4,800.00	4,772.06	4,694.61	4,633.55	17.24	18.97	141.31	-664.95	-108.13	998.84	965.81	33.03	30.240		
4,900.00	4,871.83	4,835.02	4,772.58	17.51	19.33	141.27	-684.46	-109.44	1,015.86	982.09	33.77	30.082		
5,000.00	4,971.78	4,977.71	4,914.67	17.76	19.68	141.18	-697.31	-110.31	1,026.04	991.58	34.45	29.781		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-1943 - 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	5,071.78	6,501.98	5,823.00	18.02	21.42	-90.00	136.00	-110.72	959.38	933.50	25.88	37.066						
5,200.00	5,171.78	6,501.98	5,823.00	18.32	21.42	-90.00	136.00	-110.72	883.27	855.39	27.88	31.679						
5,300.00	5,271.66	6,498.78	5,823.00	18.59	21.41	96.04	132.80	-110.72	812.44	782.36	30.08	27.010						
5,400.00	5,369.38	6,478.28	5,823.00	18.85	21.34	102.96	112.29	-110.72	749.63	717.31	32.32	23.193						
5,500.00	5,461.39	6,439.50	5,823.00	19.10	21.21	106.22	73.52	-110.72	697.93	663.51	34.42	20.276						
5,600.00	5,544.31	6,383.89	5,823.00	19.34	21.03	106.63	17.91	-110.72	658.98	622.78	36.20	18.206						
5,700.00	5,615.11	6,313.48	5,823.00	19.58	20.86	105.12	-52.50	-110.72	632.54	595.00	37.55	16.847						
5,800.00	5,671.17	6,230.86	5,823.00	19.83	20.73	102.66	-135.12	-110.72	616.69	578.19	38.50	16.020						
5,900.00	5,710.44	6,127.02	5,819.94	20.12	20.65	99.62	-238.85	-110.72	608.10	568.89	39.20	15.512						
6,000.00	5,731.48	6,017.08	5,796.63	20.47	20.65	95.96	-346.08	-110.72	602.31	562.41	39.90	15.096						
6,100.00	5,735.00	5,918.07	5,756.81	20.88	20.69	92.09	-436.57	-110.72	599.28	558.81	40.46	14.811						
6,140.56	5,735.00	5,882.36	5,738.34	21.07	20.71	90.32	-467.12	-110.72	598.92	558.27	40.65	14.735						
6,200.00	5,735.00	5,835.29	5,710.87	21.38	20.74	87.69	-505.33	-110.72	599.91	559.11	40.80	14.703 SF						
6,300.00	5,735.00	5,769.03	5,666.61	21.97	20.78	83.49	-554.58	-110.72	607.40	566.58	40.82	14.880						
6,400.00	5,735.00	5,716.38	5,627.21	22.64	20.81	79.80	-589.47	-110.72	624.21	583.66	40.55	15.394						
6,500.00	5,735.00	5,674.34	5,593.34	23.38	20.82	76.70	-614.36	-110.72	651.48	611.39	40.09	16.250						
6,600.00	5,735.00	5,650.00	5,572.85	24.20	20.83	74.86	-627.49	-110.72	689.29	649.63	39.66	17.380						
6,700.00	5,735.00	5,612.65	5,540.28	25.07	20.83	72.01	-645.75	-110.72	736.48	697.45	39.03	18.868						
6,800.00	5,735.00	5,600.00	5,528.96	26.01	20.83	71.03	-651.39	-110.72	792.30	753.59	38.70	20.472						
6,900.00	5,735.00	5,570.37	5,501.93	26.98	20.81	68.76	-663.54	-110.72	854.91	816.71	38.19	22.384						
7,000.00	5,735.00	5,550.00	5,482.98	28.01	20.81	67.20	-670.98	-110.72	923.52	885.67	37.85	24.402						
7,100.00	5,735.00	5,550.00	5,482.98	29.07	20.81	67.20	-670.98	-110.72	996.99	959.21	37.78	26.389						
7,200.00	5,735.00	5,527.78	5,461.99	30.17	20.79	65.52	-678.25	-110.72	1,074.14	1,036.64	37.50	28.645						
7,300.00	5,735.00	5,517.16	5,451.84	31.30	20.78	64.72	-681.41	-110.72	1,154.61	1,117.23	37.38	30.890						
7,400.00	5,735.00	5,500.00	5,435.33	32.45	20.77	63.45	-686.08	-110.72	1,237.77	1,200.54	37.22	33.255						
7,500.00	5,735.00	5,500.00	5,435.33	33.63	20.77	63.45	-686.08	-110.72	1,322.94	1,285.69	37.25	35.518						
7,600.00	5,735.00	5,500.00	5,435.33	34.84	20.77	63.45	-686.08	-110.72	1,410.06	1,372.78	37.28	37.826						
7,700.00	5,735.00	5,500.00	5,435.33	36.06	20.77	63.45	-686.08	-110.72	1,498.78	1,461.47	37.31	40.169						



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	0.00	49.56	0.00	49.56					
100.00	100.00	100.00	100.00	0.13	0.13	0.00	49.56	0.00	49.56	49.29	0.27	186.069		
200.00	200.00	200.00	200.00	0.47	0.47	0.00	49.56	0.00	49.56	48.62	0.94	52.686		
300.00	300.00	300.00	300.00	0.81	0.81	0.00	49.56	0.00	49.56	47.94	1.61	30.688		
400.00	399.98	401.62	401.59	1.13	1.11	-75.81	47.84	0.55	47.41	45.10	2.31	20.534		
500.00	499.84	502.87	502.70	1.47	1.42	-81.01	42.72	2.18	41.19	38.13	3.06	13.481		
600.00	599.45	603.39	602.82	1.81	1.74	-93.83	34.26	4.86	31.91	28.07	3.84	8.312		
700.00	698.81	702.95	701.63	2.16	2.08	-123.52	22.60	8.57	23.37	18.87	4.50	5.195		
748.22	746.72	750.64	748.78	2.32	2.25	-145.53	15.85	10.72	21.87	17.18	4.69	4.659 CC, ES, SF		
800.00	798.16	801.56	799.00	2.51	2.44	-170.43	7.82	13.27	23.88	18.96	4.92	4.855		
900.00	897.50	899.30	895.07	2.87	2.83	157.47	-9.33	18.72	37.18	31.47	5.71	6.511		
1,000.00	996.84	996.98	991.03	3.23	3.23	143.89	-26.69	24.24	55.77	49.27	6.50	8.585		
1,100.00	1,096.19	1,094.65	1,087.00	3.59	3.64	137.23	-44.04	29.75	75.87	68.65	7.22	10.504		
1,200.00	1,195.53	1,192.33	1,182.96	3.96	4.05	133.38	-61.39	35.27	96.54	88.62	7.93	12.178		
1,300.00	1,294.88	1,290.01	1,278.93	4.33	4.47	130.89	-78.75	40.79	117.49	108.86	8.63	13.616		
1,400.00	1,394.22	1,387.68	1,374.89	4.70	4.89	129.16	-96.10	46.30	138.58	129.25	9.33	14.855		
1,500.00	1,493.57	1,485.36	1,470.86	5.06	5.31	127.89	-113.45	51.82	159.76	149.73	10.03	15.929		
1,600.00	1,592.91	1,583.04	1,566.82	5.43	5.73	126.91	-130.81	57.33	181.00	170.27	10.73	16.865		
1,700.00	1,692.26	1,680.72	1,662.79	5.80	6.16	126.14	-148.16	62.85	202.28	190.84	11.44	17.686		
1,800.00	1,791.60	1,778.39	1,758.75	6.17	6.59	125.51	-165.51	68.37	223.59	211.44	12.14	18.412		
1,900.00	1,890.94	1,876.07	1,854.72	6.54	7.01	125.00	-182.87	73.88	244.92	232.06	12.85	19.057		
2,000.00	1,990.29	1,973.75	1,950.68	6.91	7.44	124.56	-200.22	79.40	266.26	252.70	13.56	19.633		
2,100.00	2,089.63	2,071.43	2,046.65	7.28	7.87	124.19	-217.57	84.92	287.62	273.34	14.27	20.150		
2,200.00	2,188.98	2,169.10	2,142.61	7.65	8.30	123.88	-234.93	90.43	308.98	294.00	14.99	20.618		
2,300.00	2,288.32	2,266.78	2,238.58	8.02	8.73	123.60	-252.28	95.95	330.36	314.66	15.70	21.042		
2,400.00	2,387.67	2,364.46	2,334.54	8.39	9.16	123.36	-269.63	101.46	351.74	335.32	16.41	21.428		
2,500.00	2,487.01	2,462.13	2,430.51	8.76	9.59	123.14	-286.98	106.98	373.13	356.00	17.13	21.781		
2,600.00	2,586.35	2,559.81	2,526.47	9.13	10.02	122.95	-304.34	112.50	394.52	376.67	17.85	22.106		
2,700.00	2,685.70	2,657.49	2,622.44	9.50	10.45	122.78	-321.69	118.01	415.91	397.35	18.56	22.404		
2,800.00	2,785.04	2,755.17	2,718.40	9.87	10.88	122.62	-339.04	123.53	437.31	418.03	19.28	22.680		
2,900.00	2,884.39	2,852.84	2,814.37	10.24	11.31	122.48	-356.40	129.05	458.71	438.71	20.00	22.935		
3,000.00	2,983.73	2,950.52	2,910.33	10.61	11.74	122.35	-373.75	134.56	480.11	459.39	20.72	23.172		
3,100.00	3,083.08	3,048.20	3,006.30	10.98	12.18	122.24	-391.10	140.08	501.52	480.08	21.44	23.393		
3,200.00	3,182.42	3,145.88	3,102.26	11.35	12.61	122.13	-408.46	145.59	522.93	500.77	22.16	23.599		
3,300.00	3,281.76	3,243.55	3,198.23	11.72	13.04	122.03	-425.81	151.11	544.33	521.46	22.88	23.792		
3,400.00	3,381.11	3,341.23	3,294.19	12.10	13.47	121.94	-443.16	156.63	565.74	542.14	23.60	23.972		
3,500.00	3,480.45	3,438.91	3,390.16	12.47	13.90	121.85	-460.52	162.14	587.16	562.83	24.32	24.142		
3,600.00	3,579.80	3,536.59	3,486.12	12.84	14.34	121.77	-477.87	167.66	608.57	583.53	25.04	24.302		
3,700.00	3,679.14	3,634.26	3,582.09	13.21	14.77	121.70	-495.22	173.18	629.98	604.22	25.76	24.452		
3,800.00	3,778.49	3,731.94	3,678.05	13.58	15.20	121.63	-512.58	178.69	651.40	624.91	26.49	24.594		
3,900.00	3,877.83	3,829.62	3,774.02	13.95	15.63	121.57	-529.93	184.21	672.81	645.60	27.21	24.729		
4,000.00	3,977.18	3,927.29	3,869.98	14.32	16.07	121.50	-547.28	189.72	694.23	666.30	27.93	24.856		
4,100.00	4,076.52	4,024.97	3,965.95	14.69	16.50	121.45	-564.64	195.24	715.64	686.99	28.65	24.976		
4,200.00	4,175.86	4,122.65	4,061.91	15.06	16.93	121.39	-581.99	200.76	737.06	707.69	29.38	25.091		
4,300.00	4,275.21	4,220.33	4,157.88	15.43	17.36	121.34	-599.34	206.27	758.48	728.38	30.10	25.200		
4,400.00	4,374.55	4,318.00	4,253.84	15.80	17.80	121.30	-616.70	211.79	779.90	749.08	30.82	25.303		
4,500.00	4,473.90	4,415.68	4,349.81	16.18	18.23	121.25	-634.05	217.31	801.32	769.77	31.55	25.402		
4,600.00	4,573.24	4,513.36	4,445.77	16.55	18.66	121.21	-651.40	222.82	822.74	790.47	32.27	25.496		
4,700.00	4,672.59	4,631.42	4,561.98	16.92	19.09	121.21	-671.24	229.13	843.40	810.31	33.09	25.487		
4,800.00	4,772.06	4,762.39	4,691.74	17.24	19.43	121.55	-688.11	234.49	859.92	826.07	33.85	25.401		
4,900.00	4,871.83	4,895.06	4,823.86	17.51	19.75	121.80	-699.42	238.09	870.88	836.37	34.50	25.240		
5,000.00	4,971.78	6,423.46	5,735.00	17.76	21.24	-165.18	135.29	237.88	802.45	785.85	16.60	48.351		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,071.78	6,423.54	5,735.00	18.02	21.24	-90.14	135.37	237.88	708.12	690.16	17.96	39.421		
5,200.00	5,171.78	6,423.54	5,735.00	18.32	21.24	-90.14	135.37	237.88	615.46	595.73	19.73	31.196		
5,300.00	5,271.66	6,420.34	5,735.00	18.59	21.23	101.74	132.17	237.89	525.60	503.53	22.07	23.819		
5,400.00	5,369.38	6,399.83	5,735.00	18.85	21.15	113.77	111.67	237.94	441.88	416.81	25.07	17.626		
5,500.00	5,461.39	6,361.06	5,735.00	19.10	21.04	117.67	72.89	238.04	369.41	340.63	28.78	12.836		
5,600.00	5,544.31	6,305.45	5,735.00	19.34	20.87	116.00	17.28	238.18	313.04	280.20	32.84	9.534		
5,700.00	5,615.11	6,235.04	5,735.00	19.58	20.74	110.43	-53.13	238.35	275.76	239.37	36.39	7.577		
5,800.00	5,671.17	6,152.42	5,735.00	19.83	20.64	102.73	-135.75	238.56	256.49	217.92	38.57	6.650		
5,900.00	5,710.44	6,058.60	5,733.05	20.12	20.60	94.84	-229.51	238.80	249.56	210.12	39.44	6.327		
5,957.50	5,724.83	6,004.24	5,725.53	20.31	20.61	90.16	-283.32	238.93	248.59	209.03	39.56	6.284		
6,000.00	5,731.48	5,965.40	5,716.75	20.47	20.63	86.75	-321.15	239.03	249.10	209.67	39.44	6.317		
6,100.00	5,735.00	5,878.35	5,687.01	20.88	20.68	79.08	-402.86	239.24	254.30	215.69	38.61	6.586		
6,200.00	5,735.00	5,800.00	5,648.95	21.38	20.75	70.92	-471.25	239.41	268.75	231.98	36.77	7.309		
6,300.00	5,735.00	5,738.00	5,611.83	21.97	20.80	63.67	-520.86	239.53	296.66	262.21	34.45	8.611		
6,400.00	5,735.00	5,684.92	5,575.55	22.64	20.84	57.35	-559.57	239.63	338.87	306.39	32.49	10.431		
6,500.00	5,735.00	5,650.00	5,549.61	23.38	20.86	53.32	-582.95	239.69	393.78	362.02	31.76	12.400		
6,600.00	5,735.00	5,600.00	5,509.88	24.20	20.88	47.88	-613.27	239.77	458.27	427.38	30.89	14.836		
6,700.00	5,735.00	5,574.42	5,488.48	25.07	20.89	45.28	-627.28	239.80	530.26	499.04	31.22	16.986		
6,800.00	5,735.00	5,550.00	5,467.43	26.01	20.89	42.94	-639.65	239.83	607.81	576.19	31.62	19.222		
6,900.00	5,735.00	5,527.18	5,447.25	26.98	20.89	40.87	-650.31	239.86	689.49	657.46	32.03	21.524		
7,000.00	5,735.00	5,500.00	5,422.64	28.01	20.89	38.56	-661.84	239.89	774.43	742.13	32.29	23.980		
7,100.00	5,735.00	5,500.00	5,422.64	29.07	20.89	38.56	-661.84	239.89	861.64	828.58	33.07	26.059		
7,200.00	5,735.00	5,478.46	5,402.73	30.17	20.88	36.85	-670.06	239.91	950.70	917.39	33.31	28.538		
7,300.00	5,735.00	5,450.00	5,375.94	31.30	20.86	34.74	-679.64	239.93	1,041.73	1,008.31	33.42	31.170		
7,400.00	5,735.00	5,450.00	5,375.94	32.45	20.86	34.74	-679.64	239.93	1,133.29	1,099.37	33.92	33.411		
7,500.00	5,735.00	5,450.00	5,375.94	33.63	20.86	34.74	-679.64	239.93	1,226.16	1,191.83	34.33	35.713		
7,600.00	5,735.00	5,450.00	5,375.94	34.84	20.86	34.74	-679.64	239.93	1,320.07	1,285.39	34.69	38.058		
7,700.00	5,735.00	5,429.05	5,355.90	36.06	20.84	33.30	-685.74	239.95	1,414.26	1,379.48	34.78	40.664		
7,800.00	5,735.00	5,421.99	5,349.09	37.30	20.84	32.84	-687.62	239.96	1,509.25	1,474.25	35.00	43.125		





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-149.95	149.95					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.01	-149.95	149.95	149.68	0.27	562.971		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.01	-149.95	149.95	149.01	0.94	159.408		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.01	-149.95	149.95	148.33	1.61	92.849 CC, ES		
400.00	399.98	396.12	396.11	1.13	1.13	-164.12	1.07	-151.16	152.89	150.59	2.30	66.561		
500.00	499.84	494.00	493.88	1.47	1.46	-163.54	3.99	-154.49	161.34	158.36	2.98	54.211		
600.00	599.45	593.26	593.03	1.81	1.79	-163.25	7.16	-158.11	173.37	169.74	3.64	47.691		
700.00	698.81	692.21	691.85	2.16	2.12	-163.26	10.32	-161.73	187.87	183.58	4.29	43.751		
800.00	798.16	791.13	790.66	2.51	2.46	-163.31	13.48	-165.34	202.50	197.56	4.94	41.003		
900.00	897.50	890.05	889.47	2.87	2.79	-163.35	16.64	-168.95	217.13	211.54	5.59	38.845		
1,000.00	996.84	988.98	988.28	3.23	3.13	-163.38	19.80	-172.56	231.76	225.51	6.24	37.112		
1,100.00	1,096.19	1,087.90	1,087.08	3.59	3.47	-163.41	22.96	-176.17	246.39	239.49	6.90	35.692		
1,200.00	1,195.53	1,186.83	1,185.89	3.96	3.80	-163.44	26.11	-179.78	261.02	253.46	7.56	34.508		
1,300.00	1,294.88	1,285.75	1,284.70	4.33	4.14	-163.46	29.27	-183.39	275.65	267.42	8.23	33.507		
1,400.00	1,394.22	1,384.67	1,383.51	4.70	4.48	-163.49	32.43	-187.00	290.28	281.39	8.89	32.651		
1,500.00	1,493.57	1,483.60	1,482.31	5.06	4.82	-163.50	35.59	-190.61	304.91	295.36	9.56	31.910		
1,600.00	1,592.91	1,582.52	1,581.12	5.43	5.15	-163.52	38.75	-194.23	319.54	309.32	10.22	31.263		
1,700.00	1,692.26	1,681.45	1,679.93	5.80	5.49	-163.54	41.91	-197.84	334.17	323.28	10.89	30.693		
1,800.00	1,791.60	1,780.37	1,778.74	6.17	5.83	-163.55	45.07	-201.45	348.80	337.25	11.55	30.187		
1,900.00	1,890.94	1,879.29	1,877.54	6.54	6.17	-163.57	48.23	-205.06	363.43	351.21	12.22	29.736		
2,000.00	1,990.29	1,978.22	1,976.35	6.91	6.51	-163.58	51.39	-208.67	378.06	365.17	12.89	29.330		
2,100.00	2,089.63	2,077.14	2,075.16	7.28	6.85	-163.59	54.55	-212.28	392.69	379.13	13.56	28.963		
2,200.00	2,188.98	2,176.07	2,173.97	7.65	7.18	-163.60	57.71	-215.89	407.32	393.10	14.23	28.631		
2,300.00	2,288.32	2,274.99	2,272.77	8.02	7.52	-163.61	60.87	-219.50	421.95	407.06	14.90	28.327		
2,400.00	2,387.67	2,373.91	2,371.58	8.39	7.86	-163.62	64.03	-223.11	436.58	421.02	15.56	28.050		
2,500.00	2,487.01	2,472.84	2,470.39	8.76	8.20	-163.63	67.19	-226.73	451.22	434.98	16.23	27.794		
2,600.00	2,586.35	2,571.76	2,569.20	9.13	8.54	-163.64	70.35	-230.34	465.85	448.94	16.90	27.559		
2,700.00	2,685.70	2,670.69	2,668.00	9.50	8.88	-163.65	73.51	-233.95	480.48	462.90	17.57	27.342		
2,800.00	2,785.04	2,769.61	2,766.81	9.87	9.21	-163.65	76.67	-237.56	495.11	476.86	18.24	27.140		
2,900.00	2,884.39	2,868.53	2,865.62	10.24	9.55	-163.66	79.83	-241.17	509.74	490.83	18.91	26.952		
3,000.00	2,983.73	2,967.46	2,964.43	10.61	9.89	-163.67	82.99	-244.78	524.37	504.79	19.58	26.778		
3,100.00	3,083.08	3,066.38	3,063.23	10.98	10.23	-163.67	86.15	-248.39	539.00	518.75	20.25	26.614		
3,200.00	3,182.42	3,165.30	3,162.04	11.35	10.57	-163.68	89.31	-252.00	553.63	532.71	20.92	26.461		
3,300.00	3,281.76	3,264.23	3,260.85	11.72	10.91	-163.68	92.47	-255.61	568.26	546.67	21.59	26.317		
3,400.00	3,381.11	3,363.15	3,359.66	12.10	11.24	-163.69	95.63	-259.23	582.89	560.63	22.26	26.182		
3,500.00	3,480.45	3,462.08	3,458.46	12.47	11.58	-163.69	98.79	-262.84	597.52	574.59	22.93	26.055		
3,600.00	3,579.80	3,561.00	3,557.27	12.84	11.92	-163.70	101.95	-266.45	612.15	588.55	23.60	25.935		
3,700.00	3,679.14	3,659.92	3,656.08	13.21	12.26	-163.70	105.11	-270.06	626.78	602.51	24.27	25.821		
3,800.00	3,778.49	3,758.85	3,754.89	13.58	12.60	-163.71	108.27	-273.67	641.41	616.47	24.94	25.713		
3,900.00	3,877.83	3,857.77	3,853.69	13.95	12.94	-163.71	111.43	-277.28	656.04	630.43	25.62	25.611		
4,000.00	3,977.18	3,956.70	3,952.50	14.32	13.28	-163.72	114.59	-280.89	670.67	644.39	26.29	25.515		
4,100.00	4,076.52	4,055.62	4,051.31	14.69	13.61	-163.72	117.75	-284.50	685.30	658.35	26.96	25.422		
4,200.00	4,175.86	4,154.54	4,150.12	15.06	13.95	-163.72	120.91	-288.11	699.94	672.31	27.63	25.335		
4,300.00	4,275.21	4,253.47	4,248.92	15.43	14.29	-163.73	124.07	-291.72	714.57	686.27	28.30	25.251		
4,400.00	4,374.55	4,352.39	4,347.73	15.80	14.63	-163.73	127.23	-295.34	729.20	700.23	28.97	25.172		
4,500.00	4,473.90	4,451.32	4,446.54	16.18	14.97	-163.73	130.39	-298.95	743.83	714.19	29.64	25.096		
4,600.00	4,573.24	4,550.24	4,545.35	16.55	15.31	-163.74	133.55	-302.56	758.46	728.15	30.31	25.023		
4,700.00	4,672.59	4,649.16	4,644.15	16.92	15.65	-163.74	136.71	-306.17	773.09	742.11	30.98	24.953		
4,800.00	4,772.06	4,765.37	4,760.27	17.24	15.98	-163.82	139.64	-309.52	785.78	754.12	31.66	24.820		
4,900.00	4,871.83	4,876.94	4,871.83	17.51	16.28	-163.99	140.01	-309.95	792.56	760.31	32.25	24.577		
5,000.00	4,971.78	4,976.88	4,971.78	17.76	16.60	-164.07	140.01	-309.95	795.66	762.83	32.82	24.239		
5,100.00	5,071.78	5,077.11	5,071.90	18.02	16.90	-89.92	137.11	-309.95	795.95	762.54	33.40	23.829		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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		
5,110.23	5,082.00	5,087.28	5,082.00	18.05	16.92	-90.00	135.94	-309.95	795.95	762.49	33.46	23.789		
5,200.00	5,171.78	5,173.67	5,166.44	18.32	17.15	-91.29	118.12	-309.94	796.16	762.25	33.92	23.474		
5,300.00	5,271.66	5,261.87	5,248.39	18.59	17.37	86.66	85.81	-309.94	797.68	763.34	34.34	23.229		
5,400.00	5,369.38	5,345.31	5,319.87	18.85	17.58	84.39	42.93	-309.94	800.57	765.91	34.66	23.096		
5,500.00	5,461.39	5,425.46	5,381.26	19.10	17.77	82.30	-8.49	-309.93	804.37	769.47	34.91	23.042		
5,600.00	5,544.31	5,500.00	5,430.64	19.34	17.93	80.50	-64.23	-309.93	808.61	773.53	35.09	23.046		
5,700.00	5,615.11	5,578.86	5,473.68	19.58	18.10	78.88	-130.22	-309.92	812.79	777.48	35.31	23.018		
5,800.00	5,671.17	5,650.00	5,503.56	19.83	18.27	77.67	-194.72	-309.92	816.52	780.98	35.54	22.974		
5,900.00	5,710.44	5,726.63	5,525.61	20.12	18.49	76.75	-268.03	-309.91	819.41	783.48	35.93	22.804		
6,000.00	5,731.48	5,800.00	5,536.43	20.47	18.74	76.24	-340.54	-309.91	821.24	784.79	36.45	22.532		
6,100.00	5,735.00	5,883.95	5,538.00	20.88	19.09	76.13	-424.45	-309.90	821.90	784.70	37.20	22.093		
6,200.00	5,735.00	5,983.95	5,538.00	21.38	19.62	76.14	-524.45	-309.89	822.24	783.98	38.26	21.491		
6,300.00	5,735.00	6,083.95	5,538.00	21.97	20.23	76.14	-624.45	-309.89	822.59	783.09	39.50	20.826		
6,400.00	5,735.00	6,183.95	5,538.00	22.64	20.94	76.15	-724.45	-309.88	822.93	782.03	40.90	20.121		
6,500.00	5,735.00	6,283.95	5,538.00	23.38	21.73	76.16	-824.45	-309.87	823.28	780.83	42.45	19.395		
6,600.00	5,735.00	6,383.94	5,538.00	24.20	22.58	76.16	-924.45	-309.86	823.62	779.49	44.13	18.663		
6,700.00	5,735.00	6,483.94	5,538.00	25.07	23.50	76.17	-1,024.45	-309.86	823.97	778.04	45.93	17.940		
6,800.00	5,735.00	6,583.94	5,538.00	26.01	24.47	76.17	-1,124.44	-309.85	824.31	776.48	47.83	17.233		
6,900.00	5,735.00	6,683.94	5,538.00	26.98	25.49	76.18	-1,224.44	-309.84	824.66	774.83	49.83	16.549		
7,000.00	5,735.00	6,783.94	5,538.00	28.01	26.55	76.18	-1,324.44	-309.83	825.00	773.09	51.91	15.893		
7,100.00	5,735.00	6,883.94	5,538.00	29.07	27.65	76.19	-1,424.44	-309.82	825.35	771.29	54.06	15.267		
7,200.00	5,735.00	6,983.94	5,538.00	30.17	28.79	76.20	-1,524.44	-309.82	825.69	769.42	56.28	14.672		
7,300.00	5,735.00	7,083.94	5,538.00	31.30	29.95	76.20	-1,624.44	-309.81	826.04	767.49	58.55	14.108		
7,400.00	5,735.00	7,183.94	5,538.00	32.45	31.14	76.21	-1,724.44	-309.80	826.38	765.51	60.87	13.575		
7,500.00	5,735.00	7,283.94	5,538.00	33.63	32.35	76.21	-1,824.44	-309.79	826.73	763.49	63.24	13.072		
7,600.00	5,735.00	7,383.94	5,538.00	34.84	33.59	76.22	-1,924.44	-309.79	827.08	761.42	65.65	12.598		
7,700.00	5,735.00	7,483.94	5,538.00	36.06	34.84	76.23	-2,024.44	-309.78	827.42	759.33	68.10	12.151		
7,800.00	5,735.00	7,583.94	5,538.00	37.30	36.11	76.23	-2,124.44	-309.77	827.77	757.19	70.57	11.729		
7,900.00	5,735.00	7,683.94	5,538.00	38.56	37.39	76.24	-2,224.44	-309.76	828.11	755.03	73.08	11.332		
8,000.00	5,735.00	7,783.94	5,538.00	39.83	38.69	76.24	-2,324.44	-309.75	828.46	752.85	75.61	10.957		
8,100.00	5,735.00	7,883.94	5,538.00	41.12	40.00	76.25	-2,424.44	-309.75	828.80	750.64	78.16	10.603		
8,200.00	5,735.00	7,983.93	5,538.00	42.42	41.32	76.26	-2,524.44	-309.74	829.15	748.41	80.74	10.269		
8,300.00	5,735.00	8,083.93	5,538.00	43.72	42.65	76.26	-2,624.44	-309.73	829.49	746.16	83.34	9.953		
8,400.00	5,735.00	8,183.93	5,538.00	45.04	43.99	76.27	-2,724.43	-309.72	829.84	743.89	85.95	9.655		
8,500.00	5,735.00	8,283.93	5,538.00	46.37	45.33	76.27	-2,824.43	-309.72	830.18	741.60	88.58	9.372		
8,600.00	5,735.00	8,383.93	5,538.00	47.71	46.69	76.28	-2,924.43	-309.71	830.53	739.30	91.22	9.104		
8,700.00	5,735.00	8,483.93	5,538.00	49.05	48.05	76.28	-3,024.43	-309.70	830.87	736.99	93.88	8.850		
8,800.00	5,735.00	8,583.93	5,538.00	50.41	49.42	76.29	-3,124.43	-309.69	831.22	734.67	96.55	8.609		
8,900.00	5,735.00	8,683.93	5,538.00	51.77	50.79	76.30	-3,224.43	-309.69	831.57	732.33	99.23	8.380		
9,000.00	5,735.00	8,783.93	5,538.00	53.13	52.17	76.30	-3,324.43	-309.68	831.91	729.98	101.93	8.162		
9,100.00	5,735.00	8,883.93	5,538.00	54.50	53.56	76.31	-3,424.43	-309.67	832.26	727.63	104.63	7.954		
9,200.00	5,735.00	8,983.93	5,538.00	55.88	54.94	76.31	-3,524.43	-309.66	832.60	725.26	107.34	7.757		
9,300.00	5,735.00	9,083.93	5,538.00	57.26	56.34	76.32	-3,624.43	-309.65	832.95	722.89	110.06	7.568		
9,400.00	5,735.00	9,183.93	5,538.00	58.64	57.73	76.33	-3,724.43	-309.65	833.29	720.51	112.79	7.388		
9,500.00	5,735.00	9,283.93	5,538.00	60.03	59.13	76.33	-3,824.43	-309.64	833.64	718.12	115.52	7.216		
9,600.00	5,735.00	9,383.93	5,538.00	61.42	60.54	76.34	-3,924.43	-309.63	833.98	715.72	118.26	7.052		
9,700.00	5,735.00	9,483.93	5,538.00	62.82	61.94	76.34	-4,024.43	-309.62	834.33	713.32	121.01	6.895		
9,800.00	5,735.00	9,583.92	5,538.00	64.22	63.35	76.35	-4,124.43	-309.62	834.67	710.92	123.76	6.744		
9,900.00	5,735.00	9,683.92	5,538.00	65.62	64.77	76.35	-4,224.43	-309.61	835.02	708.50	126.52	6.600		
10,000.00	5,735.00	9,783.92	5,538.00	67.03	66.18	76.36	-4,324.42	-309.60	835.37	706.08	129.28	6.462		
10,100.00	5,735.00	9,883.92	5,538.00	68.44	67.60	76.37	-4,424.42	-309.59	835.71	703.66	132.05	6.329		
10,200.00	5,735.00	9,983.92	5,538.00	69.85	69.02	76.37	-4,524.42	-309.58	836.06	701.24	134.82	6.201		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,735.00	10,083.92	5,538.00	71.26	70.44	76.38	-4,624.42	-309.58	836.40	698.80	137.60	6.079		
10,400.00	5,735.00	10,183.92	5,538.00	72.68	71.87	76.38	-4,724.42	-309.57	836.75	696.37	140.38	5.961		
10,500.00	5,735.00	10,283.92	5,538.00	74.10	73.29	76.39	-4,824.42	-309.56	837.09	693.93	143.16	5.847		
10,600.00	5,735.00	10,383.92	5,538.00	75.52	74.72	76.39	-4,924.42	-309.55	837.44	691.49	145.95	5.738		
10,700.00	5,735.00	10,483.92	5,538.00	76.94	76.15	76.40	-5,024.42	-309.55	837.78	689.04	148.74	5.632		
10,800.00	5,735.00	10,583.92	5,538.00	78.36	77.58	76.41	-5,124.42	-309.54	838.13	686.59	151.54	5.531		
10,900.00	5,735.00	10,683.92	5,538.00	79.79	79.01	76.41	-5,224.42	-309.53	838.48	684.14	154.34	5.433		
11,000.00	5,735.00	10,783.92	5,538.00	81.22	80.45	76.42	-5,324.42	-309.52	838.82	681.68	157.14	5.338		
11,100.00	5,735.00	10,883.92	5,538.00	82.65	81.88	76.42	-5,424.42	-309.52	839.17	679.23	159.94	5.247		
11,200.00	5,735.00	10,983.92	5,538.00	84.08	83.32	76.43	-5,524.42	-309.51	839.51	676.77	162.75	5.158		
11,300.00	5,735.00	11,083.92	5,538.00	85.51	84.76	76.43	-5,624.42	-309.50	839.86	674.30	165.56	5.073		
11,400.00	5,735.00	11,183.91	5,538.00	86.94	86.19	76.44	-5,724.42	-309.49	840.20	671.84	168.37	4.990		
11,500.00	5,735.00	11,283.91	5,538.00	88.38	87.63	76.45	-5,824.42	-309.48	840.55	669.37	171.18	4.910		
11,600.00	5,735.00	11,383.91	5,538.00	89.82	89.07	76.45	-5,924.41	-309.48	840.90	666.90	174.00	4.833		
11,700.00	5,735.00	11,483.91	5,538.00	91.25	90.52	76.46	-6,024.41	-309.47	841.24	664.43	176.81	4.758		
11,800.00	5,735.00	11,583.91	5,538.00	92.69	91.96	76.46	-6,124.41	-309.46	841.59	661.95	179.63	4.685		
11,900.00	5,735.00	11,683.91	5,538.00	94.13	93.40	76.47	-6,224.41	-309.45	841.93	659.48	182.45	4.615		
12,000.00	5,735.00	11,783.91	5,538.00	95.57	94.85	76.47	-6,324.41	-309.45	842.28	657.00	185.28	4.546		
12,100.00	5,735.00	11,883.91	5,538.00	97.01	96.29	76.48	-6,424.41	-309.44	842.62	654.52	188.10	4.480		
12,200.00	5,735.00	11,983.91	5,538.00	98.45	97.74	76.49	-6,524.41	-309.43	842.97	652.04	190.93	4.415		
12,300.00	5,735.00	12,083.91	5,538.00	99.90	99.19	76.49	-6,624.41	-309.42	843.32	649.56	193.76	4.352		
12,400.00	5,735.00	12,183.91	5,538.00	101.34	100.63	76.50	-6,724.41	-309.41	843.66	647.08	196.58	4.292		
12,500.00	5,735.00	12,283.91	5,538.00	102.79	102.08	76.50	-6,824.41	-309.41	844.01	644.59	199.42	4.232		
12,600.00	5,735.00	12,383.91	5,538.00	104.23	103.53	76.51	-6,924.41	-309.40	844.35	642.11	202.25	4.175		
12,700.00	5,735.00	12,483.91	5,538.00	105.68	104.98	76.51	-7,024.41	-309.39	844.70	639.62	205.08	4.119		
12,800.00	5,735.00	12,583.91	5,538.00	107.13	106.43	76.52	-7,124.41	-309.38	845.04	637.13	207.92	4.064		
12,900.00	5,735.00	12,683.91	5,538.00	108.57	107.88	76.52	-7,224.41	-309.38	845.39	634.64	210.75	4.011		
13,000.00	5,735.00	12,783.90	5,538.00	110.02	109.33	76.53	-7,324.41	-309.37	845.74	632.15	213.59	3.960		
13,100.00	5,735.00	12,883.90	5,538.00	111.47	110.79	76.54	-7,424.41	-309.36	846.08	629.65	216.43	3.909		
13,200.00	5,735.00	12,983.90	5,538.00	112.92	112.24	76.54	-7,524.40	-309.35	846.43	627.16	219.27	3.860		
13,300.00	5,735.00	13,083.90	5,538.00	114.37	113.69	76.55	-7,624.40	-309.35	846.77	624.67	222.11	3.812		
13,400.00	5,735.00	13,183.90	5,538.00	115.82	115.14	76.55	-7,724.40	-309.34	847.12	622.17	224.95	3.766		
13,500.00	5,735.00	13,283.90	5,538.00	117.27	116.60	76.56	-7,824.40	-309.33	847.46	619.67	227.79	3.720		
13,600.00	5,735.00	13,383.90	5,538.00	118.72	118.05	76.56	-7,924.40	-309.32	847.81	617.17	230.64	3.676		
13,700.00	5,735.00	13,483.90	5,538.00	120.18	119.51	76.57	-8,024.40	-309.31	848.16	614.68	233.48	3.633		
13,800.00	5,735.00	13,583.90	5,538.00	121.63	120.96	76.57	-8,124.40	-309.31	848.50	612.18	236.33	3.590		
13,835.79	5,735.00	13,617.62	5,538.00	122.15	121.45	76.58	-8,158.12	-309.30	848.63	611.33	237.30	3.576 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-89.99	0.01	-89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.01	-89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.01	-89.97	89.97	89.03	0.94	95.645 CC		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.01	-89.97	89.97	88.35	1.61	55.709		
400.00	399.98	401.98	401.96	1.13	1.15	-163.76	1.43	-88.84	90.54	88.24	2.30	39.335 ES		
500.00	499.84	502.15	502.05	1.47	1.49	-162.74	4.50	-86.39	93.17	90.22	2.96	31.529		
600.00	599.45	601.96	601.79	1.81	1.82	-162.38	7.58	-83.93	99.13	95.51	3.62	27.388		
700.00	698.81	701.60	701.35	2.16	2.15	-162.51	10.65	-81.49	107.56	103.27	4.29	25.086		
800.00	798.16	801.24	800.91	2.51	2.49	-162.64	13.72	-79.04	116.12	111.17	4.95	23.469		
900.00	897.50	900.87	900.46	2.87	2.83	-162.76	16.79	-76.59	124.68	119.07	5.61	22.219		
1,000.00	996.84	1,000.50	1,000.02	3.23	3.16	-162.87	19.87	-74.14	133.24	126.96	6.28	21.225		
1,100.00	1,096.19	1,100.14	1,099.57	3.59	3.50	-162.96	22.94	-71.69	141.80	134.85	6.95	20.416		
1,200.00	1,195.53	1,199.77	1,199.13	3.96	3.84	-163.04	26.01	-69.24	150.36	142.74	7.61	19.746		
1,300.00	1,294.88	1,299.40	1,298.68	4.33	4.17	-163.11	29.08	-66.79	158.92	150.63	8.29	19.181		
1,400.00	1,394.22	1,399.03	1,398.24	4.70	4.51	-163.17	32.15	-64.34	167.48	158.52	8.96	18.700		
1,500.00	1,493.57	1,498.67	1,497.79	5.06	4.85	-163.23	35.23	-61.89	176.04	166.41	9.63	18.285		
1,600.00	1,592.91	1,598.30	1,597.35	5.43	5.18	-163.28	38.30	-59.45	184.60	174.30	10.30	17.923		
1,700.00	1,692.26	1,697.93	1,696.90	5.80	5.52	-163.33	41.37	-57.00	193.17	182.19	10.97	17.604		
1,800.00	1,791.60	1,797.56	1,796.46	6.17	5.86	-163.38	44.44	-54.55	201.73	190.08	11.65	17.323		
1,900.00	1,890.94	1,897.20	1,896.01	6.54	6.20	-163.42	47.52	-52.10	210.29	197.97	12.32	17.071		
2,000.00	1,990.29	1,996.83	1,995.57	6.91	6.53	-163.45	50.59	-49.65	218.85	205.86	12.99	16.845		
2,100.00	2,089.63	2,096.46	2,095.12	7.28	6.87	-163.49	53.66	-47.20	227.41	213.75	13.67	16.641		
2,200.00	2,188.98	2,196.10	2,194.68	7.65	7.21	-163.52	56.73	-44.75	235.98	221.64	14.34	16.457		
2,300.00	2,288.32	2,295.73	2,294.23	8.02	7.55	-163.55	59.80	-42.30	244.54	229.53	15.01	16.288		
2,400.00	2,387.67	2,395.36	2,393.79	8.39	7.88	-163.58	62.88	-39.86	253.10	237.41	15.69	16.134		
2,500.00	2,487.01	2,494.99	2,493.34	8.76	8.22	-163.60	65.95	-37.41	261.66	245.30	16.36	15.993		
2,600.00	2,586.35	2,594.63	2,592.90	9.13	8.56	-163.63	69.02	-34.96	270.23	253.19	17.04	15.863		
2,700.00	2,685.70	2,694.26	2,692.45	9.50	8.90	-163.65	72.09	-32.51	278.79	261.08	17.71	15.742		
2,800.00	2,785.04	2,793.89	2,792.01	9.87	9.23	-163.67	75.16	-30.06	287.35	268.97	18.38	15.630		
2,900.00	2,884.39	2,893.52	2,891.57	10.24	9.57	-163.69	78.24	-27.61	295.91	276.86	19.06	15.526		
3,000.00	2,983.73	2,993.16	2,991.12	10.61	9.91	-163.71	81.31	-25.16	304.48	284.74	19.73	15.430		
3,100.00	3,083.08	3,092.79	3,090.68	10.98	10.25	-163.73	84.38	-22.71	313.04	292.63	20.41	15.339		
3,200.00	3,182.42	3,192.42	3,190.23	11.35	10.58	-163.75	87.45	-20.26	321.60	300.52	21.08	15.255		
3,300.00	3,281.76	3,292.05	3,289.79	11.72	10.92	-163.76	90.53	-17.82	330.17	308.41	21.76	15.175		
3,400.00	3,381.11	3,391.69	3,389.34	12.10	11.26	-163.78	93.60	-15.37	338.73	316.30	22.43	15.100		
3,500.00	3,480.45	3,491.32	3,488.90	12.47	11.60	-163.79	96.67	-12.92	347.29	324.19	23.11	15.030		
3,600.00	3,579.80	3,590.95	3,588.45	12.84	11.93	-163.81	99.74	-10.47	355.85	332.07	23.78	14.964		
3,700.00	3,679.14	3,690.59	3,688.01	13.21	12.27	-163.82	102.81	-8.02	364.42	339.96	24.46	14.901		
3,800.00	3,778.49	3,790.22	3,787.56	13.58	12.61	-163.83	105.89	-5.57	372.98	347.85	25.13	14.841		
3,900.00	3,877.83	3,889.85	3,887.12	13.95	12.95	-163.85	108.96	-3.12	381.54	355.74	25.81	14.785		
4,000.00	3,977.18	3,989.48	3,986.67	14.32	13.28	-163.86	112.03	-0.67	390.11	363.63	26.48	14.732		
4,100.00	4,076.52	4,089.12	4,086.23	14.69	13.62	-163.87	115.10	1.77	398.67	371.51	27.16	14.681		
4,200.00	4,175.86	4,188.75	4,185.78	15.06	13.96	-163.88	118.17	4.22	407.23	379.40	27.83	14.633		
4,300.00	4,275.21	4,288.38	4,285.34	15.43	14.30	-163.89	121.25	6.67	415.80	387.29	28.51	14.586		
4,400.00	4,374.55	4,388.01	4,384.89	15.80	14.64	-163.90	124.32	9.12	424.36	395.18	29.18	14.542		
4,500.00	4,473.90	4,487.65	4,484.45	16.18	14.97	-163.91	127.39	11.57	432.92	403.07	29.86	14.501		
4,600.00	4,573.24	4,587.28	4,584.00	16.55	15.31	-163.92	130.46	14.02	441.48	410.95	30.53	14.460		
4,700.00	4,672.59	4,686.91	4,683.56	16.92	15.65	-163.93	133.54	16.47	450.05	418.84	31.21	14.422		
4,800.00	4,772.06	4,786.63	4,782.21	17.24	15.98	-163.93	136.57	18.88	457.39	425.55	31.84	14.366		
4,900.00	4,871.83	4,876.48	4,873.03	17.51	16.22	-163.99	137.99	20.02	462.59	430.28	32.31	14.316		
5,000.00	4,971.78	4,975.23	4,971.78	17.76	16.53	-164.11	138.01	20.03	465.67	432.79	32.88	14.163		
5,100.00	5,071.78	5,075.23	5,071.78	18.02	16.86	-89.75	138.01	20.03	465.97	432.48	33.49	13.914		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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		
5,159.67	5,131.45	5,134.96	5,131.45	18.20	17.02	-90.01	135.93	20.03	465.97	432.13	33.83	13.772		
5,200.00	5,171.78	5,174.77	5,170.93	18.32	17.13	-90.63	130.87	20.03	466.00	431.95	34.05	13.687		
5,300.00	5,271.66	5,269.37	5,262.30	18.59	17.38	86.92	106.91	20.04	466.79	432.30	34.49	13.535		
5,400.00	5,369.38	5,360.02	5,344.44	18.85	17.62	88.82	68.82	20.04	468.73	433.92	34.82	13.463		
5,500.00	5,461.39	5,450.00	5,418.22	19.10	17.84	81.67	17.51	20.04	471.52	436.44	35.07	13.444		
5,600.00	5,544.31	5,532.99	5,477.53	19.34	18.03	79.54	-40.41	20.05	474.73	439.54	35.20	13.487		
5,700.00	5,615.11	5,616.42	5,527.13	19.58	18.20	77.71	-107.38	20.05	478.01	442.70	35.32	13.535		
5,800.00	5,671.17	5,700.00	5,565.48	19.83	18.39	76.26	-181.55	20.06	480.98	445.49	35.49	13.553		
5,900.00	5,710.44	5,779.46	5,590.51	20.12	18.61	75.27	-256.88	20.06	483.33	447.61	35.72	13.530		
6,000.00	5,731.48	5,859.88	5,603.89	20.47	18.89	74.71	-336.09	20.07	484.84	448.69	36.14	13.415		
6,100.00	5,735.00	5,948.27	5,606.00	20.88	19.26	74.59	-424.43	20.08	485.41	448.56	36.86	13.170		
6,200.00	5,735.00	6,048.27	5,606.00	21.38	19.77	74.60	-524.42	20.09	485.75	447.86	37.90	12.818		
6,300.00	5,735.00	6,148.27	5,606.00	21.97	20.38	74.61	-624.42	20.09	486.10	446.98	39.11	12.428		
6,400.00	5,735.00	6,248.27	5,606.00	22.64	21.08	74.62	-724.42	20.10	486.44	445.94	40.50	12.012		
6,500.00	5,735.00	6,348.27	5,606.00	23.38	21.86	74.63	-824.42	20.11	486.78	444.75	42.03	11.582		
6,600.00	5,735.00	6,448.27	5,606.00	24.20	22.70	74.64	-924.42	20.12	487.12	443.43	43.69	11.149		
6,700.00	5,735.00	6,548.27	5,606.00	25.07	23.61	74.65	-1,024.42	20.13	487.47	441.99	45.48	10.719		
6,800.00	5,735.00	6,648.27	5,606.00	26.01	24.57	74.67	-1,124.42	20.14	487.81	440.44	47.37	10.299		
6,900.00	5,735.00	6,748.26	5,606.00	26.98	25.58	74.68	-1,224.42	20.14	488.15	438.81	49.35	9.892		
7,000.00	5,735.00	6,848.26	5,606.00	28.01	26.64	74.69	-1,324.42	20.15	488.49	437.08	51.41	9.502		
7,100.00	5,735.00	6,948.26	5,606.00	29.07	27.73	74.70	-1,424.42	20.16	488.84	435.29	53.55	9.129		
7,200.00	5,735.00	7,048.26	5,606.00	30.17	28.86	74.71	-1,524.42	20.17	489.18	433.43	55.75	8.775		
7,300.00	5,735.00	7,148.26	5,606.00	31.30	30.02	74.72	-1,624.42	20.18	489.52	431.52	58.00	8.439		
7,400.00	5,735.00	7,248.26	5,606.00	32.45	31.20	74.73	-1,724.42	20.18	489.87	429.55	60.31	8.122		
7,500.00	5,735.00	7,348.26	5,606.00	33.63	32.41	74.74	-1,824.42	20.19	490.21	427.54	62.67	7.822		
7,600.00	5,735.00	7,448.26	5,606.00	34.84	33.64	74.75	-1,924.42	20.20	490.55	425.49	65.06	7.540		
7,700.00	5,735.00	7,548.26	5,606.00	36.06	34.88	74.76	-2,024.42	20.21	490.89	423.40	67.49	7.273		
7,800.00	5,735.00	7,648.26	5,606.00	37.30	36.15	74.78	-2,124.41	20.22	491.24	421.28	69.96	7.022		
7,900.00	5,735.00	7,748.26	5,606.00	38.56	37.43	74.79	-2,224.41	20.22	491.58	419.13	72.45	6.785		
8,000.00	5,735.00	7,848.26	5,606.00	39.83	38.72	74.80	-2,324.41	20.23	491.92	416.96	74.97	6.562		
8,100.00	5,735.00	7,948.26	5,606.00	41.12	40.02	74.81	-2,424.41	20.24	492.26	414.76	77.51	6.351		
8,200.00	5,735.00	8,048.26	5,606.00	42.42	41.34	74.82	-2,524.41	20.25	492.61	412.54	80.07	6.152		
8,300.00	5,735.00	8,148.26	5,606.00	43.72	42.67	74.83	-2,624.41	20.26	492.95	410.30	82.65	5.964		
8,400.00	5,735.00	8,248.26	5,606.00	45.04	44.00	74.84	-2,724.41	20.27	493.29	408.04	85.25	5.786		
8,500.00	5,735.00	8,348.25	5,606.00	46.37	45.35	74.85	-2,824.41	20.27	493.64	405.76	87.87	5.618		
8,600.00	5,735.00	8,448.25	5,606.00	47.71	46.70	74.86	-2,924.41	20.28	493.98	403.48	90.50	5.458		
8,700.00	5,735.00	8,548.25	5,606.00	49.05	48.06	74.87	-3,024.41	20.29	494.32	401.17	93.15	5.307		
8,800.00	5,735.00	8,648.25	5,606.00	50.41	49.42	74.88	-3,124.41	20.30	494.66	398.86	95.81	5.163		
8,900.00	5,735.00	8,748.25	5,606.00	51.77	50.80	74.89	-3,224.41	20.31	495.01	396.53	98.47	5.027		
9,000.00	5,735.00	8,848.25	5,606.00	53.13	52.17	74.90	-3,324.41	20.31	495.35	394.20	101.15	4.897		
9,100.00	5,735.00	8,948.25	5,606.00	54.50	53.56	74.92	-3,424.41	20.32	495.69	391.85	103.84	4.773		
9,200.00	5,735.00	9,048.25	5,606.00	55.88	54.94	74.93	-3,524.41	20.33	496.04	389.49	106.54	4.656		
9,300.00	5,735.00	9,148.25	5,606.00	57.26	56.33	74.94	-3,624.41	20.34	496.38	387.13	109.25	4.544		
9,400.00	5,735.00	9,248.25	5,606.00	58.64	57.73	74.95	-3,724.40	20.35	496.72	384.76	111.96	4.436		
9,500.00	5,735.00	9,348.25	5,606.00	60.03	59.13	74.96	-3,824.40	20.35	497.06	382.38	114.69	4.334		
9,600.00	5,735.00	9,448.25	5,606.00	61.42	60.53	74.97	-3,924.40	20.36	497.41	379.99	117.41	4.236		
9,700.00	5,735.00	9,548.25	5,606.00	62.82	61.93	74.98	-4,024.40	20.37	497.75	377.60	120.15	4.143		
9,800.00	5,735.00	9,648.25	5,606.00	64.22	63.34	74.99	-4,124.40	20.38	498.09	375.20	122.89	4.053		
9,900.00	5,735.00	9,748.25	5,606.00	65.62	64.75	75.00	-4,224.40	20.39	498.44	372.80	125.64	3.967		
10,000.00	5,735.00	9,848.25	5,606.00	67.03	66.17	75.01	-4,324.40	20.40	498.78	370.39	128.39	3.885		
10,100.00	5,735.00	9,948.24	5,606.00	68.44	67.58	75.02	-4,424.40	20.40	499.12	367.98	131.15	3.806		
10,200.00	5,735.00	10,048.24	5,606.00	69.85	69.00	75.03	-4,524.40	20.41	499.47	365.56	133.91	3.730		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,735.00	10,148.24	5,606.00	71.26	70.42	75.04	-4,624.40	20.42	499.81	363.14	136.67	3.657		
10,400.00	5,735.00	10,248.24	5,606.00	72.68	71.85	75.05	-4,724.40	20.43	500.15	360.71	139.44	3.587		
10,500.00	5,735.00	10,348.24	5,606.00	74.10	73.27	75.06	-4,824.40	20.44	500.50	358.28	142.22	3.519		
10,600.00	5,735.00	10,448.24	5,606.00	75.52	74.70	75.07	-4,924.40	20.44	500.84	355.85	144.99	3.454		
10,700.00	5,735.00	10,548.24	5,606.00	76.94	76.13	75.08	-5,024.40	20.45	501.18	353.41	147.77	3.392		
10,800.00	5,735.00	10,648.24	5,606.00	78.36	77.56	75.09	-5,124.40	20.46	501.52	350.97	150.56	3.331		
10,900.00	5,735.00	10,748.24	5,606.00	79.79	78.99	75.11	-5,224.40	20.47	501.87	348.52	153.34	3.273		
11,000.00	5,735.00	10,848.24	5,606.00	81.22	80.42	75.12	-5,324.39	20.48	502.21	346.08	156.13	3.217		
11,100.00	5,735.00	10,948.24	5,606.00	82.65	81.86	75.13	-5,424.39	20.49	502.55	343.63	158.93	3.162		
11,200.00	5,735.00	11,048.24	5,606.00	84.08	83.29	75.14	-5,524.39	20.49	502.90	341.17	161.72	3.110		
11,300.00	5,735.00	11,148.24	5,606.00	85.51	84.73	75.15	-5,624.39	20.50	503.24	338.72	164.52	3.059		
11,400.00	5,735.00	11,248.24	5,606.00	86.94	86.17	75.16	-5,724.39	20.51	503.58	336.26	167.32	3.010		
11,500.00	5,735.00	11,348.24	5,606.00	88.38	87.61	75.17	-5,824.39	20.52	503.93	333.80	170.13	2.962		
11,600.00	5,735.00	11,448.24	5,606.00	89.82	89.05	75.18	-5,924.39	20.53	504.27	331.34	172.93	2.916		
11,700.00	5,735.00	11,548.23	5,606.00	91.25	90.49	75.19	-6,024.39	20.53	504.61	328.88	175.74	2.871		
11,800.00	5,735.00	11,648.23	5,606.00	92.69	91.93	75.20	-6,124.39	20.54	504.96	326.41	178.55	2.828		
11,900.00	5,735.00	11,748.23	5,606.00	94.13	93.37	75.21	-6,224.39	20.55	505.30	323.94	181.36	2.786		
12,000.00	5,735.00	11,848.23	5,606.00	95.57	94.82	75.22	-6,324.39	20.56	505.64	321.47	184.17	2.745		
12,100.00	5,735.00	11,948.23	5,606.00	97.01	96.26	75.23	-6,424.39	20.57	505.99	319.00	186.99	2.706		
12,200.00	5,735.00	12,048.23	5,606.00	98.45	97.71	75.24	-6,524.39	20.57	506.33	316.53	189.80	2.668		
12,300.00	5,735.00	12,148.23	5,606.00	99.90	99.15	75.25	-6,624.39	20.58	506.67	314.05	192.62	2.630		
12,400.00	5,735.00	12,248.23	5,606.00	101.34	100.60	75.26	-6,724.39	20.59	507.02	311.58	195.44	2.594		
12,500.00	5,735.00	12,348.23	5,606.00	102.79	102.05	75.27	-6,824.39	20.60	507.36	309.10	198.26	2.559		
12,600.00	5,735.00	12,448.23	5,606.00	104.23	103.50	75.28	-6,924.38	20.61	507.71	306.62	201.09	2.525		
12,700.00	5,735.00	12,548.23	5,606.00	105.68	104.95	75.29	-7,024.38	20.62	508.05	304.14	203.91	2.492		
12,800.00	5,735.00	12,648.23	5,606.00	107.13	106.40	75.30	-7,124.38	20.62	508.39	301.65	206.74	2.459		
12,900.00	5,735.00	12,748.23	5,606.00	108.57	107.85	75.31	-7,224.38	20.63	508.74	299.17	209.57	2.428		
13,000.00	5,735.00	12,848.23	5,606.00	110.02	109.30	75.32	-7,324.38	20.64	509.08	296.69	212.39	2.397		
13,100.00	5,735.00	12,948.23	5,606.00	111.47	110.75	75.33	-7,424.38	20.65	509.42	294.20	215.22	2.367		
13,200.00	5,735.00	13,048.23	5,606.00	112.92	112.20	75.34	-7,524.38	20.66	509.77	291.71	218.06	2.338		
13,300.00	5,735.00	13,148.22	5,606.00	114.37	113.65	75.35	-7,624.38	20.66	510.11	289.22	220.89	2.309		
13,400.00	5,735.00	13,248.22	5,606.00	115.82	115.11	75.36	-7,724.38	20.67	510.45	286.73	223.72	2.282		
13,500.00	5,735.00	13,348.22	5,606.00	117.27	116.56	75.37	-7,824.38	20.68	510.80	284.24	226.56	2.255		
13,600.00	5,735.00	13,448.22	5,606.00	118.72	118.01	75.38	-7,924.38	20.69	511.14	281.75	229.39	2.228		
13,700.00	5,735.00	13,548.22	5,606.00	120.18	119.47	75.39	-8,024.38	20.70	511.48	279.26	232.23	2.203		
13,800.00	5,735.00	13,648.22	5,606.00	121.63	120.92	75.40	-8,124.38	20.70	511.83	276.76	235.06	2.177		
13,835.79	5,735.00	13,682.96	5,606.00	122.15	121.43	75.41	-8,159.11	20.71	511.95	275.91	236.05	2.169 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-3111 - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor					
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)					
0.00	0.00	0.00	0.00	0.00	0.00	-89.98	0.01	-29.99	29.99							
100.00	100.00	100.00	100.00	0.13	0.13	-89.98	0.01	-29.99	29.99	29.72	0.27	112.594				
200.00	200.00	200.00	200.00	0.47	0.47	-89.98	0.01	-29.99	29.99	29.05	0.94	31.882				
300.00	300.00	300.00	300.00	0.81	0.81	-89.98	0.01	-29.99	29.99	28.37	1.61	18.570 CC				
400.00	399.98	400.99	400.97	1.13	1.14	-164.11	0.61	-28.31	30.01	27.69	2.32	12.922				
500.00	499.84	501.99	501.82	1.47	1.48	-163.38	2.42	-23.29	30.08	27.01	3.07	9.797				
600.00	599.45	602.67	602.13	1.81	1.83	-162.29	5.36	-15.11	30.36	26.57	3.79	8.012 ES				
700.00	698.81	702.65	701.66	2.16	2.16	-162.12	8.57	-6.18	32.32	27.91	4.42	7.319				
800.00	798.16	802.63	801.18	2.51	2.51	-162.04	11.79	2.75	34.41	29.36	5.06	6.808				
900.00	897.50	902.61	900.71	2.87	2.86	-161.97	15.00	11.68	36.51	30.80	5.70	6.401				
1,000.00	996.84	1,002.59	1,000.24	3.23	3.21	-161.91	18.21	20.60	38.60	32.24	6.36	6.070				
1,100.00	1,096.19	1,102.57	1,099.76	3.59	3.57	-161.85	21.42	29.53	40.69	33.67	7.02	5.798				
1,200.00	1,195.53	1,202.54	1,199.29	3.96	3.92	-161.80	24.64	38.46	42.79	35.10	7.68	5.569				
1,300.00	1,294.88	1,302.52	1,298.82	4.33	4.28	-161.75	27.85	47.39	44.88	36.53	8.35	5.376				
1,400.00	1,394.22	1,402.50	1,398.34	4.70	4.64	-161.71	31.06	56.32	46.97	37.96	9.02	5.209				
1,500.00	1,493.57	1,502.48	1,497.87	5.06	5.00	-161.68	34.27	65.25	49.07	39.38	9.69	5.065				
1,600.00	1,592.91	1,602.46	1,597.40	5.43	5.35	-161.64	37.49	74.17	51.16	40.80	10.36	4.938				
1,700.00	1,692.26	1,702.43	1,696.92	5.80	5.71	-161.61	40.70	83.10	53.25	42.22	11.03	4.827				
1,800.00	1,791.60	1,802.41	1,796.45	6.17	6.07	-161.58	43.91	92.03	55.35	43.64	11.71	4.728				
1,900.00	1,890.94	1,902.39	1,895.98	6.54	6.43	-161.55	47.12	100.96	57.44	45.06	12.38	4.640				
2,000.00	1,990.29	2,002.37	1,995.50	6.91	6.79	-161.53	50.34	109.89	59.53	46.48	13.06	4.560				
2,100.00	2,089.63	2,102.35	2,095.03	7.28	7.15	-161.50	53.55	118.81	61.63	47.90	13.73	4.488				
2,200.00	2,188.98	2,202.33	2,194.56	7.65	7.50	-161.48	56.76	127.74	63.72	49.31	14.41	4.423				
2,300.00	2,288.32	2,302.30	2,294.08	8.02	7.86	-161.46	59.97	136.67	65.81	50.73	15.08	4.363				
2,400.00	2,387.67	2,402.28	2,393.61	8.39	8.22	-161.44	63.19	145.60	67.91	52.15	15.76	4.309				
2,500.00	2,487.01	2,502.26	2,493.14	8.76	8.58	-161.42	66.40	154.53	70.00	53.56	16.44	4.258				
2,600.00	2,586.35	2,602.24	2,592.66	9.13	8.94	-161.40	69.61	163.46	72.09	54.98	17.12	4.212				
2,700.00	2,685.70	2,702.22	2,692.19	9.50	9.30	-161.39	72.82	172.38	74.19	56.39	17.79	4.169				
2,800.00	2,785.04	2,802.19	2,791.72	9.87	9.66	-161.37	76.04	181.31	76.28	57.81	18.47	4.130				
2,900.00	2,884.39	2,902.17	2,891.25	10.24	10.02	-161.36	79.25	190.24	78.37	59.22	19.15	4.093				
3,000.00	2,983.73	3,002.15	2,990.77	10.61	10.38	-161.34	82.46	199.17	80.47	60.64	19.83	4.058				
3,100.00	3,083.08	3,102.13	3,090.30	10.98	10.74	-161.33	85.67	208.10	82.56	62.05	20.51	4.026				
3,200.00	3,182.42	3,202.11	3,189.83	11.35	11.10	-161.32	88.88	217.03	84.65	63.47	21.18	3.996				
3,300.00	3,281.76	3,302.08	3,289.35	11.72	11.46	-161.30	92.10	225.95	86.75	64.88	21.86	3.968				
3,400.00	3,381.11	3,402.06	3,388.88	12.10	11.82	-161.29	95.31	234.88	88.84	66.30	22.54	3.941				
3,500.00	3,480.45	3,502.04	3,488.41	12.47	12.18	-161.28	98.52	243.81	90.93	67.71	23.22	3.916				
3,600.00	3,579.80	3,602.02	3,587.93	12.84	12.54	-161.27	101.73	252.74	93.03	69.13	23.90	3.892				
3,700.00	3,679.14	3,702.00	3,687.46	13.21	12.89	-161.26	104.95	261.67	95.12	70.54	24.58	3.870				
3,800.00	3,778.49	3,801.97	3,786.99	13.58	13.25	-161.25	108.16	270.59	97.21	71.95	25.26	3.849				
3,900.00	3,877.83	3,901.95	3,886.51	13.95	13.61	-161.24	111.37	279.52	99.31	73.37	25.94	3.829				
4,000.00	3,977.18	4,001.93	3,986.04	14.32	13.97	-161.23	114.58	288.45	101.40	74.78	26.62	3.809				
4,100.00	4,076.52	4,101.91	4,085.57	14.69	14.33	-161.23	117.80	297.38	103.49	76.20	27.30	3.791				
4,200.00	4,175.86	4,201.89	4,185.09	15.06	14.69	-161.22	121.01	306.31	105.59	77.61	27.98	3.774				
4,300.00	4,275.21	4,301.87	4,284.62	15.43	15.05	-161.21	124.22	315.24	107.68	79.02	28.66	3.758				
4,400.00	4,374.55	4,401.84	4,384.15	15.80	15.41	-161.20	127.43	324.16	109.77	80.44	29.34	3.742				
4,500.00	4,473.90	4,501.82	4,483.67	16.18	15.77	-161.20	130.65	333.09	111.87	81.85	30.02	3.727				
4,600.00	4,573.24	4,600.00	4,581.43	16.55	16.11	-161.23	133.72	341.64	114.19	83.52	30.67	3.723				
4,700.00	4,672.59	4,696.71	4,677.93	16.92	16.36	-161.76	135.86	347.59	119.02	87.78	31.24	3.810				
4,800.00	4,772.06	4,792.66	4,773.83	17.24	16.61	-162.66	136.90	350.46	125.75	94.02	31.73	3.963				
4,900.00	4,871.83	4,890.67	4,871.83	17.51	16.87	-163.50	137.01	350.77	131.84	99.62	32.22	4.092				
5,000.00	4,971.78	4,990.61	4,971.78	17.76	17.17	-163.90	137.01	350.77	134.93	102.15	32.79	4.116				
5,100.00	5,071.78	5,090.52	5,071.58	18.02	17.46	-90.79	134.14	350.77	135.24	101.90	33.34	4.056				

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	5,186.56	5,165.63	18.32	17.71	-98.68	115.36	350.77	136.93	103.22	33.71	4.062		
5,300.00	5,271.66	5,274.38	5,247.29	18.59	17.93	69.23	83.35	350.78	146.04	112.47	33.57	4.351		
5,400.00	5,369.38	5,357.52	5,318.63	18.85	18.14	58.56	40.81	350.78	161.22	128.63	32.59	4.947		
5,500.00	5,461.39	5,437.45	5,380.01	19.10	18.33	50.49	-10.27	350.78	178.85	148.03	30.82	5.803		
5,600.00	5,544.31	5,514.93	5,431.37	19.34	18.52	44.61	-68.18	350.79	196.38	167.88	28.50	6.891		
5,700.00	5,615.11	5,590.56	5,472.69	19.58	18.72	40.45	-131.44	350.79	212.08	186.16	25.92	8.181		
5,800.00	5,671.17	5,664.83	5,503.95	19.83	18.94	37.62	-198.75	350.80	224.84	201.42	23.42	9.599		
5,900.00	5,710.44	5,738.17	5,525.13	20.12	19.18	35.85	-268.90	350.81	233.96	212.63	21.34	10.966		
6,000.00	5,731.48	5,810.96	5,536.21	20.47	19.46	34.97	-340.79	350.81	239.01	218.93	20.08	11.901		
6,100.00	5,735.00	5,894.63	5,538.00	20.88	19.82	34.86	-424.40	350.82	240.08	219.93	20.15	11.917		
6,200.00	5,735.00	5,994.63	5,538.00	21.38	20.35	34.93	-524.40	350.83	240.28	219.32	20.96	11.462		
6,300.00	5,735.00	6,094.63	5,538.00	21.97	20.96	35.00	-624.40	350.84	240.48	218.57	21.92	10.973		
6,400.00	5,735.00	6,194.63	5,538.00	22.64	21.66	35.07	-724.40	350.85	240.69	217.69	22.99	10.468		
6,500.00	5,735.00	6,294.62	5,538.00	23.38	22.44	35.14	-824.40	350.85	240.89	216.72	24.18	9.964		
6,600.00	5,735.00	6,394.62	5,538.00	24.20	23.29	35.20	-924.40	350.86	241.10	215.64	25.45	9.473		
6,700.00	5,735.00	6,494.62	5,538.00	25.07	24.19	35.27	-1,024.40	350.87	241.30	214.49	26.81	9.001		
6,800.00	5,735.00	6,594.62	5,538.00	26.01	25.15	35.34	-1,124.39	350.88	241.51	213.27	28.24	8.553		
6,900.00	5,735.00	6,694.62	5,538.00	26.98	26.16	35.41	-1,224.39	350.89	241.71	211.99	29.72	8.132		
7,000.00	5,735.00	6,794.62	5,538.00	28.01	27.21	35.48	-1,324.39	350.90	241.92	210.65	31.26	7.738		
7,100.00	5,735.00	6,894.62	5,538.00	29.07	28.30	35.55	-1,424.39	350.91	242.12	209.27	32.85	7.370		
7,200.00	5,735.00	6,994.62	5,538.00	30.17	29.42	35.62	-1,524.39	350.91	242.33	207.85	34.48	7.028		
7,300.00	5,735.00	7,094.62	5,538.00	31.30	30.58	35.68	-1,624.39	350.92	242.54	206.39	36.14	6.711		
7,400.00	5,735.00	7,194.62	5,538.00	32.45	31.76	35.75	-1,724.39	350.93	242.74	204.91	37.84	6.416		
7,500.00	5,735.00	7,294.62	5,538.00	33.63	32.96	35.82	-1,824.39	350.94	242.95	203.39	39.56	6.141		
7,600.00	5,735.00	7,394.62	5,538.00	34.84	34.18	35.89	-1,924.39	350.95	243.16	201.85	41.31	5.886		
7,700.00	5,735.00	7,494.62	5,538.00	36.06	35.42	35.95	-2,024.39	350.96	243.37	200.29	43.08	5.649		
7,800.00	5,735.00	7,594.62	5,538.00	37.30	36.68	36.02	-2,124.39	350.97	243.57	198.70	44.87	5.428		
7,900.00	5,735.00	7,694.62	5,538.00	38.56	37.96	36.09	-2,224.39	350.98	243.78	197.10	46.68	5.222		
8,000.00	5,735.00	7,794.62	5,538.00	39.83	39.25	36.16	-2,324.39	350.98	243.99	195.48	48.51	5.030		
8,100.00	5,735.00	7,894.61	5,538.00	41.12	40.55	36.22	-2,424.39	350.99	244.20	193.85	50.35	4.850		
8,200.00	5,735.00	7,994.61	5,538.00	42.42	41.86	36.29	-2,524.39	351.00	244.41	192.20	52.21	4.681		
8,300.00	5,735.00	8,094.61	5,538.00	43.72	43.19	36.36	-2,624.39	351.01	244.62	190.54	54.09	4.523		
8,400.00	5,735.00	8,194.61	5,538.00	45.04	44.52	36.42	-2,724.38	351.02	244.83	188.86	55.97	4.374		
8,500.00	5,735.00	8,294.61	5,538.00	46.37	45.86	36.49	-2,824.38	351.03	245.04	187.18	57.87	4.235		
8,600.00	5,735.00	8,394.61	5,538.00	47.71	47.21	36.56	-2,924.38	351.04	245.25	185.48	59.77	4.103		
8,700.00	5,735.00	8,494.61	5,538.00	49.05	48.56	36.62	-3,024.38	351.04	245.46	183.77	61.69	3.979		
8,800.00	5,735.00	8,594.61	5,538.00	50.41	49.93	36.69	-3,124.38	351.05	245.68	182.06	63.62	3.862		
8,900.00	5,735.00	8,694.61	5,538.00	51.77	51.29	36.76	-3,224.38	351.06	245.89	180.33	65.56	3.751		
9,000.00	5,735.00	8,794.61	5,538.00	53.13	52.67	36.82	-3,324.38	351.07	246.10	178.60	67.50	3.646		
9,100.00	5,735.00	8,894.61	5,538.00	54.50	54.05	36.89	-3,424.38	351.08	246.31	176.85	69.46	3.546		
9,200.00	5,735.00	8,994.61	5,538.00	55.88	55.43	36.96	-3,524.38	351.09	246.53	175.10	71.42	3.452		
9,300.00	5,735.00	9,094.61	5,538.00	57.26	56.82	37.02	-3,624.38	351.10	246.74	173.35	73.39	3.362		
9,400.00	5,735.00	9,194.61	5,538.00	58.64	58.21	37.09	-3,724.38	351.10	246.95	171.58	75.37	3.276		
9,500.00	5,735.00	9,294.61	5,538.00	60.03	59.61	37.15	-3,824.38	351.11	247.17	169.81	77.36	3.195		
9,600.00	5,735.00	9,394.61	5,538.00	61.42	61.01	37.22	-3,924.38	351.12	247.38	168.03	79.35	3.118		
9,700.00	5,735.00	9,494.60	5,538.00	62.82	62.41	37.28	-4,024.38	351.13	247.60	166.25	81.35	3.044		
9,800.00	5,735.00	9,594.60	5,538.00	64.22	63.82	37.35	-4,124.38	351.14	247.81	164.45	83.36	2.973		
9,900.00	5,735.00	9,694.60	5,538.00	65.62	65.23	37.41	-4,224.38	351.15	248.03	162.66	85.37	2.905		
10,000.00	5,735.00	9,794.60	5,538.00	67.03	66.64	37.48	-4,324.37	351.16	248.24	160.85	87.39	2.841		
10,100.00	5,735.00	9,894.60	5,538.00	68.44	68.05	37.54	-4,424.37	351.17	248.46	159.04	89.41	2.779		
10,200.00	5,735.00	9,994.60	5,538.00	69.85	69.47	37.61	-4,524.37	351.17	248.68	157.23	91.45	2.719		
10,300.00	5,735.00	10,094.60	5,538.00	71.26	70.89	37.67	-4,624.37	351.18	248.89	155.41	93.48	2.662		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,735.00	10,194.60	5,538.00	72.68	72.31	37.74	-4,724.37	351.19	249.11	153.58	95.52	2.608	
10,500.00	5,735.00	10,294.60	5,538.00	74.10	73.73	37.80	-4,824.37	351.20	249.33	151.75	97.57	2.555	
10,600.00	5,735.00	10,394.60	5,538.00	75.52	75.16	37.87	-4,924.37	351.21	249.54	149.92	99.63	2.505	
10,700.00	5,735.00	10,494.60	5,538.00	76.94	76.58	37.93	-5,024.37	351.22	249.76	148.08	101.69	2.456	
10,800.00	5,735.00	10,594.60	5,538.00	78.36	78.01	37.99	-5,124.37	351.23	249.98	146.23	103.75	2.409	
10,900.00	5,735.00	10,694.60	5,538.00	79.79	79.44	38.06	-5,224.37	351.23	250.20	144.38	105.82	2.364	
11,000.00	5,735.00	10,794.60	5,538.00	81.22	80.87	38.12	-5,324.37	351.24	250.42	142.52	107.89	2.321	
11,100.00	5,735.00	10,894.60	5,538.00	82.65	82.31	38.19	-5,424.37	351.25	250.64	140.66	109.97	2.279	
11,200.00	5,735.00	10,994.60	5,538.00	84.08	83.74	38.25	-5,524.37	351.26	250.86	138.80	112.06	2.239	
11,300.00	5,735.00	11,094.59	5,538.00	85.51	85.18	38.31	-5,624.37	351.27	251.08	136.93	114.15	2.200	
11,400.00	5,735.00	11,194.59	5,538.00	86.94	86.61	38.38	-5,724.37	351.28	251.30	135.06	116.24	2.162	
11,500.00	5,735.00	11,294.59	5,538.00	88.38	88.05	38.44	-5,824.37	351.29	251.52	133.18	118.34	2.125	
11,600.00	5,735.00	11,394.59	5,538.00	89.82	89.49	38.50	-5,924.36	351.29	251.74	131.30	120.44	2.090	
11,700.00	5,735.00	11,494.59	5,538.00	91.25	90.93	38.57	-6,024.36	351.30	251.96	129.41	122.55	2.056	
11,800.00	5,735.00	11,594.59	5,538.00	92.69	92.37	38.63	-6,124.36	351.31	252.18	127.52	124.66	2.023	
11,900.00	5,735.00	11,694.59	5,538.00	94.13	93.81	38.69	-6,224.36	351.32	252.40	125.62	126.78	1.991	
12,000.00	5,735.00	11,794.59	5,538.00	95.57	95.26	38.76	-6,324.36	351.33	252.62	123.72	128.90	1.960	
12,100.00	5,735.00	11,894.59	5,538.00	97.01	96.70	38.82	-6,424.36	351.34	252.84	121.82	131.02	1.930	
12,200.00	5,735.00	11,994.59	5,538.00	98.45	98.14	38.88	-6,524.36	351.35	253.07	119.91	133.15	1.901	
12,300.00	5,735.00	12,094.59	5,538.00	99.90	99.59	38.94	-6,624.36	351.36	253.29	118.00	135.29	1.872	
12,400.00	5,735.00	12,194.59	5,538.00	101.34	101.04	39.01	-6,724.36	351.36	253.51	116.08	137.43	1.845	
12,500.00	5,735.00	12,294.59	5,538.00	102.79	102.48	39.07	-6,824.36	351.37	253.74	114.17	139.57	1.818	
12,600.00	5,735.00	12,394.59	5,538.00	104.23	103.93	39.13	-6,924.36	351.38	253.96	112.24	141.72	1.792	
12,700.00	5,735.00	12,494.59	5,538.00	105.68	105.38	39.19	-7,024.36	351.39	254.18	110.31	143.87	1.767	
12,800.00	5,735.00	12,594.59	5,538.00	107.13	106.83	39.25	-7,124.36	351.40	254.41	108.38	146.02	1.742	
12,900.00	5,735.00	12,694.58	5,538.00	108.57	108.28	39.32	-7,224.36	351.41	254.63	106.45	148.18	1.718	
13,000.00	5,735.00	12,794.58	5,538.00	110.02	109.73	39.38	-7,324.36	351.42	254.86	104.51	150.35	1.695	
13,100.00	5,735.00	12,894.58	5,538.00	111.47	111.18	39.44	-7,424.36	351.42	255.08	102.57	152.51	1.673	
13,200.00	5,735.00	12,994.58	5,538.00	112.92	112.63	39.50	-7,524.35	351.43	255.31	100.62	154.69	1.650	
13,300.00	5,735.00	13,094.58	5,538.00	114.37	114.08	39.56	-7,624.35	351.44	255.53	98.67	156.86	1.629	
13,400.00	5,735.00	13,194.58	5,538.00	115.82	115.53	39.62	-7,724.35	351.45	255.76	96.72	159.04	1.608	
13,500.00	5,735.00	13,294.58	5,538.00	117.27	116.99	39.68	-7,824.35	351.46	255.99	94.76	161.22	1.588	
13,600.00	5,735.00	13,394.58	5,538.00	118.72	118.44	39.75	-7,924.35	351.47	256.21	92.80	163.41	1.568	
13,700.00	5,735.00	13,494.58	5,538.00	120.18	119.89	39.81	-8,024.35	351.48	256.44	90.84	165.60	1.549	
13,800.00	5,735.00	13,594.58	5,538.00	121.63	121.35	39.87	-8,124.35	351.48	256.67	88.87	167.80	1.530	
13,835.79	5,735.00	13,629.31	5,538.00	122.15	121.85	39.89	-8,159.09	351.49	256.75	88.23	168.52	1.524 SF	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-3112 - 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	89.98	0.01	29.99	29.99							
100.00	100.00	100.00	100.00	0.13	0.13	89.98	0.01	29.99	29.99	29.72	0.27	112.594				
200.00	200.00	200.00	200.00	0.47	0.47	89.98	0.01	29.99	29.99	29.05	0.94	31.882				
300.00	300.00	300.00	300.00	0.81	0.81	89.98	0.01	29.99	29.99	28.37	1.61	18.570	CC			
400.00	399.98	398.99	398.97	1.13	1.13	15.81	0.37	31.66	30.00	27.68	2.32	12.951				
500.00	499.84	497.98	497.82	1.47	1.46	16.39	1.46	36.67	30.02	26.96	3.06	9.809				
600.00	599.45	596.96	596.43	1.81	1.80	17.36	3.28	45.02	30.07	26.24	3.83	7.854				
700.00	698.81	695.94	694.68	2.16	2.14	18.18	5.82	56.68	31.00	26.40	4.60	6.738				
800.00	798.16	795.47	793.10	2.51	2.51	17.78	8.97	71.13	34.53	29.26	5.27	6.548				
900.00	897.50	895.39	891.88	2.87	2.88	17.35	12.18	85.89	38.31	32.42	5.89	6.504				
1,000.00	996.84	995.32	990.66	3.23	3.26	17.00	15.39	100.65	42.10	35.58	6.52	6.456				
1,100.00	1,096.19	1,095.25	1,089.44	3.59	3.65	16.71	18.61	115.41	45.89	38.73	7.16	6.408				
1,200.00	1,195.53	1,195.18	1,188.22	3.96	4.03	16.46	21.82	130.17	49.68	41.87	7.81	6.362				
1,300.00	1,294.88	1,295.11	1,287.00	4.33	4.42	16.25	25.03	144.93	53.47	45.01	8.46	6.319				
1,400.00	1,394.22	1,395.03	1,385.78	4.70	4.81	16.06	28.25	159.68	57.26	48.14	9.12	6.279				
1,500.00	1,493.57	1,494.96	1,484.56	5.06	5.21	15.90	31.46	174.44	61.05	51.27	9.78	6.242				
1,600.00	1,592.91	1,594.89	1,583.34	5.43	5.60	15.76	34.68	189.20	64.84	54.40	10.44	6.208				
1,700.00	1,692.26	1,694.82	1,682.12	5.80	5.99	15.63	37.89	203.96	68.63	57.52	11.11	6.177				
1,800.00	1,791.60	1,794.75	1,780.90	6.17	6.39	15.52	41.10	218.72	72.42	60.64	11.78	6.149				
1,900.00	1,890.94	1,894.67	1,879.68	6.54	6.78	15.41	44.32	233.48	76.21	63.77	12.45	6.123				
2,000.00	1,990.29	1,994.60	1,978.46	6.91	7.17	15.32	47.53	248.24	80.01	66.89	13.12	6.099				
2,100.00	2,089.63	2,094.53	2,077.24	7.28	7.57	15.24	50.74	263.00	83.80	70.01	13.79	6.076				
2,200.00	2,188.98	2,194.46	2,176.02	7.65	7.96	15.16	53.96	277.76	87.59	73.13	14.46	6.056				
2,300.00	2,288.32	2,294.39	2,274.80	8.02	8.36	15.09	57.17	292.52	91.38	76.25	15.14	6.036				
2,400.00	2,387.67	2,394.31	2,373.58	8.39	8.75	15.02	60.39	307.28	95.18	79.36	15.81	6.019				
2,500.00	2,487.01	2,494.24	2,472.36	8.76	9.15	14.96	63.60	322.04	98.97	82.48	16.49	6.002				
2,600.00	2,586.35	2,594.17	2,571.14	9.13	9.54	14.91	66.81	336.80	102.76	85.60	17.17	5.986				
2,700.00	2,685.70	2,694.10	2,669.92	9.50	9.94	14.86	70.03	351.56	106.56	88.71	17.84	5.972				
2,800.00	2,785.04	2,794.03	2,768.70	9.87	10.34	14.81	73.24	366.32	110.35	91.83	18.52	5.958				
2,900.00	2,884.39	2,893.95	2,867.48	10.24	10.73	14.76	76.45	381.08	114.14	94.95	19.20	5.945				
3,000.00	2,983.73	2,993.88	2,966.26	10.61	11.13	14.72	79.67	395.83	117.94	98.06	19.88	5.933				
3,100.00	3,083.08	3,093.81	3,065.04	10.98	11.52	14.68	82.88	410.59	121.73	101.18	20.56	5.922				
3,200.00	3,182.42	3,193.74	3,163.82	11.35	11.92	14.65	86.10	425.35	125.52	104.29	21.23	5.911				
3,300.00	3,281.76	3,293.67	3,262.60	11.72	12.32	14.61	89.31	440.11	129.32	107.41	21.91	5.901				
3,400.00	3,381.11	3,393.59	3,361.37	12.10	12.71	14.58	92.52	454.87	133.11	110.52	22.59	5.892				
3,500.00	3,480.45	3,493.52	3,460.15	12.47	13.11	14.55	95.74	469.63	136.91	113.63	23.27	5.883				
3,600.00	3,579.80	3,593.45	3,558.93	12.84	13.51	14.52	98.95	484.39	140.70	116.75	23.95	5.874				
3,700.00	3,679.14	3,693.38	3,657.71	13.21	13.90	14.49	102.16	499.15	144.49	119.86	24.63	5.866				
3,800.00	3,778.49	3,793.31	3,756.49	13.58	14.30	14.46	105.38	513.91	148.29	122.97	25.31	5.858				
3,900.00	3,877.83	3,893.23	3,855.27	13.95	14.70	14.44	108.59	528.67	152.08	126.09	25.99	5.851				
4,000.00	3,977.18	3,993.16	3,954.05	14.32	15.09	14.41	111.81	543.43	155.88	129.20	26.67	5.844				
4,100.00	4,076.52	4,093.09	4,052.83	14.69	15.49	14.39	115.02	558.19	159.67	132.31	27.35	5.837				
4,200.00	4,175.86	4,193.02	4,151.61	15.06	15.89	14.37	118.23	572.95	163.46	135.43	28.03	5.831				
4,300.00	4,275.21	4,292.95	4,250.39	15.43	16.28	14.35	121.45	587.71	167.26	138.54	28.72	5.825				
4,400.00	4,374.55	4,392.87	4,349.17	15.80	16.68	14.33	124.66	602.47	171.05	141.65	29.40	5.819				
4,500.00	4,473.90	4,492.80	4,447.95	16.18	17.08	14.31	127.87	617.23	174.84	144.77	30.08	5.813				
4,600.00	4,573.24	4,598.94	4,553.12	16.55	17.39	14.40	130.90	631.14	176.96	146.24	30.72	5.760				
4,700.00	4,672.59	4,705.35	4,659.02	16.92	17.68	14.74	133.11	641.27	175.44	144.12	31.32	5.601				
4,800.00	4,772.06	4,811.56	4,765.03	17.24	17.96	15.22	134.47	647.53	171.54	139.69	31.85	5.386				
4,900.00	4,871.83	4,917.60	4,871.04	17.51	18.22	15.66	135.00	649.96	167.36	135.06	32.29	5.182				
5,000.00	4,971.78	5,018.34	4,971.78	17.76	18.48	15.95	135.01	649.99	164.29	131.45	32.84	5.003				
5,098.19	5,069.97	5,116.53	5,069.97	18.02	18.76	16.02	135.01	649.99	163.58	130.17	33.41	4.896				

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,071.78	5,118.34	5,071.78	18.02	18.76	90.35	135.01	649.99	163.99	130.57	33.42	4.906		
5,100.90	5,072.68	5,119.24	5,072.68	18.03	18.77	90.35	135.01	649.99	163.99	130.56	33.43	4.906		
5,200.00	5,171.78	5,217.29	5,170.34	18.32	19.01	92.80	127.97	650.02	164.22	130.15	34.07	4.820		
5,300.00	5,271.66	5,311.30	5,261.20	18.59	19.24	-79.61	104.31	650.11	166.88	132.02	34.86	4.787		
5,400.00	5,369.38	5,400.00	5,341.72	18.85	19.45	-72.50	67.37	650.25	172.43	137.07	35.36	4.877		
5,500.00	5,461.39	5,488.77	5,414.87	19.10	19.65	-66.27	17.28	650.44	179.70	144.35	35.35	5.083		
5,600.00	5,544.31	5,573.76	5,475.98	19.34	19.84	-61.29	-41.65	650.66	187.58	152.81	34.78	5.394		
5,700.00	5,615.11	5,656.95	5,525.76	19.58	20.04	-57.45	-108.19	650.91	195.08	161.19	33.89	5.756		
5,800.00	5,671.17	5,738.79	5,563.79	19.83	20.25	-54.66	-180.57	651.19	201.39	168.35	33.04	6.096		
5,900.00	5,710.44	5,819.71	5,589.81	20.12	20.48	-52.85	-257.10	651.48	205.94	173.37	32.57	6.323		
6,000.00	5,731.48	5,900.00	5,603.61	20.47	20.76	-51.95	-336.12	651.78	208.37	175.58	32.78	6.356		
6,100.00	5,735.00	5,987.72	5,606.00	20.88	21.12	-51.82	-423.76	652.11	208.72	175.07	33.65	6.203		
6,200.00	5,735.00	6,087.72	5,606.00	21.38	21.60	-51.83	-523.76	652.49	208.73	174.12	34.61	6.031		
6,300.00	5,735.00	6,187.72	5,606.00	21.97	22.18	-51.83	-623.76	652.87	208.74	173.04	35.70	5.847		
6,400.00	5,735.00	6,287.72	5,606.00	22.64	22.84	-51.83	-723.76	653.25	208.75	171.83	36.92	5.654		
6,500.00	5,735.00	6,387.72	5,606.00	23.38	23.58	-51.84	-823.76	653.63	208.77	170.51	38.26	5.457		
6,600.00	5,735.00	6,487.72	5,606.00	24.20	24.39	-51.84	-923.76	654.01	208.78	169.08	39.70	5.259		
6,700.00	5,735.00	6,587.72	5,606.00	25.07	25.26	-51.84	-1,023.76	654.39	208.79	167.57	41.22	5.065		
6,800.00	5,735.00	6,687.72	5,606.00	26.01	26.18	-51.84	-1,123.76	654.77	208.81	165.97	42.83	4.875		
6,900.00	5,735.00	6,787.72	5,606.00	26.98	27.16	-51.85	-1,223.76	655.15	208.82	164.30	44.52	4.691		
7,000.00	5,735.00	6,887.72	5,606.00	28.01	28.17	-51.85	-1,323.76	655.53	208.83	162.57	46.27	4.514		
7,100.00	5,735.00	6,987.72	5,606.00	29.07	29.23	-51.85	-1,423.76	655.91	208.85	160.78	48.07	4.345		
7,200.00	5,735.00	7,087.72	5,606.00	30.17	30.32	-51.86	-1,523.76	656.29	208.86	158.93	49.93	4.183		
7,300.00	5,735.00	7,187.72	5,606.00	31.30	31.45	-51.86	-1,623.76	656.67	208.87	157.04	51.83	4.030		
7,400.00	5,735.00	7,287.72	5,606.00	32.45	32.60	-51.86	-1,723.76	657.05	208.88	155.11	53.78	3.884		
7,500.00	5,735.00	7,387.72	5,606.00	33.63	33.78	-51.86	-1,823.75	657.43	208.90	153.14	55.76	3.747		
7,600.00	5,735.00	7,487.72	5,606.00	34.84	34.98	-51.87	-1,923.75	657.81	208.91	151.14	57.77	3.616		
7,700.00	5,735.00	7,587.72	5,606.00	36.06	36.20	-51.87	-2,023.75	658.19	208.92	149.11	59.82	3.493		
7,800.00	5,735.00	7,687.72	5,606.00	37.30	37.44	-51.87	-2,123.75	658.57	208.94	147.05	61.89	3.376		
7,900.00	5,735.00	7,787.72	5,606.00	38.56	38.69	-51.88	-2,223.75	658.95	208.95	144.97	63.98	3.266		
8,000.00	5,735.00	7,887.72	5,606.00	39.83	39.96	-51.88	-2,323.75	659.33	208.96	142.86	66.10	3.161		
8,100.00	5,735.00	7,987.72	5,606.00	41.12	41.24	-51.88	-2,423.75	659.71	208.98	140.74	68.24	3.062		
8,200.00	5,735.00	8,087.72	5,606.00	42.42	42.54	-51.88	-2,523.75	660.09	208.99	138.60	70.39	2.969		
8,300.00	5,735.00	8,187.72	5,606.00	43.72	43.85	-51.89	-2,623.75	660.47	209.00	136.44	72.57	2.880		
8,400.00	5,735.00	8,287.72	5,606.00	45.04	45.16	-51.89	-2,723.75	660.85	209.02	134.26	74.75	2.796		
8,500.00	5,735.00	8,387.72	5,606.00	46.37	46.49	-51.89	-2,823.75	661.23	209.03	132.07	76.95	2.716		
8,600.00	5,735.00	8,487.72	5,606.00	47.71	47.83	-51.90	-2,923.75	661.61	209.04	129.87	79.17	2.640		
8,700.00	5,735.00	8,587.72	5,606.00	49.05	49.17	-51.90	-3,023.75	661.99	209.05	127.66	81.39	2.568		
8,800.00	5,735.00	8,687.72	5,606.00	50.41	50.52	-51.90	-3,123.74	662.37	209.07	125.44	83.63	2.500		
8,900.00	5,735.00	8,787.72	5,606.00	51.77	51.88	-51.90	-3,223.74	662.75	209.08	123.21	85.88	2.435		
9,000.00	5,735.00	8,887.72	5,606.00	53.13	53.24	-51.91	-3,323.74	663.13	209.09	120.96	88.13	2.373		
9,100.00	5,735.00	8,987.72	5,606.00	54.50	54.61	-51.91	-3,423.74	663.51	209.11	118.71	90.39	2.313		
9,200.00	5,735.00	9,087.72	5,606.00	55.88	55.98	-51.91	-3,523.74	663.89	209.12	116.45	92.67	2.257		
9,300.00	5,735.00	9,187.72	5,606.00	57.26	57.36	-51.91	-3,623.74	664.27	209.13	114.19	94.94	2.203		
9,400.00	5,735.00	9,287.72	5,606.00	58.64	58.74	-51.92	-3,723.74	664.65	209.15	111.92	97.23	2.151		
9,500.00	5,735.00	9,387.72	5,606.00	60.03	60.13	-51.92	-3,823.74	665.03	209.16	109.64	99.52	2.102		
9,600.00	5,735.00	9,487.72	5,606.00	61.42	61.52	-51.92	-3,923.74	665.41	209.17	107.35	101.82	2.054		
9,700.00	5,735.00	9,587.72	5,606.00	62.82	62.92	-51.93	-4,023.74	665.79	209.18	105.06	104.12	2.009		
9,800.00	5,735.00	9,687.72	5,606.00	64.22	64.32	-51.93	-4,123.74	666.17	209.20	102.76	106.43	1.966		
9,900.00	5,735.00	9,787.72	5,606.00	65.62	65.72	-51.93	-4,223.74	666.55	209.21	100.46	108.75	1.924		
10,000.00	5,735.00	9,887.72	5,606.00	67.03	67.13	-51.93	-4,323.74	666.93	209.22	98.16	111.07	1.884		
10,100.00	5,735.00	9,987.72	5,606.00	68.44	68.53	-51.94	-4,423.74	667.31	209.24	95.85	113.39	1.845		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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		
10,200.00	5,735.00	10,087.72	5,606.00	69.85	69.94	-51.94	-4,523.73	667.69	209.25	93.53	115.72	1.808		
10,300.00	5,735.00	10,187.72	5,606.00	71.26	71.36	-51.94	-4,623.73	668.07	209.26	91.22	118.05	1.773		
10,400.00	5,735.00	10,287.72	5,606.00	72.68	72.77	-51.95	-4,723.73	668.45	209.28	88.90	120.38	1.738		
10,500.00	5,735.00	10,387.72	5,606.00	74.10	74.19	-51.95	-4,823.73	668.83	209.29	86.57	122.72	1.705		
10,600.00	5,735.00	10,487.72	5,606.00	75.52	75.61	-51.95	-4,923.73	669.21	209.30	84.24	125.06	1.674		
10,700.00	5,735.00	10,587.72	5,606.00	76.94	77.03	-51.95	-5,023.73	669.59	209.32	81.91	127.40	1.643		
10,800.00	5,735.00	10,687.72	5,606.00	78.36	78.45	-51.96	-5,123.73	669.97	209.33	79.58	129.75	1.613		
10,900.00	5,735.00	10,787.72	5,606.00	79.79	79.88	-51.96	-5,223.73	670.35	209.34	77.24	132.10	1.585		
11,000.00	5,735.00	10,887.72	5,606.00	81.22	81.31	-51.96	-5,323.73	670.72	209.35	74.90	134.45	1.557		
11,100.00	5,735.00	10,987.72	5,606.00	82.65	82.74	-51.97	-5,423.73	671.10	209.37	72.56	136.81	1.530		
11,200.00	5,735.00	11,087.72	5,606.00	84.08	84.17	-51.97	-5,523.73	671.48	209.38	70.22	139.16	1.505		
11,300.00	5,735.00	11,187.72	5,606.00	85.51	85.60	-51.97	-5,623.73	671.86	209.39	67.87	141.52	1.480 Level 3		
11,400.00	5,735.00	11,287.72	5,606.00	86.94	87.03	-51.97	-5,723.73	672.24	209.41	65.52	143.89	1.455 Level 3		
11,500.00	5,735.00	11,387.72	5,606.00	88.38	88.46	-51.98	-5,823.73	672.62	209.42	63.17	146.25	1.432 Level 3		
11,600.00	5,735.00	11,487.72	5,606.00	89.82	89.90	-51.98	-5,923.72	673.00	209.43	60.82	148.61	1.409 Level 3		
11,700.00	5,735.00	11,587.72	5,606.00	91.25	91.34	-51.98	-6,023.72	673.38	209.45	58.46	150.98	1.387 Level 3		
11,800.00	5,735.00	11,687.72	5,606.00	92.69	92.77	-51.98	-6,123.72	673.76	209.46	56.11	153.35	1.366 Level 3		
11,900.00	5,735.00	11,787.72	5,606.00	94.13	94.21	-51.99	-6,223.72	674.14	209.47	53.75	155.72	1.345 Level 3		
12,000.00	5,735.00	11,887.72	5,606.00	95.57	95.65	-51.99	-6,323.72	674.52	209.48	51.39	158.10	1.325 Level 3		
12,100.00	5,735.00	11,987.72	5,606.00	97.01	97.09	-51.99	-6,423.72	674.90	209.50	49.03	160.47	1.306 Level 3		
12,200.00	5,735.00	12,087.72	5,606.00	98.45	98.54	-52.00	-6,523.72	675.28	209.51	46.66	162.85	1.287 Level 3		
12,300.00	5,735.00	12,187.72	5,606.00	99.90	99.98	-52.00	-6,623.72	675.66	209.52	44.30	165.22	1.268 Level 3		
12,400.00	5,735.00	12,287.72	5,606.00	101.34	101.42	-52.00	-6,723.72	676.04	209.54	41.93	167.60	1.250 Level 3		
12,500.00	5,735.00	12,387.72	5,606.00	102.79	102.87	-52.00	-6,823.72	676.42	209.55	39.57	169.98	1.233 Level 2		
12,600.00	5,735.00	12,487.72	5,606.00	104.23	104.31	-52.01	-6,923.72	676.80	209.56	37.20	172.36	1.216 Level 2		
12,700.00	5,735.00	12,587.72	5,606.00	105.68	105.76	-52.01	-7,023.72	677.18	209.58	34.83	174.75	1.199 Level 2		
12,800.00	5,735.00	12,687.72	5,606.00	107.13	107.20	-52.01	-7,123.72	677.56	209.59	32.46	177.13	1.183 Level 2		
12,900.00	5,735.00	12,787.72	5,606.00	108.57	108.65	-52.02	-7,223.72	677.94	209.60	30.09	179.52	1.168 Level 2		
13,000.00	5,735.00	12,887.72	5,606.00	110.02	110.10	-52.02	-7,323.71	678.32	209.62	27.71	181.90	1.152 Level 2		
13,100.00	5,735.00	12,987.72	5,606.00	111.47	111.55	-52.02	-7,423.71	678.70	209.63	25.34	184.29	1.137 Level 2		
13,200.00	5,735.00	13,087.72	5,606.00	112.92	113.00	-52.02	-7,523.71	679.08	209.64	22.96	186.68	1.123 Level 2		
13,300.00	5,735.00	13,187.72	5,606.00	114.37	114.45	-52.03	-7,623.71	679.46	209.65	20.59	189.07	1.109 Level 2		
13,400.00	5,735.00	13,287.72	5,606.00	115.82	115.90	-52.03	-7,723.71	679.84	209.67	18.21	191.46	1.095 Level 2		
13,500.00	5,735.00	13,387.72	5,606.00	117.27	117.35	-52.03	-7,823.71	680.22	209.68	15.83	193.85	1.082 Level 2		
13,600.00	5,735.00	13,487.72	5,606.00	118.72	118.80	-52.03	-7,923.71	680.60	209.69	13.45	196.24	1.069 Level 2		
13,700.00	5,735.00	13,587.72	5,606.00	120.18	120.25	-52.04	-8,023.71	680.98	209.71	11.07	198.64	1.056 Level 2		
13,800.00	5,735.00	13,687.72	5,606.00	121.63	121.71	-52.04	-8,123.71	681.36	209.72	8.69	201.03	1.043 Level 2		
13,835.79	5,735.00	13,723.52	5,606.00	122.15	122.23	-52.04	-8,159.50	681.50	209.72	7.84	201.89	1.039 Level 2, ES, SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-239.91	239.91					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.01	-239.91	239.91	239.65	0.27	900.753		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.01	-239.91	239.91	238.97	0.94	255.052		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.01	-239.91	239.91	238.30	1.61	148.559 CC, ES		
400.00	399.98	392.33	392.32	1.13	1.11	-164.38	0.32	-241.37	243.17	240.87	2.30	105.830		
500.00	499.84	484.09	483.96	1.47	1.41	-164.41	1.24	-245.70	252.92	249.88	3.04	83.227		
600.00	599.45	574.70	574.28	1.81	1.72	-164.45	2.75	-252.79	269.08	265.29	3.80	70.843		
700.00	698.81	663.83	662.85	2.16	2.03	-164.54	4.81	-262.48	290.71	286.17	4.54	63.976		
800.00	798.16	751.66	749.79	2.51	2.35	-164.54	7.40	-274.67	315.41	310.16	5.25	60.093		
900.00	897.50	841.08	837.89	2.87	2.69	-164.44	10.57	-289.61	342.85	336.95	5.90	58.115		
1,000.00	996.84	937.03	932.32	3.23	3.07	-164.33	14.12	-306.31	370.99	364.52	6.47	57.364		
1,100.00	1,096.19	1,032.99	1,026.74	3.59	3.46	-164.23	17.67	-323.01	399.13	392.08	7.05	56.588		
1,200.00	1,195.53	1,128.95	1,121.17	3.96	3.85	-164.15	21.22	-339.71	427.28	419.63	7.64	55.913		
1,300.00	1,294.88	1,224.90	1,215.59	4.33	4.25	-164.08	24.77	-356.42	455.42	447.17	8.25	55.185		
1,400.00	1,394.22	1,320.86	1,310.02	4.70	4.64	-164.01	28.32	-373.12	483.56	474.69	8.87	54.532		
1,500.00	1,493.57	1,416.82	1,404.44	5.06	5.04	-163.95	31.87	-389.82	511.71	502.22	9.49	53.928		
1,600.00	1,592.91	1,512.77	1,498.87	5.43	5.44	-163.90	35.42	-406.52	539.85	529.74	10.11	53.372		
1,700.00	1,692.26	1,608.73	1,593.29	5.80	5.84	-163.85	38.97	-423.22	568.00	557.25	10.75	52.858		
1,800.00	1,791.60	1,704.69	1,687.72	6.17	6.24	-163.81	42.52	-439.92	596.14	584.76	11.38	52.386		
1,900.00	1,890.94	1,800.64	1,782.14	6.54	6.65	-163.77	46.07	-456.63	624.29	612.27	12.02	51.950		
2,000.00	1,990.29	1,896.60	1,876.57	6.91	7.05	-163.74	49.63	-473.33	652.43	639.78	12.66	51.547		
2,100.00	2,089.63	1,992.56	1,970.99	7.28	7.45	-163.70	53.18	-490.03	680.58	667.28	13.30	51.175		
2,200.00	2,188.98	2,088.51	2,065.42	7.65	7.86	-163.67	56.73	-506.73	708.72	694.78	13.94	50.831		
2,300.00	2,288.32	2,184.47	2,159.84	8.02	8.26	-163.65	60.28	-523.43	736.87	722.28	14.59	50.511		
2,400.00	2,387.67	2,280.43	2,254.27	8.39	8.66	-163.62	63.83	-540.13	765.02	749.78	15.24	50.213		
2,500.00	2,487.01	2,376.38	2,348.69	8.76	9.07	-163.60	67.38	-556.84	793.16	777.28	15.88	49.936		
2,600.00	2,586.35	2,472.34	2,443.12	9.13	9.47	-163.57	70.93	-573.54	821.31	804.78	16.53	49.677		
2,700.00	2,685.70	2,568.30	2,537.54	9.50	9.88	-163.55	74.48	-590.24	849.46	832.27	17.18	49.435		
2,800.00	2,785.04	2,664.25	2,631.97	9.87	10.28	-163.53	78.03	-606.94	877.60	859.77	17.83	49.208		
2,900.00	2,884.39	2,760.21	2,726.40	10.24	10.69	-163.52	81.58	-623.64	905.75	887.27	18.49	48.995		
3,000.00	2,983.73	2,856.17	2,820.82	10.61	11.10	-163.50	85.13	-640.34	933.90	914.76	19.14	48.794		
3,100.00	3,083.08	2,952.12	2,915.25	10.98	11.50	-163.48	88.68	-657.05	962.05	942.25	19.79	48.606		
3,200.00	3,182.42	3,048.08	3,009.67	11.35	11.91	-163.47	92.23	-673.75	990.19	969.75	20.45	48.428		
3,300.00	3,281.76	3,144.03	3,104.10	11.72	12.31	-163.45	95.78	-690.45	1,018.34	997.24	21.10	48.260		
3,400.00	3,381.11	3,239.99	3,198.52	12.10	12.72	-163.44	99.33	-707.15	1,046.49	1,024.73	21.76	48.100		
3,500.00	3,480.45	3,335.95	3,292.95	12.47	13.12	-163.43	102.88	-723.85	1,074.64	1,052.22	22.41	47.950		
3,600.00	3,579.80	3,431.90	3,387.37	12.84	13.53	-163.41	106.43	-740.55	1,102.78	1,079.72	23.07	47.806		
3,700.00	3,679.14	3,527.86	3,481.80	13.21	13.94	-163.40	109.98	-757.26	1,130.93	1,107.21	23.72	47.670		
3,800.00	3,778.49	3,623.82	3,576.22	13.58	14.34	-163.39	113.53	-773.96	1,159.08	1,134.70	24.38	47.541		
3,900.00	3,877.83	3,719.77	3,670.65	13.95	14.75	-163.38	117.08	-790.66	1,187.23	1,162.19	25.04	47.418		
4,000.00	3,977.18	3,815.73	3,765.07	14.32	15.16	-163.37	120.63	-807.36	1,215.37	1,189.68	25.69	47.300		
4,100.00	4,076.52	3,911.69	3,859.50	14.69	15.56	-163.36	124.18	-824.06	1,243.52	1,217.17	26.35	47.188		
4,200.00	4,175.86	4,007.64	3,953.92	15.06	15.97	-163.35	127.73	-840.76	1,271.67	1,244.66	27.01	47.081		
4,300.00	4,275.21	4,103.60	4,048.35	15.43	16.37	-163.34	131.28	-857.47	1,299.82	1,272.15	27.67	46.978		
4,400.00	4,374.55	4,199.56	4,142.77	15.80	16.78	-163.34	134.83	-874.17	1,327.96	1,299.64	28.33	46.880		
4,500.00	4,473.90	4,295.51	4,237.20	16.18	17.19	-163.33	138.38	-890.87	1,356.11	1,327.13	28.99	46.786		
4,600.00	4,573.24	4,391.47	4,331.62	16.55	17.59	-163.32	141.93	-907.57	1,384.26	1,354.62	29.64	46.696		
4,700.00	4,672.59	4,487.43	4,426.05	16.92	18.00	-163.31	145.48	-924.27	1,412.41	1,382.10	30.30	46.609		
4,800.00	4,772.06	4,604.34	4,541.15	17.24	18.47	-163.32	149.74	-944.33	1,439.21	1,408.17	31.05	46.358		
4,900.00	4,871.83	4,799.18	4,734.30	17.51	19.02	-163.48	155.01	-969.08	1,458.32	1,426.29	32.03	45.527		
5,000.00	4,971.78	4,998.77	4,933.47	17.76	19.51	-163.51	157.55	-981.07	1,467.43	1,434.54	32.89	44.617		
5,100.00	5,071.78	5,137.08	5,071.78	18.02	19.85	-89.15	157.76	-982.06	1,468.22	1,434.67	33.55	43.760		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	5,237.08	5,171.78	18.32	20.12	-89.15	157.76	-982.06	1,468.22	1,434.06	34.16	42.983		
5,200.73	5,172.50	5,237.81	5,172.50	18.32	20.12	91.06	157.76	-982.06	1,468.22	1,434.06	34.16	42.978		
5,300.00	5,271.66	5,336.96	5,271.66	18.59	20.39	91.18	157.76	-982.06	1,468.28	1,433.54	34.75	42.256		
5,400.00	5,369.38	5,436.46	5,370.95	18.85	20.64	91.74	153.20	-982.15	1,468.81	1,433.53	35.27	41.640		
5,500.00	5,461.39	5,539.06	5,470.66	19.10	20.88	92.28	129.75	-982.62	1,469.95	1,434.21	35.74	41.127		
5,600.00	5,544.31	5,645.27	5,566.98	19.34	21.11	92.75	85.42	-983.49	1,471.65	1,435.46	36.18	40.674		
5,700.00	5,615.11	5,755.18	5,655.04	19.58	21.33	93.13	20.01	-984.79	1,473.80	1,437.17	36.63	40.230		
5,800.00	5,671.17	5,868.64	5,729.49	19.83	21.55	93.39	-65.28	-986.48	1,476.27	1,439.12	37.15	39.736		
5,900.00	5,710.44	5,985.18	5,784.91	20.12	21.79	93.51	-167.52	-988.50	1,478.89	1,441.11	37.79	39.139		
6,000.00	5,731.48	6,104.05	5,816.63	20.47	22.09	93.49	-281.79	-990.77	1,481.51	1,442.94	38.57	38.415		
6,100.00	5,735.00	6,217.67	5,823.00	20.88	22.46	93.40	-395.05	-993.01	1,483.95	1,444.47	39.48	37.589		
6,200.00	5,735.00	6,317.64	5,823.00	21.38	22.87	93.40	-495.00	-994.99	1,486.29	1,445.76	40.53	36.670		
6,300.00	5,735.00	6,417.61	5,823.00	21.97	23.36	93.39	-594.95	-996.97	1,488.63	1,446.87	41.76	35.644		
6,400.00	5,735.00	6,517.58	5,823.00	22.64	23.95	93.38	-694.90	-998.95	1,490.97	1,447.81	43.16	34.544		
6,500.00	5,735.00	6,617.56	5,823.00	23.38	24.61	93.38	-794.86	-1,000.93	1,493.31	1,448.60	44.71	33.402		
6,600.00	5,735.00	6,717.53	5,823.00	24.20	25.35	93.37	-894.81	-1,002.91	1,495.65	1,449.26	46.39	32.242		
6,700.00	5,735.00	6,817.50	5,823.00	25.07	26.15	93.37	-994.76	-1,004.89	1,497.99	1,449.80	48.19	31.085		
6,800.00	5,735.00	6,917.47	5,823.00	26.01	27.02	93.36	-1,094.72	-1,006.87	1,500.33	1,450.23	50.10	29.947		
6,900.00	5,735.00	7,017.45	5,823.00	26.98	27.93	93.36	-1,194.67	-1,008.85	1,502.67	1,450.57	52.10	28.840		
7,000.00	5,735.00	7,117.42	5,823.00	28.01	28.90	93.35	-1,294.62	-1,010.83	1,505.01	1,450.82	54.19	27.771		
7,100.00	5,735.00	7,217.39	5,823.00	29.07	29.91	93.35	-1,394.57	-1,012.82	1,507.35	1,450.99	56.36	26.746		
7,200.00	5,735.00	7,317.36	5,823.00	30.17	30.95	93.34	-1,494.53	-1,014.80	1,509.69	1,451.10	58.59	25.767		
7,300.00	5,735.00	7,417.34	5,823.00	31.30	32.03	93.34	-1,594.48	-1,016.78	1,512.03	1,451.15	60.88	24.836		
7,400.00	5,735.00	7,517.31	5,823.00	32.45	33.14	93.33	-1,694.43	-1,018.76	1,514.37	1,451.14	63.23	23.951		
7,500.00	5,735.00	7,617.28	5,823.00	33.63	34.28	93.33	-1,794.39	-1,020.74	1,516.71	1,451.09	65.62	23.114		
7,600.00	5,735.00	7,717.25	5,823.00	34.84	35.44	93.32	-1,894.34	-1,022.72	1,519.05	1,451.00	68.06	22.321		
7,700.00	5,735.00	7,817.23	5,823.00	36.06	36.62	93.32	-1,994.29	-1,024.70	1,521.39	1,450.86	70.53	21.571		
7,800.00	5,735.00	7,917.20	5,823.00	37.30	37.83	93.31	-2,094.24	-1,026.68	1,523.73	1,450.69	73.04	20.863		
7,900.00	5,735.00	8,017.17	5,823.00	38.56	39.05	93.31	-2,194.20	-1,028.66	1,526.07	1,450.50	75.57	20.193		
8,000.00	5,735.00	8,117.15	5,823.00	39.83	40.29	93.30	-2,294.15	-1,030.64	1,528.41	1,450.27	78.14	19.560		
8,100.00	5,735.00	8,217.12	5,823.00	41.12	41.55	93.30	-2,394.10	-1,032.62	1,530.75	1,450.02	80.73	18.961		
8,200.00	5,735.00	8,317.09	5,823.00	42.42	42.82	93.29	-2,494.06	-1,034.60	1,533.09	1,449.74	83.35	18.394		
8,300.00	5,735.00	8,417.06	5,823.00	43.72	44.10	93.29	-2,594.01	-1,036.58	1,535.43	1,449.45	85.98	17.857		
8,400.00	5,735.00	8,517.04	5,823.00	45.04	45.39	93.28	-2,693.96	-1,038.56	1,537.77	1,449.13	88.64	17.349		
8,500.00	5,735.00	8,617.01	5,823.00	46.37	46.69	93.28	-2,793.92	-1,040.54	1,540.11	1,448.80	91.31	16.867		
8,600.00	5,735.00	8,716.98	5,823.00	47.71	48.01	93.27	-2,893.87	-1,042.52	1,542.45	1,448.46	94.00	16.410		
8,700.00	5,735.00	8,816.95	5,823.00	49.05	49.33	93.27	-2,993.82	-1,044.50	1,544.79	1,448.09	96.70	15.975		
8,800.00	5,735.00	8,916.93	5,823.00	50.41	50.66	93.26	-3,093.77	-1,046.48	1,547.13	1,447.72	99.41	15.563		
8,900.00	5,735.00	9,016.90	5,823.00	51.77	51.99	93.26	-3,193.73	-1,048.46	1,549.47	1,447.33	102.14	15.170 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-3140 - 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 (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			
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-209.92	209.92							
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-209.92	209.92	209.66	0.27	788.159				
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-209.92	209.92	208.98	0.94	223.171				
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-209.92	209.92	208.31	1.61	129.989	CC, ES			
400.00	399.98	393.26	393.25	1.13	1.11	-164.37	0.37	-211.40	213.18	210.88	2.30	92.632				
500.00	499.84	485.94	485.81	1.47	1.42	-164.37	1.46	-215.78	222.94	219.89	3.05	73.187				
600.00	599.45	577.46	577.03	1.81	1.73	-164.37	3.24	-222.95	239.12	235.31	3.81	62.774				
700.00	698.81	667.48	666.47	2.16	2.05	-164.40	5.68	-232.77	260.77	256.22	4.56	57.211				
800.00	798.16	762.55	760.67	2.51	2.39	-164.35	8.78	-245.21	284.69	279.52	5.16	55.137				
900.00	897.50	859.62	856.85	2.87	2.75	-164.31	11.96	-258.00	308.70	302.95	5.75	53.690				
1,000.00	996.84	956.70	953.02	3.23	3.11	-164.27	15.14	-270.79	332.71	326.36	6.35	52.380				
1,100.00	1,096.19	1,053.77	1,049.20	3.59	3.48	-164.24	18.32	-283.58	356.72	349.75	6.97	51.216				
1,200.00	1,195.53	1,150.85	1,145.38	3.96	3.85	-164.21	21.50	-296.37	380.73	373.14	7.59	50.191				
1,300.00	1,294.88	1,247.92	1,241.55	4.33	4.22	-164.18	24.68	-309.16	404.74	396.53	8.21	49.269				
1,400.00	1,394.22	1,345.00	1,337.73	4.70	4.59	-164.16	27.86	-321.96	428.75	419.90	8.85	48.450				
1,500.00	1,493.57	1,442.07	1,433.90	5.06	4.96	-164.14	31.05	-334.75	452.76	443.28	9.49	47.721				
1,600.00	1,592.91	1,539.15	1,530.08	5.43	5.34	-164.12	34.23	-347.54	476.77	466.64	10.13	47.067				
1,700.00	1,692.26	1,636.22	1,626.25	5.80	5.71	-164.11	37.41	-360.33	500.79	490.01	10.77	46.479				
1,800.00	1,791.60	1,733.29	1,722.43	6.17	6.09	-164.09	40.59	-373.12	524.80	513.37	11.42	45.948				
1,900.00	1,890.94	1,830.37	1,818.60	6.54	6.46	-164.08	43.77	-385.91	548.81	536.74	12.07	45.467				
2,000.00	1,990.29	1,927.44	1,914.78	6.91	6.84	-164.07	46.95	-398.71	572.82	560.10	12.72	45.029				
2,100.00	2,089.63	2,024.52	2,010.95	7.28	7.21	-164.05	50.13	-411.50	596.83	583.46	13.37	44.629				
2,200.00	2,188.98	2,121.59	2,107.13	7.65	7.59	-164.04	53.31	-424.29	620.84	606.81	14.03	44.262				
2,300.00	2,288.32	2,218.67	2,203.30	8.02	7.96	-164.03	56.50	-437.08	644.85	630.17	14.68	43.925				
2,400.00	2,387.67	2,315.74	2,299.48	8.39	8.34	-164.02	59.68	-449.87	668.86	653.53	15.34	43.613				
2,500.00	2,487.01	2,412.82	2,395.66	8.76	8.72	-164.02	62.86	-462.66	692.87	676.88	15.99	43.326				
2,600.00	2,586.35	2,509.89	2,491.83	9.13	9.09	-164.01	66.04	-475.46	716.89	700.24	16.65	43.059				
2,700.00	2,685.70	2,606.96	2,588.01	9.50	9.47	-164.00	69.22	-488.25	740.90	723.59	17.31	42.810				
2,800.00	2,785.04	2,704.04	2,684.18	9.87	9.85	-163.99	72.40	-501.04	764.91	746.94	17.96	42.579				
2,900.00	2,884.39	2,801.11	2,780.36	10.24	10.22	-163.99	75.58	-513.83	788.92	770.30	18.62	42.363				
3,000.00	2,983.73	2,898.19	2,876.53	10.61	10.60	-163.98	78.77	-526.62	812.93	793.65	19.28	42.160				
3,100.00	3,083.08	2,995.26	2,972.71	10.98	10.98	-163.98	81.95	-539.41	836.94	817.00	19.94	41.970				
3,200.00	3,182.42	3,092.34	3,068.88	11.35	11.35	-163.97	85.13	-552.21	860.95	840.35	20.60	41.792				
3,300.00	3,281.76	3,189.41	3,165.06	11.72	11.73	-163.96	88.31	-565.00	884.96	863.70	21.26	41.624				
3,400.00	3,381.11	3,286.49	3,261.23	12.10	12.11	-163.96	91.49	-577.79	908.98	887.05	21.92	41.465				
3,500.00	3,480.45	3,383.56	3,357.41	12.47	12.48	-163.96	94.67	-590.58	932.99	910.41	22.58	41.315				
3,600.00	3,579.80	3,480.63	3,453.58	12.84	12.86	-163.95	97.85	-603.37	957.00	933.76	23.24	41.173				
3,700.00	3,679.14	3,577.71	3,549.76	13.21	13.24	-163.95	101.03	-616.16	981.01	957.11	23.90	41.039				
3,800.00	3,778.49	3,674.78	3,645.94	13.58	13.62	-163.94	104.22	-628.96	1,005.02	980.46	24.57	40.911				
3,900.00	3,877.83	3,771.86	3,742.11	13.95	13.99	-163.94	107.40	-641.75	1,029.03	1,003.81	25.23	40.790				
4,000.00	3,977.18	3,868.93	3,838.29	14.32	14.37	-163.94	110.58	-654.54	1,053.04	1,027.15	25.89	40.675				
4,100.00	4,076.52	3,966.01	3,934.46	14.69	14.75	-163.93	113.76	-667.33	1,077.06	1,050.50	26.55	40.565				
4,200.00	4,175.86	4,063.08	4,030.64	15.06	15.12	-163.93	116.94	-680.12	1,101.07	1,073.85	27.21	40.460				
4,300.00	4,275.21	4,160.16	4,126.81	15.43	15.50	-163.93	120.12	-692.91	1,125.08	1,097.20	27.88	40.360				
4,400.00	4,374.55	4,257.23	4,222.99	15.80	15.88	-163.92	123.30	-705.71	1,149.09	1,120.55	28.54	40.264				
4,500.00	4,473.90	4,354.30	4,319.16	16.18	16.26	-163.92	126.49	-718.50	1,173.10	1,143.90	29.20	40.173				
4,600.00	4,573.24	4,451.38	4,415.34	16.55	16.63	-163.92	129.67	-731.29	1,197.11	1,167.25	29.86	40.085				
4,700.00	4,672.59	4,548.45	4,511.51	16.92	17.01	-163.91	132.85	-744.08	1,221.12	1,190.60	30.53	40.001				
4,800.00	4,772.06	4,645.81	4,607.97	17.24	17.39	-164.00	136.04	-756.91	1,243.93	1,212.77	31.16	39.923				
4,900.00	4,871.83	4,804.40	4,765.51	17.51	17.86	-164.04	140.40	-774.45	1,261.55	1,229.54	32.01	39.412				
5,000.00	4,971.78	4,979.02	4,939.82	17.76	18.30	-164.05	142.77	-783.99	1,270.11	1,237.30	32.81	38.708				
5,100.00	5,071.78	5,110.98	5,071.78	18.02	18.64	-89.68	143.01	-784.92	1,270.94	1,237.47	33.47	37.974				





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	5,210.98	5,171.78	18.32	18.92	-89.68	143.01	-784.92	1,270.94	1,236.86	34.08	37.293		
5,200.39	5,172.17	5,211.37	5,172.17	18.32	18.92	90.52	143.01	-784.92	1,270.94	1,236.86	34.08	37.291		
5,300.00	5,271.66	5,311.19	5,271.66	18.59	19.20	90.52	139.78	-784.94	1,270.97	1,236.31	34.66	36.670		
5,400.00	5,369.38	5,411.54	5,369.91	18.85	19.44	90.50	119.13	-785.02	1,271.12	1,235.97	35.16	36.154		
5,500.00	5,461.39	5,511.87	5,462.17	19.10	19.68	90.46	80.10	-785.18	1,271.42	1,235.81	35.61	35.704		
5,600.00	5,544.31	5,612.17	5,545.23	19.34	19.90	90.40	24.16	-785.40	1,271.85	1,235.80	36.05	35.284		
5,700.00	5,615.11	5,712.43	5,616.03	19.58	20.12	90.33	-46.61	-785.69	1,272.39	1,235.87	36.51	34.847		
5,800.00	5,671.17	5,812.62	5,671.95	19.83	20.34	90.25	-129.56	-786.02	1,273.02	1,235.97	37.05	34.355		
5,900.00	5,710.44	5,912.76	5,710.98	20.12	20.59	90.16	-221.61	-786.40	1,273.72	1,236.02	37.70	33.781		
6,000.00	5,731.48	6,012.83	5,731.69	20.47	20.89	90.06	-319.36	-786.79	1,274.47	1,236.00	38.48	33.124		
6,100.00	5,735.00	6,112.84	5,735.00	20.88	21.26	90.00	-419.24	-787.19	1,275.24	1,235.87	39.37	32.394		
6,200.00	5,735.00	6,212.84	5,735.00	21.38	21.73	90.00	-519.24	-787.60	1,276.01	1,235.56	40.45	31.549		
6,300.00	5,735.00	6,312.84	5,735.00	21.97	22.29	90.00	-619.23	-788.00	1,276.77	1,235.07	41.71	30.614		
6,400.00	5,735.00	6,412.83	5,735.00	22.64	22.93	90.00	-719.23	-788.40	1,277.54	1,234.41	43.13	29.621		
6,500.00	5,735.00	6,512.83	5,735.00	23.38	23.65	90.00	-819.22	-788.81	1,278.31	1,233.60	44.70	28.596		
6,600.00	5,735.00	6,612.83	5,735.00	24.20	24.44	90.00	-919.22	-789.21	1,279.07	1,232.67	46.41	27.561		
6,700.00	5,735.00	6,712.82	5,735.00	25.07	25.30	90.00	-1,019.22	-789.61	1,279.84	1,231.61	48.23	26.534		
6,800.00	5,735.00	6,812.82	5,735.00	26.01	26.21	90.00	-1,119.21	-790.02	1,280.61	1,230.44	50.17	25.527		
6,900.00	5,735.00	6,912.82	5,735.00	26.98	27.18	90.00	-1,219.21	-790.42	1,281.37	1,229.18	52.19	24.551		
7,000.00	5,735.00	7,012.81	5,735.00	28.01	28.18	90.00	-1,319.21	-790.83	1,282.14	1,227.84	54.30	23.610		
7,100.00	5,735.00	7,112.81	5,735.00	29.07	29.23	90.00	-1,419.20	-791.23	1,282.91	1,226.42	56.49	22.711		
7,200.00	5,735.00	7,212.81	5,735.00	30.17	30.32	90.00	-1,519.20	-791.63	1,283.68	1,224.94	58.74	21.853		
7,300.00	5,735.00	7,312.81	5,735.00	31.30	31.43	90.00	-1,619.19	-792.04	1,284.44	1,223.39	61.05	21.039		
7,400.00	5,735.00	7,412.80	5,735.00	32.45	32.58	90.00	-1,719.19	-792.44	1,285.21	1,221.80	63.41	20.267		
7,500.00	5,735.00	7,512.80	5,735.00	33.63	33.75	90.00	-1,819.19	-792.84	1,285.98	1,220.15	65.82	19.537		
7,600.00	5,735.00	7,612.80	5,735.00	34.84	34.94	90.00	-1,919.18	-793.25	1,286.74	1,218.47	68.27	18.847		
7,700.00	5,735.00	7,712.79	5,735.00	36.06	36.15	90.00	-2,019.18	-793.65	1,287.51	1,216.75	70.76	18.195		
7,800.00	5,735.00	7,812.79	5,735.00	37.30	37.39	90.00	-2,119.18	-794.05	1,288.28	1,214.99	73.29	17.579		
7,900.00	5,735.00	7,912.79	5,735.00	38.56	38.63	90.00	-2,219.17	-794.46	1,289.04	1,213.21	75.84	16.997		
8,000.00	5,735.00	8,012.79	5,735.00	39.83	39.90	90.00	-2,319.17	-794.86	1,289.81	1,211.39	78.42	16.448		
8,100.00	5,735.00	8,112.78	5,735.00	41.12	41.18	90.00	-2,419.16	-795.27	1,290.58	1,209.55	81.02	15.928		
8,200.00	5,735.00	8,212.78	5,735.00	42.42	42.47	90.00	-2,519.16	-795.67	1,291.35	1,207.69	83.65	15.437		
8,300.00	5,735.00	8,312.78	5,735.00	43.72	43.77	90.00	-2,619.16	-796.07	1,292.11	1,205.81	86.30	14.972		
8,400.00	5,735.00	8,412.77	5,735.00	45.04	45.08	90.00	-2,719.15	-796.48	1,292.88	1,203.91	88.97	14.532		
8,500.00	5,735.00	8,512.77	5,735.00	46.37	46.40	90.00	-2,819.15	-796.88	1,293.65	1,202.00	91.65	14.115		
8,600.00	5,735.00	8,612.77	5,735.00	47.71	47.74	90.00	-2,919.15	-797.28	1,294.41	1,200.06	94.35	13.719		
8,700.00	5,735.00	8,712.76	5,735.00	49.05	49.07	90.00	-3,019.14	-797.69	1,295.18	1,198.12	97.06	13.344		
8,800.00	5,735.00	8,812.76	5,735.00	50.41	50.42	90.00	-3,119.14	-798.09	1,295.95	1,196.16	99.79	12.987		
8,900.00	5,735.00	8,912.76	5,735.00	51.77	51.77	90.00	-3,219.13	-798.50	1,296.71	1,194.19	102.53	12.648		
9,000.00	5,735.00	9,012.76	5,735.00	53.13	53.13	90.00	-3,319.13	-798.90	1,297.48	1,192.21	105.28	12.325		
9,100.00	5,735.00	9,112.75	5,735.00	54.50	54.50	90.00	-3,419.13	-799.30	1,298.25	1,190.21	108.03	12.017		
9,200.00	5,735.00	9,212.75	5,735.00	55.88	55.87	90.00	-3,519.12	-799.71	1,299.01	1,188.21	110.80	11.724		
9,300.00	5,735.00	9,312.75	5,735.00	57.26	57.24	90.00	-3,619.12	-800.11	1,299.78	1,186.20	113.58	11.444		
9,400.00	5,735.00	9,412.74	5,735.00	58.64	58.62	90.00	-3,719.12	-800.51	1,300.55	1,184.18	116.37	11.176		
9,500.00	5,735.00	9,512.74	5,735.00	60.03	60.01	90.00	-3,819.11	-800.92	1,301.32	1,182.16	119.16	10.921		
9,600.00	5,735.00	9,612.74	5,735.00	61.42	61.40	90.00	-3,919.11	-801.32	1,302.08	1,180.12	121.96	10.676		
9,700.00	5,735.00	9,712.74	5,735.00	62.82	62.79	90.00	-4,019.10	-801.72	1,302.85	1,178.08	124.77	10.442		
9,800.00	5,735.00	9,812.73	5,735.00	64.22	64.19	90.00	-4,119.10	-802.13	1,303.62	1,176.04	127.58	10.218		
9,900.00	5,735.00	9,912.73	5,735.00	65.62	65.58	90.00	-4,219.10	-802.53	1,304.38	1,173.98	130.40	10.003		
10,000.00	5,735.00	10,012.73	5,735.00	67.03	66.99	90.00	-4,319.09	-802.94	1,305.15	1,171.93	133.22	9.797		
10,100.00	5,735.00	10,112.72	5,735.00	68.44	68.39	90.00	-4,419.09	-803.34	1,305.92	1,169.86	136.05	9.599		
10,200.00	5,735.00	10,212.72	5,735.00	69.85	69.80	90.00	-4,519.09	-803.74	1,306.68	1,167.80	138.89	9.408		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-3140 - 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			
10,300.00	5,735.00	10,312.72	5,735.00	71.26	71.21	90.00	-4,619.08	-804.15	1,307.45	1,165.73	141.73	9.225					
10,400.00	5,735.00	10,412.71	5,735.00	72.68	72.62	90.00	-4,719.08	-804.55	1,308.22	1,163.65	144.57	9.049					
10,500.00	5,735.00	10,512.71	5,735.00	74.10	74.04	90.00	-4,819.07	-804.95	1,308.99	1,161.57	147.41	8.880					
10,600.00	5,735.00	10,612.71	5,735.00	75.52	75.45	90.00	-4,919.07	-805.36	1,309.75	1,159.49	150.27	8.716					
10,700.00	5,735.00	10,712.71	5,735.00	76.94	76.87	90.00	-5,019.07	-805.76	1,310.52	1,157.40	153.12	8.559					
10,800.00	5,735.00	10,812.70	5,735.00	78.36	78.29	90.00	-5,119.06	-806.16	1,311.29	1,155.31	155.98	8.407					
10,900.00	5,735.00	10,912.70	5,735.00	79.79	79.72	90.00	-5,219.06	-806.57	1,312.05	1,153.22	158.84	8.260					
11,000.00	5,735.00	11,012.70	5,735.00	81.22	81.14	90.00	-5,319.06	-806.97	1,312.82	1,151.12	161.70	8.119					
11,100.00	5,735.00	11,112.69	5,735.00	82.65	82.57	90.00	-5,419.05	-807.38	1,313.59	1,149.02	164.57	7.982					
11,200.00	5,735.00	11,212.69	5,735.00	84.08	84.00	90.00	-5,519.05	-807.78	1,314.35	1,146.92	167.43	7.850					
11,300.00	5,735.00	11,312.69	5,735.00	85.51	85.42	90.00	-5,619.04	-808.18	1,315.12	1,144.81	170.31	7.722					
11,400.00	5,735.00	11,412.69	5,735.00	86.94	86.86	90.00	-5,719.04	-808.59	1,315.89	1,142.71	173.18	7.598					
11,500.00	5,735.00	11,512.68	5,735.00	88.38	88.29	90.00	-5,819.04	-808.99	1,316.65	1,140.60	176.06	7.479					
11,600.00	5,735.00	11,612.68	5,735.00	89.82	89.72	90.00	-5,919.03	-809.39	1,317.42	1,138.49	178.93	7.363					
11,700.00	5,735.00	11,712.68	5,735.00	91.25	91.15	90.00	-6,019.03	-809.80	1,318.19	1,136.37	181.81	7.250					
11,800.00	5,735.00	11,812.67	5,735.00	92.69	92.59	90.00	-6,119.03	-810.20	1,318.96	1,134.26	184.70	7.141					
11,900.00	5,735.00	11,912.67	5,735.00	94.13	94.03	90.00	-6,219.02	-810.60	1,319.72	1,132.14	187.58	7.035					
12,000.00	5,735.00	12,012.67	5,735.00	95.57	95.46	90.00	-6,319.02	-811.01	1,320.49	1,130.02	190.47	6.933					
12,100.00	5,735.00	12,112.66	5,735.00	97.01	96.90	90.00	-6,419.01	-811.41	1,321.26	1,127.90	193.35	6.833					
12,200.00	5,735.00	12,212.66	5,735.00	98.45	98.34	90.00	-6,519.01	-811.82	1,322.02	1,125.78	196.24	6.737					
12,300.00	5,735.00	12,312.66	5,735.00	99.90	99.78	90.00	-6,619.01	-812.22	1,322.79	1,123.66	199.13	6.643					
12,400.00	5,735.00	12,412.66	5,735.00	101.34	101.22	90.00	-6,719.00	-812.62	1,323.56	1,121.53	202.03	6.551					
12,500.00	5,735.00	12,512.65	5,735.00	102.79	102.67	90.00	-6,819.00	-813.03	1,324.32	1,119.40	204.92	6.463					
12,600.00	5,735.00	12,612.65	5,735.00	104.23	104.11	90.00	-6,919.00	-813.43	1,325.09	1,117.28	207.82	6.376					
12,700.00	5,735.00	12,712.65	5,735.00	105.68	105.55	90.00	-7,018.99	-813.83	1,325.86	1,115.15	210.71	6.292					
12,800.00	5,735.00	12,812.64	5,735.00	107.13	107.00	90.00	-7,118.99	-814.24	1,326.63	1,113.01	213.61	6.210					
12,900.00	5,735.00	12,912.64	5,735.00	108.57	108.44	90.00	-7,218.98	-814.64	1,327.39	1,110.88	216.51	6.131					
13,000.00	5,735.00	13,012.64	5,735.00	110.02	109.89	90.00	-7,318.98	-815.04	1,328.16	1,108.75	219.41	6.053					
13,100.00	5,735.00	13,112.64	5,735.00	111.47	111.34	90.00	-7,418.98	-815.45	1,328.93	1,106.61	222.31	5.978					
13,200.00	5,735.00	13,212.63	5,735.00	112.92	112.78	90.00	-7,518.97	-815.85	1,329.69	1,104.48	225.21	5.904					
13,300.00	5,735.00	13,312.63	5,735.00	114.37	114.23	90.00	-7,618.97	-816.26	1,330.46	1,102.34	228.12	5.832					
13,400.00	5,735.00	13,412.63	5,735.00	115.82	115.68	90.00	-7,718.97	-816.66	1,331.23	1,100.20	231.02	5.762					
13,500.00	5,735.00	13,512.62	5,735.00	117.27	117.13	90.00	-7,818.96	-817.06	1,331.99	1,098.07	233.93	5.694					
13,600.00	5,735.00	13,612.62	5,735.00	118.72	118.58	90.00	-7,918.96	-817.47	1,332.76	1,095.93	236.83	5.627					
13,700.00	5,735.00	13,712.62	5,735.00	120.18	120.03	90.00	-8,018.95	-817.87	1,333.53	1,093.79	239.74	5.562					
13,800.00	5,735.00	13,812.61	5,735.00	121.63	121.48	90.00	-8,118.95	-818.27	1,334.29	1,091.65	242.65	5.499					
13,835.79	5,735.00	13,848.41	5,735.00	122.15	122.00	90.00	-8,154.74	-818.42	1,334.57	1,090.88	243.69	5.477 SF					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	-119.96	119.96					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-119.96	119.96	119.69	0.27	450.377		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-119.96	119.96	119.02	0.94	127.526		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-119.96	119.96	118.34	1.61	74.279 CC, ES		
400.00	399.98	398.30	398.28	1.13	1.14	-163.84	1.55	-120.63	122.32	120.04	2.28	53.601		
500.00	499.84	497.89	497.80	1.47	1.48	-162.93	4.99	-122.11	128.88	125.94	2.95	43.729		
600.00	599.45	597.39	597.23	1.81	1.81	-162.51	8.44	-123.60	138.79	135.17	3.62	38.354		
700.00	698.81	696.62	696.39	2.16	2.15	-162.48	11.88	-125.08	151.16	146.87	4.29	35.253		
800.00	798.16	795.84	795.53	2.51	2.48	-162.49	15.32	-126.57	163.66	158.72	4.94	33.109		
900.00	897.50	895.05	894.68	2.87	2.82	-162.49	18.76	-128.05	176.17	170.56	5.60	31.443		
1,000.00	996.84	994.27	993.82	3.23	3.15	-162.50	22.20	-129.54	188.67	182.40	6.27	30.113		
1,100.00	1,096.19	1,093.48	1,092.97	3.59	3.49	-162.50	25.64	-131.02	201.17	194.24	6.93	29.030		
1,200.00	1,195.53	1,192.70	1,192.11	3.96	3.82	-162.51	29.08	-132.51	213.67	206.07	7.60	28.130		
1,300.00	1,294.88	1,291.91	1,291.26	4.33	4.16	-162.51	32.52	-133.99	226.17	217.91	8.26	27.371		
1,400.00	1,394.22	1,391.13	1,390.40	4.70	4.49	-162.52	35.96	-135.48	238.67	229.74	8.93	26.723		
1,500.00	1,493.57	1,490.34	1,489.55	5.06	4.83	-162.52	39.40	-136.96	251.17	241.57	9.60	26.163		
1,600.00	1,592.91	1,589.56	1,588.69	5.43	5.16	-162.52	42.84	-138.45	263.67	253.40	10.27	25.675		
1,700.00	1,692.26	1,688.78	1,687.84	5.80	5.50	-162.53	46.28	-139.93	276.18	265.24	10.94	25.245		
1,800.00	1,791.60	1,787.99	1,786.98	6.17	5.84	-162.53	49.72	-141.42	288.68	277.07	11.61	24.865		
1,900.00	1,890.94	1,887.21	1,886.13	6.54	6.17	-162.53	53.17	-142.90	301.18	288.90	12.28	24.525		
2,000.00	1,990.29	1,986.42	1,985.27	6.91	6.51	-162.53	56.61	-144.39	313.68	300.73	12.95	24.220		
2,100.00	2,089.63	2,085.64	2,084.42	7.28	6.84	-162.53	60.05	-145.87	326.18	312.56	13.62	23.944		
2,200.00	2,188.98	2,184.85	2,183.56	7.65	7.18	-162.54	63.49	-147.36	338.68	324.39	14.29	23.694		
2,300.00	2,288.32	2,284.07	2,282.70	8.02	7.52	-162.54	66.93	-148.84	351.18	336.22	14.97	23.466		
2,400.00	2,387.67	2,383.28	2,381.85	8.39	7.85	-162.54	70.37	-150.33	363.69	348.05	15.64	23.258		
2,500.00	2,487.01	2,482.50	2,480.99	8.76	8.19	-162.54	73.81	-151.81	376.19	359.88	16.31	23.066		
2,600.00	2,586.35	2,581.72	2,580.14	9.13	8.52	-162.54	77.25	-153.30	388.69	371.71	16.98	22.890		
2,700.00	2,685.70	2,680.93	2,679.28	9.50	8.86	-162.54	80.69	-154.78	401.19	383.54	17.65	22.727		
2,800.00	2,785.04	2,780.15	2,778.43	9.87	9.20	-162.54	84.13	-156.27	413.69	395.37	18.32	22.575		
2,900.00	2,884.39	2,879.36	2,877.57	10.24	9.53	-162.54	87.57	-157.75	426.19	407.19	19.00	22.435		
3,000.00	2,983.73	2,978.58	2,976.72	10.61	9.87	-162.55	91.01	-159.24	438.69	419.02	19.67	22.304		
3,100.00	3,083.08	3,077.79	3,075.86	10.98	10.20	-162.55	94.45	-160.72	451.19	430.85	20.34	22.181		
3,200.00	3,182.42	3,177.01	3,175.01	11.35	10.54	-162.55	97.89	-162.21	463.70	442.68	21.01	22.066		
3,300.00	3,281.76	3,276.22	3,274.15	11.72	10.88	-162.55	101.33	-163.69	476.20	454.51	21.69	21.958		
3,400.00	3,381.11	3,375.44	3,373.30	12.10	11.21	-162.55	104.77	-165.18	488.70	466.34	22.36	21.857		
3,500.00	3,480.45	3,474.65	3,472.44	12.47	11.55	-162.55	108.21	-166.66	501.20	478.17	23.03	21.762		
3,600.00	3,579.80	3,573.87	3,571.59	12.84	11.88	-162.55	111.65	-168.15	513.70	490.00	23.70	21.672		
3,700.00	3,679.14	3,673.09	3,670.73	13.21	12.22	-162.55	115.09	-169.63	526.20	501.83	24.38	21.587		
3,800.00	3,778.49	3,772.30	3,769.88	13.58	12.56	-162.55	118.53	-171.12	538.70	513.65	25.05	21.506		
3,900.00	3,877.83	3,871.52	3,869.02	13.95	12.89	-162.55	121.97	-172.60	551.21	525.48	25.72	21.430		
4,000.00	3,977.18	3,970.73	3,968.16	14.32	13.23	-162.55	125.41	-174.09	563.71	537.31	26.39	21.357		
4,100.00	4,076.52	4,069.95	4,067.31	14.69	13.57	-162.55	128.85	-175.57	576.21	549.14	27.07	21.288		
4,200.00	4,175.86	4,169.16	4,166.45	15.06	13.90	-162.55	132.29	-177.06	588.71	560.97	27.74	21.223		
4,300.00	4,275.21	4,268.38	4,265.60	15.43	14.24	-162.55	135.73	-178.54	601.21	572.80	28.41	21.160		
4,400.00	4,374.55	4,373.46	4,370.63	15.80	14.56	-162.62	138.70	-179.83	613.43	584.34	29.09	21.085		
4,500.00	4,473.90	4,476.73	4,473.90	16.18	14.86	-162.92	139.00	-179.96	624.48	594.74	29.74	21.001		
4,600.00	4,573.24	4,576.08	4,573.24	16.55	15.18	-163.22	139.00	-179.96	635.42	605.03	30.39	20.906		
4,700.00	4,672.59	4,675.42	4,672.59	16.92	15.51	-163.51	139.00	-179.96	646.38	615.32	31.06	20.810		
4,800.00	4,772.06	4,774.90	4,772.06	17.24	15.84	-163.81	139.00	-179.96	656.13	624.43	31.70	20.701		
4,900.00	4,871.83	4,874.67	4,871.83	17.51	16.18	-164.01	139.00	-179.96	662.57	630.28	32.29	20.521		
5,000.00	4,971.78	4,974.61	4,971.78	17.76	16.51	-164.10	139.00	-179.96	665.66	632.78	32.88	20.245		
5,100.00	5,071.78	5,074.61	5,071.78	18.02	16.84	-89.74	139.00	-179.96	665.96	632.47	33.50	19.881		

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



# WOG

## Anticollision Report

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<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,171.78	5,174.61	5,171.78	18.32	17.18	-89.74	139.00	-179.96	665.96	631.83	34.14	19.510		
5,300.00	5,271.66	5,275.26	5,272.31	18.59	17.48	90.46	135.73	-179.94	665.96	631.24	34.72	19.181		
5,400.00	5,369.38	5,376.37	5,371.06	18.85	17.74	90.45	114.77	-179.85	665.95	630.76	35.19	18.924		
5,500.00	5,461.39	5,477.41	5,463.85	19.10	17.99	90.41	75.19	-179.68	665.92	630.31	35.61	18.702		
5,600.00	5,544.31	5,578.35	5,547.19	19.34	18.23	90.36	18.53	-179.44	665.88	629.87	36.01	18.494		
5,700.00	5,615.11	5,679.14	5,617.98	19.58	18.42	90.30	-53.00	-179.14	665.83	629.40	36.43	18.275		
5,800.00	5,671.17	5,779.76	5,673.62	19.83	18.58	90.22	-136.65	-178.78	665.77	628.84	36.94	18.025		
5,900.00	5,710.44	5,880.20	5,712.11	20.12	18.75	90.14	-229.25	-178.39	665.71	628.16	37.55	17.729		
6,000.00	5,731.48	5,980.42	5,732.12	20.47	19.05	90.05	-327.29	-177.97	665.65	627.36	38.29	17.386		
6,100.00	5,735.00	6,080.45	5,735.00	20.88	19.45	90.00	-427.22	-177.54	665.59	626.44	39.15	17.003		
6,200.00	5,735.00	6,180.45	5,735.00	21.38	19.96	90.00	-527.22	-177.12	665.52	625.32	40.20	16.554		
6,300.00	5,735.00	6,280.45	5,735.00	21.97	20.56	90.00	-627.22	-176.69	665.46	624.02	41.44	16.058		
6,400.00	5,735.00	6,380.45	5,735.00	22.64	21.25	90.00	-727.22	-176.27	665.40	622.55	42.85	15.530		
6,500.00	5,735.00	6,480.45	5,735.00	23.38	22.01	90.00	-827.22	-175.84	665.34	620.93	44.40	14.985		
6,600.00	5,735.00	6,580.45	5,735.00	24.20	22.85	90.00	-927.22	-175.41	665.27	619.18	46.09	14.433		
6,700.00	5,735.00	6,680.45	5,735.00	25.07	23.75	90.00	-1,027.22	-174.99	665.21	617.30	47.91	13.886		
6,800.00	5,735.00	6,780.45	5,735.00	26.01	24.70	90.00	-1,127.22	-174.56	665.15	615.32	49.83	13.349		
6,900.00	5,735.00	6,880.45	5,735.00	26.98	25.70	90.00	-1,227.22	-174.14	665.08	613.24	51.85	12.828		
7,000.00	5,735.00	6,980.45	5,735.00	28.01	26.74	90.00	-1,327.21	-173.71	665.02	611.07	53.95	12.327		
7,100.00	5,735.00	7,080.45	5,735.00	29.07	27.83	90.00	-1,427.21	-173.28	664.96	608.83	56.13	11.847		
7,200.00	5,735.00	7,180.45	5,735.00	30.17	28.94	90.00	-1,527.21	-172.86	664.90	606.52	58.37	11.390		
7,300.00	5,735.00	7,280.45	5,735.00	31.30	30.09	90.00	-1,627.21	-172.43	664.83	604.15	60.68	10.957		
7,400.00	5,735.00	7,380.45	5,735.00	32.45	31.27	90.00	-1,727.21	-172.01	664.77	601.73	63.04	10.546		
7,500.00	5,735.00	7,480.45	5,735.00	33.63	32.47	90.00	-1,827.21	-171.58	664.71	599.26	65.45	10.157		
7,600.00	5,735.00	7,580.45	5,735.00	34.84	33.69	90.00	-1,927.21	-171.15	664.65	596.75	67.89	9.789		
7,700.00	5,735.00	7,680.45	5,735.00	36.06	34.93	90.00	-2,027.21	-170.73	664.58	594.20	70.38	9.443		
7,800.00	5,735.00	7,780.45	5,735.00	37.30	36.19	90.00	-2,127.21	-170.30	664.52	591.62	72.90	9.115		
7,900.00	5,735.00	7,880.45	5,735.00	38.56	37.46	90.00	-2,227.21	-169.88	664.46	589.00	75.46	8.806		
8,000.00	5,735.00	7,980.45	5,735.00	39.83	38.75	90.00	-2,327.21	-169.45	664.40	586.36	78.03	8.514		
8,100.00	5,735.00	8,080.45	5,735.00	41.12	40.05	90.00	-2,427.20	-169.02	664.33	583.69	80.64	8.238		
8,200.00	5,735.00	8,180.45	5,735.00	42.42	41.36	90.00	-2,527.20	-168.60	664.27	581.00	83.27	7.978		
8,300.00	5,735.00	8,280.45	5,735.00	43.72	42.69	90.00	-2,627.20	-168.17	664.21	578.29	85.92	7.731		
8,400.00	5,735.00	8,380.45	5,735.00	45.04	44.02	90.00	-2,727.20	-167.75	664.14	575.56	88.58	7.497		
8,500.00	5,735.00	8,480.45	5,735.00	46.37	45.36	90.00	-2,827.20	-167.32	664.08	572.82	91.27	7.276		
8,600.00	5,735.00	8,580.45	5,735.00	47.71	46.71	90.00	-2,927.20	-166.89	664.02	570.05	93.97	7.067		
8,700.00	5,735.00	8,680.45	5,735.00	49.05	48.06	90.00	-3,027.20	-166.47	663.96	567.28	96.68	6.868		
8,800.00	5,735.00	8,780.45	5,735.00	50.41	49.43	90.00	-3,127.20	-166.04	663.89	564.49	99.41	6.679		
8,900.00	5,735.00	8,880.45	5,735.00	51.77	50.80	90.00	-3,227.20	-165.62	663.83	561.68	102.15	6.499		
9,000.00	5,735.00	8,980.45	5,735.00	53.13	52.17	90.00	-3,327.20	-165.19	663.77	558.87	104.90	6.328		
9,100.00	5,735.00	9,080.45	5,735.00	54.50	53.55	90.00	-3,427.19	-164.76	663.71	556.05	107.66	6.165		
9,200.00	5,735.00	9,180.45	5,735.00	55.88	54.94	90.00	-3,527.19	-164.34	663.64	553.22	110.43	6.010		
9,300.00	5,735.00	9,280.45	5,735.00	57.26	56.32	90.00	-3,627.19	-163.91	663.58	550.37	113.21	5.862		
9,400.00	5,735.00	9,380.45	5,735.00	58.64	57.72	90.00	-3,727.19	-163.49	663.52	547.52	115.99	5.720		
9,500.00	5,735.00	9,480.45	5,735.00	60.03	59.12	90.00	-3,827.19	-163.06	663.45	544.67	118.79	5.585		
9,600.00	5,735.00	9,580.45	5,735.00	61.42	60.52	90.00	-3,927.19	-162.63	663.39	541.80	121.59	5.456		
9,700.00	5,735.00	9,680.45	5,735.00	62.82	61.92	90.00	-4,027.19	-162.21	663.33	538.93	124.40	5.332		
9,800.00	5,735.00	9,780.45	5,735.00	64.22	63.33	90.00	-4,127.19	-161.78	663.27	536.05	127.21	5.214		
9,900.00	5,735.00	9,880.45	5,735.00	65.62	64.74	90.00	-4,227.19	-161.36	663.20	533.17	130.03	5.100		
10,000.00	5,735.00	9,980.45	5,735.00	67.03	66.15	90.00	-4,327.19	-160.93	663.14	530.28	132.86	4.991		
10,100.00	5,735.00	10,080.45	5,735.00	68.44	67.56	90.00	-4,427.19	-160.50	663.08	527.39	135.69	4.887		
10,200.00	5,735.00	10,180.45	5,735.00	69.85	68.98	90.00	-4,527.18	-160.08	663.02	524.49	138.53	4.786		
10,300.00	5,735.00	10,280.45	5,735.00	71.26	70.40	90.00	-4,627.18	-159.65	662.95	521.59	141.37	4.690		

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



# WOG

## Anticollision Report

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<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	5,735.00	10,380.45	5,735.00	72.68	71.82	90.00	-4,727.18	-159.23	662.89	518.68	144.21	4.597		
10,500.00	5,735.00	10,480.45	5,735.00	74.10	73.25	90.00	-4,827.18	-158.80	662.83	515.77	147.06	4.507		
10,600.00	5,735.00	10,580.45	5,735.00	75.52	74.67	90.00	-4,927.18	-158.37	662.77	512.85	149.91	4.421		
10,700.00	5,735.00	10,680.45	5,735.00	76.94	76.10	90.00	-5,027.18	-157.95	662.70	509.94	152.77	4.338		
10,800.00	5,735.00	10,780.45	5,735.00	78.36	77.53	90.00	-5,127.18	-157.52	662.64	507.01	155.63	4.258		
10,900.00	5,735.00	10,880.45	5,735.00	79.79	78.96	90.00	-5,227.18	-157.10	662.58	504.09	158.49	4.181		
11,000.00	5,735.00	10,980.45	5,735.00	81.22	80.40	90.00	-5,327.18	-156.67	662.51	501.16	161.35	4.106		
11,100.00	5,735.00	11,080.45	5,735.00	82.65	81.83	90.00	-5,427.18	-156.25	662.45	498.23	164.22	4.034		
11,200.00	5,735.00	11,180.45	5,735.00	84.08	83.26	90.00	-5,527.18	-155.82	662.39	495.30	167.09	3.964		
11,300.00	5,735.00	11,280.45	5,735.00	85.51	84.70	90.00	-5,627.17	-155.39	662.33	492.36	169.96	3.897		
11,400.00	5,735.00	11,380.45	5,735.00	86.94	86.14	90.00	-5,727.17	-154.97	662.26	489.42	172.84	3.832		
11,500.00	5,735.00	11,480.45	5,735.00	88.38	87.58	90.00	-5,827.17	-154.54	662.20	486.48	175.72	3.769		
11,600.00	5,735.00	11,580.45	5,735.00	89.82	89.02	90.00	-5,927.17	-154.12	662.14	483.54	178.60	3.707		
11,700.00	5,735.00	11,680.45	5,735.00	91.25	90.46	90.00	-6,027.17	-153.69	662.08	480.60	181.48	3.648		
11,800.00	5,735.00	11,780.45	5,735.00	92.69	91.90	90.00	-6,127.17	-153.26	662.01	477.65	184.36	3.591		
11,900.00	5,735.00	11,880.45	5,735.00	94.13	93.34	90.00	-6,227.17	-152.84	661.95	474.70	187.25	3.535		
12,000.00	5,735.00	11,980.45	5,735.00	95.57	94.79	90.00	-6,327.17	-152.41	661.89	471.75	190.14	3.481		
12,100.00	5,735.00	12,080.45	5,735.00	97.01	96.23	90.00	-6,427.17	-151.99	661.83	468.80	193.03	3.429		
12,200.00	5,735.00	12,180.45	5,735.00	98.45	97.68	90.00	-6,527.17	-151.56	661.76	465.84	195.92	3.378		
12,300.00	5,735.00	12,280.45	5,735.00	99.90	99.12	90.00	-6,627.17	-151.13	661.70	462.89	198.81	3.328		
12,400.00	5,735.00	12,380.45	5,735.00	101.34	100.57	90.00	-6,727.16	-150.71	661.64	459.93	201.71	3.280		
12,500.00	5,735.00	12,480.45	5,735.00	102.79	102.02	90.00	-6,827.16	-150.28	661.57	456.97	204.60	3.233		
12,600.00	5,735.00	12,580.45	5,735.00	104.23	103.47	90.00	-6,927.16	-149.86	661.51	454.01	207.50	3.188		
12,700.00	5,735.00	12,680.45	5,735.00	105.68	104.92	90.00	-7,027.16	-149.43	661.45	451.05	210.40	3.144		
12,800.00	5,735.00	12,780.45	5,735.00	107.13	106.37	90.00	-7,127.16	-149.00	661.39	448.09	213.30	3.101		
12,900.00	5,735.00	12,880.45	5,735.00	108.57	107.82	90.00	-7,227.16	-148.58	661.32	445.13	216.20	3.059		
13,000.00	5,735.00	12,980.45	5,735.00	110.02	109.27	90.00	-7,327.16	-148.15	661.26	442.16	219.10	3.018		
13,100.00	5,735.00	13,080.45	5,735.00	111.47	110.72	90.00	-7,427.16	-147.73	661.20	439.19	222.00	2.978		
13,200.00	5,735.00	13,180.45	5,735.00	112.92	112.17	90.00	-7,527.16	-147.30	661.14	436.23	224.91	2.940		
13,300.00	5,735.00	13,280.45	5,735.00	114.37	113.63	90.00	-7,627.16	-146.87	661.07	433.26	227.81	2.902		
13,400.00	5,735.00	13,380.45	5,735.00	115.82	115.08	90.00	-7,727.16	-146.45	661.01	430.29	230.72	2.865		
13,500.00	5,735.00	13,480.45	5,735.00	117.27	116.53	90.00	-7,827.15	-146.02	660.95	427.32	233.63	2.829		
13,600.00	5,735.00	13,580.45	5,735.00	118.72	117.99	90.00	-7,927.15	-145.60	660.88	424.35	236.54	2.794		
13,700.00	5,735.00	13,680.45	5,735.00	120.18	119.44	90.00	-8,027.15	-145.17	660.82	421.38	239.44	2.760		
13,800.00	5,735.00	13,780.45	5,735.00	121.63	120.90	90.00	-8,127.15	-144.74	660.76	418.40	242.35	2.726		
13,831.37	5,735.00	13,811.41	5,735.00	122.09	121.35	90.00	-8,158.11	-144.61	660.74	417.48	243.26	2.716		
13,835.79	5,735.00	13,811.41	5,735.00	122.15	121.35	90.00	-8,158.11	-144.61	660.75	417.47	243.28	2.716 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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	
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	401.84	401.82	1.13	1.14	-163.95	0.91	-58.41	60.13	57.81	2.32	25.918		
500.00	499.84	503.02	502.87	1.47	1.49	-162.84	3.51	-53.95	60.77	57.75	3.01	20.162 ES		
600.00	599.45	602.96	602.63	1.81	1.82	-162.37	6.46	-48.89	64.12	60.47	3.66	17.536		
700.00	698.81	702.79	702.29	2.16	2.15	-162.60	9.41	-43.84	69.95	65.63	4.31	16.219		
800.00	798.16	802.61	801.94	2.51	2.49	-162.84	12.36	-38.78	75.90	70.94	4.97	15.281		
900.00	897.50	902.43	901.59	2.87	2.83	-163.05	15.30	-33.73	81.86	76.24	5.63	14.548		
1,000.00	996.84	1,002.26	1,001.24	3.23	3.17	-163.23	18.25	-28.68	87.82	81.53	6.29	13.961		
1,100.00	1,096.19	1,102.08	1,100.89	3.59	3.51	-163.38	21.19	-23.62	93.78	86.83	6.96	13.481		
1,200.00	1,195.53	1,201.90	1,200.54	3.96	3.85	-163.52	24.14	-18.57	99.74	92.12	7.62	13.082		
1,300.00	1,294.88	1,301.72	1,300.19	4.33	4.20	-163.64	27.09	-13.52	105.71	97.41	8.29	12.744		
1,400.00	1,394.22	1,401.54	1,399.84	4.70	4.54	-163.74	30.03	-8.46	111.67	102.70	8.96	12.456		
1,500.00	1,493.57	1,501.36	1,499.49	5.06	4.88	-163.84	32.98	-3.41	117.63	107.99	9.64	12.207		
1,600.00	1,592.91	1,601.19	1,599.14	5.43	5.22	-163.93	35.92	1.64	123.59	113.28	10.31	11.989		
1,700.00	1,692.26	1,701.01	1,698.79	5.80	5.57	-164.01	38.87	6.70	129.56	118.57	10.98	11.798		
1,800.00	1,791.60	1,800.83	1,798.44	6.17	5.91	-164.08	41.82	11.75	135.52	123.86	11.65	11.628		
1,900.00	1,890.94	1,900.65	1,898.09	6.54	6.25	-164.15	44.76	16.80	141.48	129.15	12.33	11.476		
2,000.00	1,990.29	2,000.47	1,997.74	6.91	6.60	-164.21	47.71	21.86	147.44	134.44	13.00	11.340		
2,100.00	2,089.63	2,100.30	2,097.39	7.28	6.94	-164.26	50.65	26.91	153.41	139.73	13.68	11.217		
2,200.00	2,188.98	2,200.12	2,197.05	7.65	7.28	-164.32	53.60	31.96	159.37	145.02	14.35	11.106		
2,300.00	2,288.32	2,299.94	2,296.70	8.02	7.63	-164.37	56.55	37.02	165.34	150.31	15.03	11.004		
2,400.00	2,387.67	2,399.76	2,396.35	8.39	7.97	-164.41	59.49	42.07	171.30	155.60	15.70	10.911		
2,500.00	2,487.01	2,499.58	2,496.00	8.76	8.31	-164.45	62.44	47.13	177.26	160.89	16.38	10.825		
2,600.00	2,586.35	2,599.41	2,595.65	9.13	8.66	-164.49	65.39	52.18	183.23	166.18	17.05	10.746		
2,700.00	2,685.70	2,699.23	2,695.30	9.50	9.00	-164.53	68.33	57.23	189.19	171.47	17.73	10.673		
2,800.00	2,785.04	2,799.05	2,794.95	9.87	9.34	-164.56	71.28	62.29	195.16	176.76	18.40	10.606		
2,900.00	2,884.39	2,898.87	2,894.60	10.24	9.69	-164.60	74.22	67.34	201.12	182.04	19.08	10.543		
3,000.00	2,983.73	2,998.69	2,994.25	10.61	10.03	-164.63	77.17	72.39	207.09	187.33	19.75	10.484		
3,100.00	3,083.08	3,098.52	3,093.90	10.98	10.38	-164.65	80.12	77.45	213.05	192.62	20.43	10.429		
3,200.00	3,182.42	3,198.34	3,193.55	11.35	10.72	-164.68	83.06	82.50	219.01	197.91	21.10	10.378		
3,300.00	3,281.76	3,298.16	3,293.20	11.72	11.06	-164.71	86.01	87.55	224.98	203.20	21.78	10.330		
3,400.00	3,381.11	3,397.98	3,392.85	12.10	11.41	-164.73	88.95	92.61	230.94	208.49	22.46	10.284		
3,500.00	3,480.45	3,497.80	3,492.50	12.47	11.75	-164.76	91.90	97.66	236.91	213.78	23.13	10.242		
3,600.00	3,579.80	3,597.62	3,592.15	12.84	12.09	-164.78	94.85	102.71	242.87	219.07	23.81	10.202		
3,700.00	3,679.14	3,697.45	3,691.80	13.21	12.44	-164.80	97.79	107.77	248.84	224.35	24.48	10.163		
3,800.00	3,778.49	3,797.27	3,791.45	13.58	12.78	-164.82	100.74	112.82	254.80	229.64	25.16	10.127		
3,900.00	3,877.83	3,897.09	3,891.10	13.95	13.12	-164.84	103.68	117.87	260.77	234.93	25.84	10.093		
4,000.00	3,977.18	3,996.91	3,990.75	14.32	13.47	-164.86	106.63	122.93	266.73	240.22	26.51	10.061		
4,100.00	4,076.52	4,096.73	4,090.40	14.69	13.81	-164.87	109.58	127.98	272.70	245.51	27.19	10.030		
4,200.00	4,175.86	4,196.56	4,190.05	15.06	14.16	-164.89	112.52	133.04	278.66	250.80	27.86	10.001		
4,300.00	4,275.21	4,296.38	4,289.70	15.43	14.50	-164.91	115.47	138.09	284.63	256.09	28.54	9.973		
4,400.00	4,374.55	4,396.20	4,389.35	15.80	14.84	-164.92	118.41	143.14	290.59	261.37	29.22	9.946		
4,500.00	4,473.90	4,496.02	4,489.00	16.18	15.19	-164.94	121.36	148.20	296.56	266.66	29.89	9.920		
4,600.00	4,573.24	4,595.84	4,588.65	16.55	15.53	-164.95	124.31	153.25	302.52	271.95	30.57	9.896		
4,700.00	4,672.59	4,695.67	4,688.30	16.92	15.88	-164.96	127.25	158.30	308.49	277.24	31.25	9.873		
4,800.00	4,772.06	4,795.55	4,788.02	17.24	16.22	-164.94	130.20	163.36	313.21	281.32	31.89	9.822		
4,900.00	4,871.83	4,895.53	4,887.82	17.51	16.56	-164.73	133.15	168.42	314.59	282.10	32.49	9.683		
5,000.00	4,971.78	4,990.86	4,983.01	17.76	16.87	-164.40	135.75	172.89	313.02	279.97	33.04	9.473		
5,100.00	5,071.78	5,082.24	5,074.36	18.02	17.11	-89.83	136.93	174.91	311.11	277.58	33.53	9.279		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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		
5,147.77	5,119.55	5,127.43	5,119.55	18.16	17.23	-89.82	137.00	175.02	310.98	277.20	33.78	9.205		
5,200.00	5,171.78	5,179.66	5,171.78	18.32	17.39	-89.82	137.00	175.02	310.98	276.88	34.10	9.120		
5,200.00	5,171.78	5,179.66	5,171.78	18.32	17.39	-89.82	137.00	175.02	310.98	276.88	34.10	9.120		
5,300.00	5,271.66	5,279.54	5,271.66	18.59	17.70	90.98	137.00	175.02	311.02	276.32	34.70	8.963		
5,400.00	5,369.38	5,380.24	5,372.14	18.85	17.99	93.86	132.26	175.03	311.71	276.43	35.28	8.835		
5,500.00	5,461.39	5,484.67	5,473.53	19.10	18.27	96.80	107.95	175.06	313.30	277.50	35.80	8.751		
5,600.00	5,544.31	5,592.77	5,571.20	19.34	18.55	99.50	62.07	175.12	315.58	279.35	36.23	8.711		
5,700.00	5,615.11	5,704.52	5,659.97	19.58	18.83	101.84	-5.45	175.20	318.20	281.65	36.55	8.706		
5,800.00	5,671.17	5,819.60	5,734.21	19.83	19.12	103.71	-93.08	175.31	320.75	283.92	36.84	8.708		
5,900.00	5,710.44	5,937.41	5,788.43	20.12	19.44	105.01	-197.39	175.44	322.84	285.59	37.25	8.666		
6,000.00	5,731.48	6,057.04	5,818.14	20.47	19.83	105.67	-312.99	175.58	324.10	286.13	37.97	8.535		
6,100.00	5,735.00	6,169.04	5,823.00	20.88	20.29	105.74	-424.78	175.72	324.47	285.51	38.96	8.328		
6,200.00	5,735.00	6,269.04	5,823.00	21.38	20.79	105.72	-524.78	175.85	324.70	284.69	40.01	8.116		
6,300.00	5,735.00	6,369.04	5,823.00	21.97	21.39	105.71	-624.78	175.97	324.93	283.71	41.23	7.881		
6,400.00	5,735.00	6,469.04	5,823.00	22.64	22.06	105.70	-724.78	176.10	325.16	282.56	42.60	7.633		
6,500.00	5,735.00	6,569.04	5,823.00	23.38	22.82	105.69	-824.78	176.22	325.39	281.27	44.12	7.375		
6,600.00	5,735.00	6,669.04	5,823.00	24.20	23.64	105.68	-924.78	176.35	325.62	279.86	45.76	7.115		
6,700.00	5,735.00	6,769.04	5,823.00	25.07	24.53	105.67	-1,024.78	176.47	325.85	278.33	47.52	6.857		
6,800.00	5,735.00	6,869.04	5,823.00	26.01	25.47	105.66	-1,124.77	176.60	326.08	276.70	49.38	6.603		
6,900.00	5,735.00	6,969.04	5,823.00	26.98	26.46	105.65	-1,224.77	176.72	326.31	274.98	51.34	6.356		
7,000.00	5,735.00	7,069.04	5,823.00	28.01	27.49	105.63	-1,324.77	176.85	326.54	273.17	53.37	6.119		
7,100.00	5,735.00	7,169.04	5,823.00	29.07	28.56	105.62	-1,424.77	176.97	326.77	271.29	55.48	5.890		
7,200.00	5,735.00	7,269.04	5,823.00	30.17	29.66	105.61	-1,524.77	177.10	327.00	269.35	57.65	5.673		
7,300.00	5,735.00	7,369.04	5,823.00	31.30	30.80	105.60	-1,624.77	177.22	327.23	267.35	59.87	5.465		
7,400.00	5,735.00	7,469.04	5,823.00	32.45	31.97	105.59	-1,724.77	177.35	327.46	265.30	62.15	5.268		
7,500.00	5,735.00	7,569.04	5,823.00	33.63	33.15	105.58	-1,824.77	177.47	327.69	263.21	64.48	5.082		
7,600.00	5,735.00	7,669.04	5,823.00	34.84	34.37	105.57	-1,924.77	177.60	327.92	261.07	66.85	4.905		
7,700.00	5,735.00	7,769.04	5,823.00	36.06	35.60	105.56	-2,024.77	177.72	328.15	258.90	69.25	4.738		
7,800.00	5,735.00	7,869.04	5,823.00	37.30	36.84	105.54	-2,124.77	177.85	328.38	256.69	71.69	4.581		
7,900.00	5,735.00	7,969.04	5,823.00	38.56	38.11	105.53	-2,224.77	177.97	328.61	254.45	74.16	4.431		
8,000.00	5,735.00	8,069.04	5,823.00	39.83	39.39	105.52	-2,324.77	178.10	328.84	252.18	76.65	4.290		
8,100.00	5,735.00	8,169.04	5,823.00	41.12	40.68	105.51	-2,424.77	178.22	329.07	249.90	79.17	4.156		
8,200.00	5,735.00	8,269.04	5,823.00	42.42	41.98	105.50	-2,524.77	178.35	329.30	247.58	81.71	4.030		
8,300.00	5,735.00	8,369.04	5,823.00	43.72	43.30	105.49	-2,624.77	178.47	329.53	245.25	84.28	3.910		
8,400.00	5,735.00	8,469.04	5,823.00	45.04	44.62	105.48	-2,724.77	178.59	329.76	242.90	86.86	3.797		
8,500.00	5,735.00	8,569.04	5,823.00	46.37	45.96	105.47	-2,824.77	178.72	329.99	240.53	89.45	3.689		
8,600.00	5,735.00	8,669.04	5,823.00	47.71	47.30	105.46	-2,924.77	178.84	330.22	238.15	92.07	3.587		
8,700.00	5,735.00	8,769.04	5,823.00	49.05	48.65	105.44	-3,024.77	178.97	330.45	235.75	94.70	3.490		
8,800.00	5,735.00	8,869.04	5,823.00	50.41	50.00	105.43	-3,124.77	179.09	330.68	233.34	97.34	3.397		
8,900.00	5,735.00	8,969.04	5,823.00	51.77	51.37	105.42	-3,224.77	179.22	330.91	230.92	99.99	3.309		
9,000.00	5,735.00	9,069.03	5,823.00	53.13	52.73	105.41	-3,324.77	179.34	331.14	228.48	102.65	3.226		
9,100.00	5,735.00	9,169.03	5,823.00	54.50	54.11	105.40	-3,424.77	179.47	331.37	226.04	105.33	3.146		
9,200.00	5,735.00	9,269.03	5,823.00	55.88	55.49	105.39	-3,524.77	179.59	331.59	223.58	108.01	3.070		
9,300.00	5,735.00	9,369.03	5,823.00	57.26	56.87	105.38	-3,624.77	179.72	331.82	221.12	110.71	2.997		
9,400.00	5,735.00	9,469.03	5,823.00	58.64	58.26	105.37	-3,724.77	179.84	332.05	218.65	113.41	2.928		
9,500.00	5,735.00	9,569.03	5,823.00	60.03	59.65	105.36	-3,824.77	179.97	332.28	216.17	116.12	2.862		
9,600.00	5,735.00	9,669.03	5,823.00	61.42	61.05	105.35	-3,924.76	180.09	332.51	213.68	118.83	2.798		
9,700.00	5,735.00	9,769.03	5,823.00	62.82	62.45	105.34	-4,024.76	180.22	332.74	211.19	121.56	2.737		
9,800.00	5,735.00	9,869.03	5,823.00	64.22	63.85	105.32	-4,124.76	180.34	332.97	208.69	124.29	2.679		
9,900.00	5,735.00	9,969.03	5,823.00	65.62	65.25	105.31	-4,224.76	180.47	333.20	206.18	127.02	2.623		
10,000.00	5,735.00	10,069.03	5,823.00	67.03	66.66	105.30	-4,324.76	180.59	333.43	203.67	129.77	2.570		
10,100.00	5,735.00	10,169.03	5,823.00	68.44	68.07	105.29	-4,424.76	180.72	333.66	201.15	132.51	2.518		

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 #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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 #30G-3143 - 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						
10,200.00	5,735.00	10,269.03	5,823.00	69.85	69.49	105.28	-4,524.76	180.84	333.89	198.63	135.26	2.468						
10,300.00	5,735.00	10,369.03	5,823.00	71.26	70.90	105.27	-4,624.76	180.97	334.12	196.10	138.02	2.421						
10,400.00	5,735.00	10,469.03	5,823.00	72.68	72.32	105.26	-4,724.76	181.09	334.35	193.57	140.78	2.375						
10,500.00	5,735.00	10,569.03	5,823.00	74.10	73.74	105.25	-4,824.76	181.22	334.58	191.04	143.55	2.331						
10,600.00	5,735.00	10,669.03	5,823.00	75.52	75.16	105.24	-4,924.76	181.34	334.81	188.50	146.32	2.288						
10,700.00	5,735.00	10,769.03	5,823.00	76.94	76.59	105.23	-5,024.76	181.47	335.04	185.96	149.09	2.247						
10,800.00	5,735.00	10,869.03	5,823.00	78.36	78.01	105.22	-5,124.76	181.59	335.27	183.41	151.87	2.208						
10,900.00	5,735.00	10,969.03	5,823.00	79.79	79.44	105.21	-5,224.76	181.72	335.50	180.86	154.65	2.170						
11,000.00	5,735.00	11,069.03	5,823.00	81.22	80.87	105.20	-5,324.76	181.84	335.74	178.31	157.43	2.133						
11,100.00	5,735.00	11,169.03	5,823.00	82.65	82.30	105.18	-5,424.76	181.97	335.97	175.75	160.21	2.097						
11,200.00	5,735.00	11,269.03	5,823.00	84.08	83.73	105.17	-5,524.76	182.09	336.20	173.19	163.00	2.063						
11,300.00	5,735.00	11,369.03	5,823.00	85.51	85.17	105.16	-5,624.76	182.22	336.43	170.63	165.80	2.029						
11,400.00	5,735.00	11,469.03	5,823.00	86.94	86.60	105.15	-5,724.76	182.34	336.66	168.07	168.59	1.997						
11,500.00	5,735.00	11,569.03	5,823.00	88.38	88.04	105.14	-5,824.76	182.47	336.89	165.50	171.39	1.966						
11,600.00	5,735.00	11,669.03	5,823.00	89.82	89.48	105.13	-5,924.76	182.59	337.12	162.93	174.19	1.935						
11,700.00	5,735.00	11,769.03	5,823.00	91.25	90.91	105.12	-6,024.76	182.71	337.35	160.36	176.99	1.906						
11,800.00	5,735.00	11,869.03	5,823.00	92.69	92.35	105.11	-6,124.76	182.84	337.58	157.78	179.79	1.878						
11,900.00	5,735.00	11,969.03	5,823.00	94.13	93.79	105.10	-6,224.76	182.96	337.81	155.21	182.60	1.850						
12,000.00	5,735.00	12,069.03	5,823.00	95.57	95.24	105.09	-6,324.76	183.09	338.04	152.63	185.41	1.823						
12,100.00	5,735.00	12,169.03	5,823.00	97.01	96.68	105.08	-6,424.76	183.21	338.27	150.05	188.22	1.797						
12,200.00	5,735.00	12,269.03	5,823.00	98.45	98.12	105.07	-6,524.76	183.34	338.50	147.47	191.03	1.772						
12,300.00	5,735.00	12,369.03	5,823.00	99.90	99.57	105.06	-6,624.76	183.46	338.73	144.89	193.84	1.747						
12,400.00	5,735.00	12,469.03	5,823.00	101.34	101.01	105.05	-6,724.75	183.59	338.96	142.30	196.66	1.724						
12,500.00	5,735.00	12,569.02	5,823.00	102.79	102.46	105.04	-6,824.75	183.71	339.19	139.71	199.47	1.700						
12,600.00	5,735.00	12,669.02	5,823.00	104.23	103.90	105.03	-6,924.75	183.84	339.42	137.13	202.29	1.678						
12,700.00	5,735.00	12,769.02	5,823.00	105.68	105.35	105.02	-7,024.75	183.96	339.65	134.54	205.11	1.656						
12,800.00	5,735.00	12,869.02	5,823.00	107.13	106.80	105.01	-7,124.75	184.09	339.88	131.94	207.93	1.635						
12,900.00	5,735.00	12,969.02	5,823.00	108.57	108.25	105.00	-7,224.75	184.21	340.11	129.35	210.76	1.614						
13,000.00	5,735.00	13,069.02	5,823.00	110.02	109.69	104.98	-7,324.75	184.34	340.34	126.76	213.58	1.593						
13,100.00	5,735.00	13,169.02	5,823.00	111.47	111.14	104.97	-7,424.75	184.46	340.57	124.16	216.41	1.574						
13,200.00	5,735.00	13,269.02	5,823.00	112.92	112.59	104.96	-7,524.75	184.59	340.80	121.57	219.24	1.554						
13,300.00	5,735.00	13,369.02	5,823.00	114.37	114.04	104.95	-7,624.75	184.71	341.03	118.97	222.06	1.536						
13,400.00	5,735.00	13,469.02	5,823.00	115.82	115.50	104.94	-7,724.75	184.84	341.26	116.37	224.89	1.517						
13,500.00	5,735.00	13,569.02	5,823.00	117.27	116.95	104.93	-7,824.75	184.96	341.49	113.77	227.72	1.500 Level 3						
13,600.00	5,735.00	13,669.02	5,823.00	118.72	118.40	104.92	-7,924.75	185.09	341.72	111.17	230.56	1.482 Level 3						
13,700.00	5,735.00	13,769.02	5,823.00	120.18	119.85	104.91	-8,024.75	185.21	341.95	108.56	233.39	1.465 Level 3						
13,800.00	5,735.00	13,869.02	5,823.00	121.63	121.31	104.90	-8,124.75	185.34	342.18	105.96	236.22	1.449 Level 3						
13,835.79	5,735.00	13,903.39	5,823.00	122.15	121.81	104.90	-8,159.12	185.38	342.27	105.09	237.17	1.443 Level 3, SF						





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30G-3144
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4758.90usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30G-3144	<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>Offset Design</b> Sec 31-T10N-R57W - Maddy #1-31 - Wellbore #1 - Wellbore #1												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 6430-MWD												<b>Offset Well Error:</b>	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	
12,100.00	5,735.00	5,694.10	5,694.10	97.01	9.57	-90.00	-7,601.04	1,476.20	1,522.65	1,453.97	68.69	22.168	
12,200.00	5,735.00	5,694.10	5,694.10	98.45	9.57	-90.00	-7,601.04	1,476.20	1,446.52	1,373.83	72.69	19.900	
12,300.00	5,735.00	5,694.10	5,694.10	99.90	9.57	-90.00	-7,601.04	1,476.20	1,373.46	1,296.42	77.04	17.828	
12,400.00	5,735.00	5,694.10	5,694.10	101.34	9.57	-90.00	-7,601.04	1,476.20	1,303.98	1,222.24	81.73	15.954	
12,500.00	5,735.00	5,694.10	5,694.10	102.79	9.57	-90.00	-7,601.04	1,476.20	1,238.67	1,151.92	86.75	14.278	
12,600.00	5,735.00	5,694.10	5,694.10	104.23	9.57	-90.00	-7,601.04	1,476.20	1,178.25	1,086.21	92.04	12.801	
12,700.00	5,735.00	5,694.10	5,694.10	105.68	9.57	-90.00	-7,601.04	1,476.20	1,123.49	1,025.97	97.52	11.520	
12,800.00	5,735.00	5,694.10	5,694.10	107.13	9.57	-90.00	-7,601.04	1,476.20	1,075.27	972.21	103.06	10.434	
12,900.00	5,735.00	5,694.10	5,694.10	108.57	9.57	-90.00	-7,601.04	1,476.20	1,034.49	926.03	108.45	9.539	
13,000.00	5,735.00	5,694.10	5,694.10	110.02	9.57	-90.00	-7,601.04	1,476.20	1,002.06	888.58	113.48	8.830	
13,100.00	5,735.00	5,694.10	5,694.10	111.47	9.57	-90.00	-7,601.04	1,476.20	978.82	860.93	117.88	8.303	
13,200.00	5,735.00	5,694.10	5,694.10	112.92	9.57	-90.00	-7,601.04	1,476.20	965.43	844.02	121.41	7.952	
13,280.19	5,735.00	5,694.10	5,694.10	114.08	9.57	-90.00	-7,601.04	1,476.20	962.09	838.62	123.47	7.792 CC	
13,300.00	5,735.00	5,694.10	5,694.10	114.37	9.57	-90.00	-7,601.04	1,476.20	962.29	838.43	123.86	7.769 ES	
13,400.00	5,735.00	5,694.10	5,694.10	115.82	9.57	-90.00	-7,601.04	1,476.20	969.52	844.37	125.15	7.747 SF	
13,500.00	5,735.00	5,694.10	5,694.10	117.27	9.57	-90.00	-7,601.04	1,476.20	986.88	861.61	125.27	7.878	
13,600.00	5,735.00	5,694.10	5,694.10	118.72	9.57	-90.00	-7,601.04	1,476.20	1,013.85	889.51	124.34	8.154	
13,700.00	5,735.00	5,694.10	5,694.10	120.18	9.57	-90.00	-7,601.04	1,476.20	1,049.69	927.15	122.55	8.566	
13,800.00	5,735.00	5,694.10	5,694.10	121.63	9.57	-90.00	-7,601.04	1,476.20	1,093.53	973.43	120.11	9.105	
13,835.79	5,735.00	5,694.10	5,694.10	122.15	9.57	-90.00	-7,601.04	1,476.20	1,110.99	991.88	119.12	9.327	



# WOG

## Anticollision Report

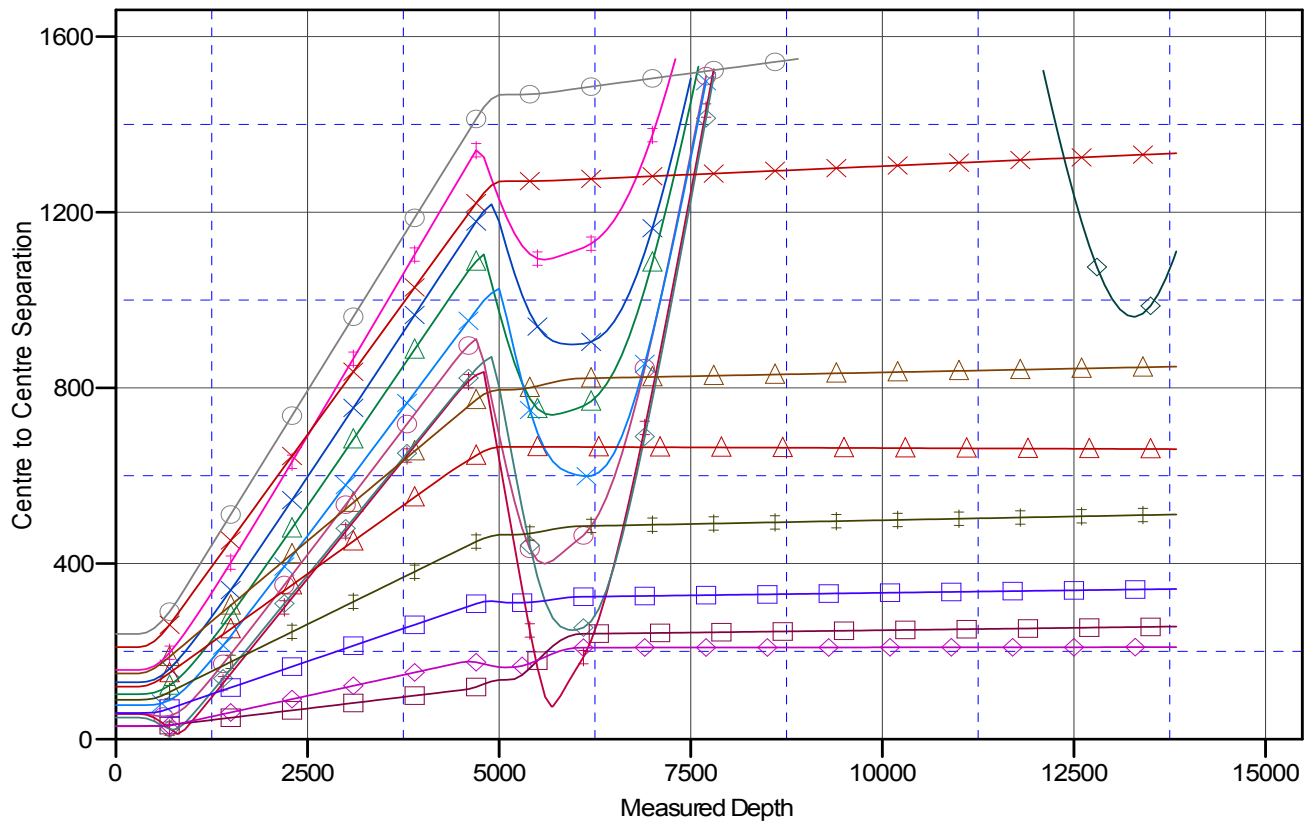
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30G-3144  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30G-3144  
**TVD Reference:** KBE @ 4758.90usft (Original Well Elev)  
**MD Reference:** KBE @ 4758.90usft (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 @ 4758.90usft (Original Well Ele)  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30G-3144  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Ladder Plot



### LEGEND

- |                                  |                                  |   |
|----------------------------------|----------------------------------|---|
| ✱ Horsetail #30G-1909, Hz, APDV0 | ◆ Horsetail #30G-1944, Hz, APDV0 | ✱ Horsetail #30G-3140, Hz, APDV0        |
| ▲ Horsetail #30G-1910, Hz, APDV0 | ▲ Horsetail #30G-3109, Hz, APDV0 | ▲ Horsetail #30G-3142, Hz, APDV0        |
| ○ Horsetail #30G-1911, Hz, APDV0 | ◆ Horsetail #30G-3110, Hz, APDV0 | □ Horsetail #30G-3143, Hz, APDV0        |
| ✱ Horsetail #30G-1912, Hz, APDV0 | ■ Horsetail #30G-3111, Hz, APDV0 | ◆ Maddy#1-31, Wellbore#1, Wellbore#1 V0 |
| ✱ Horsetail #30G-1942, Hz, APDV0 | ◆ Horsetail #30G-3112, Hz, APDV0 |   |
| ✱ Horsetail #30G-1943, Hz, APDV0 | ○ Horsetail #30G-3139, Hz, APDV0 |   |



# WOG

## Anticollision Report

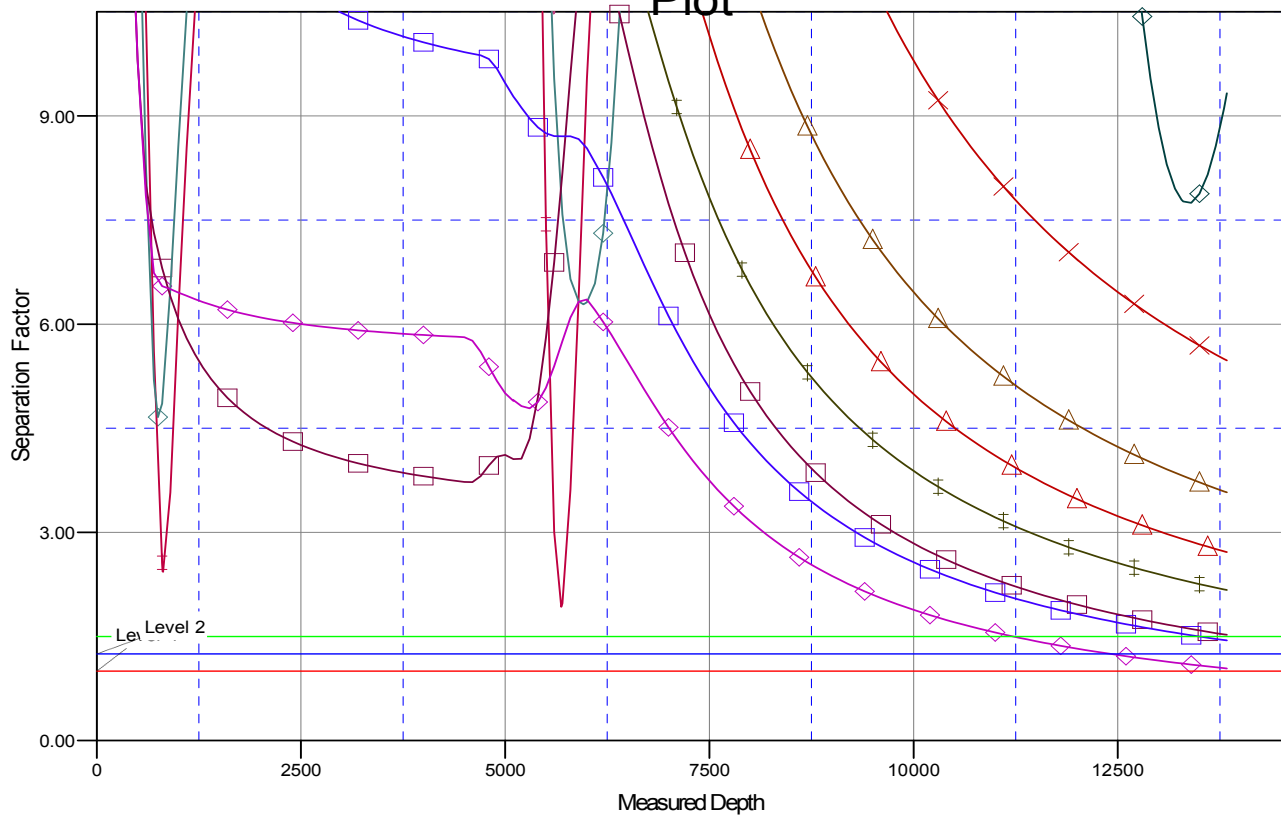
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30G-3144  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30G-3144  
**TVD Reference:** KBE @ 4758.90usft (Original Well Elev)  
**MD Reference:** KBE @ 4758.90usft (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 @ 4758.90usft (Original Well Ele)  
Offset Depths are relative to Offset Datum  
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30G-3144  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Separation Factor Plot



### LEGEND

- |                                  |                                  |  |
|----------------------------------|----------------------------------|--|
| ◆ Horsetail #30G-1909, Hz, APDV0 | ◆ Horsetail #30G-1944, Hz, APDV0 | ✕ Horsetail #30G-3140, Hz, APDV0           |
| ▲ Horsetail #30G-1910, Hz, APDV0 | ▲ Horsetail #30G-3109, Hz, APDV0 | ▲ Horsetail #30G-3142, Hz, APDV0           |
| ⊕ Horsetail #30G-1911, Hz, APDV0 | ⊕ Horsetail #30G-3110, Hz, APDV0 | ⊕ Horsetail #30G-3143, Hz, APDV0           |
| ✱ Horsetail #30G-1912, Hz, APDV0 | ⊞ Horsetail #30G-3111, Hz, APDV0 | ◆ Maddy #1-31, Wellbore #1, Wellbore #1 V0 |
| ✱ Horsetail #30G-1942, Hz, APDV0 | ◆ Horsetail #30G-3112, Hz, APDV0 |  |
| ✱ Horsetail #30G-1943, Hz, APDV0 | ⊕ Horsetail #30G-3139, Hz, APDV0 |  |