



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 30-T10N-R57W**

**Horsetail #30E-3138**

**Hz**

**APD**

## **Anticollision Report**

**22 October, 2015**



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	10/22/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,949.06	APD (Hz)	MWD+IFR1+MS+sag	Fixed:v2:crustal dec & 3-axis correction + sag	

Summary						
Site Name	Reference Measured Depth (usft)	Offset Measured Depth (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Separation Factor	Warning
Offset Well - Wellbore - Design						
Sec 30-T10N-R57W						
Horsetail #30E-1901 - Hz - APD	300.00	300.00	244.99	243.37	151.700	CC, ES
Horsetail #30E-1901 - Hz - APD	4,000.00	3,717.58	1,513.39	1,485.87	54.997	SF
Horsetail #30E-1902 - Hz - APD	300.00	300.00	185.91	184.29	115.116	CC, ES
Horsetail #30E-1902 - Hz - APD	6,400.00	5,650.00	1,433.45	1,393.78	36.137	SF
Horsetail #30E-1903 - Hz - APD	200.00	200.00	129.10	128.16	137.243	CC
Horsetail #30E-1903 - Hz - APD	300.00	300.00	129.10	127.48	79.939	ES
Horsetail #30E-1903 - Hz - APD	5,600.00	6,154.75	1,098.50	1,059.99	28.528	SF
Horsetail #30E-1904 - Hz - APD	561.84	567.45	75.81	72.37	22.076	CC
Horsetail #30E-1904 - Hz - APD	600.00	606.13	75.95	72.25	20.555	ES
Horsetail #30E-1904 - Hz - APD	800.00	806.54	85.11	80.09	16.951	SF
Horsetail #30E-1934 - Hz - APD	300.00	300.00	214.95	213.34	133.104	CC, ES
Horsetail #30E-1934 - Hz - APD	6,500.00	5,675.32	1,531.84	1,490.58	37.124	SF
Horsetail #30E-1935 - Hz - APD	300.00	300.00	157.20	155.59	97.344	CC, ES
Horsetail #30E-1935 - Hz - APD	6,400.00	5,763.38	1,264.07	1,222.76	30.599	SF
Horsetail #30E-1936 - Hz - APD	200.00	200.00	102.06	101.12	108.499	CC
Horsetail #30E-1936 - Hz - APD	400.00	402.44	102.27	100.00	45.012	ES
Horsetail #30E-1936 - Hz - APD	6,200.00	5,870.39	931.21	891.22	23.283	SF
Horsetail #30E-3103 - Hz - APD	300.00	300.00	119.96	118.34	74.279	CC
Horsetail #30E-3103 - Hz - APD	500.00	507.96	120.24	117.14	38.890	ES
Horsetail #30E-3103 - Hz - APD	13,949.06	13,645.51	835.83	598.48	3.521	SF
Horsetail #30E-3104 - Hz - APD	604.55	610.87	59.96	56.04	15.328	CC
Horsetail #30E-3104 - Hz - APD	700.00	708.28	59.97	55.30	12.852	ES
Horsetail #30E-3104 - Hz - APD	13,949.06	13,739.78	499.25	263.14	2.114	SF
Horsetail #30E-3135 - Hz - APD	300.00	300.00	149.95	148.33	92.849	CC
Horsetail #30E-3135 - Hz - APD	400.00	404.21	150.27	147.95	64.754	ES
Horsetail #30E-3135 - Hz - APD	13,949.06	13,921.48	980.60	736.84	4.023	SF
Horsetail #30E-3136 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC
Horsetail #30E-3136 - Hz - APD	600.00	609.19	90.07	86.20	23.235	ES
Horsetail #30E-3136 - Hz - APD	13,949.06	13,851.53	646.91	402.49	2.647	SF
Horsetail #30F-1941 - Hz - Hz	2,865.33	2,779.43	448.79	422.19	16.874	CC
Horsetail #30F-1941 - Hz - Hz	2,900.00	2,810.46	449.06	422.14	16.686	ES
Horsetail #30F-1941 - Hz - Hz	6,300.00	5,816.94	569.00	525.47	13.071	SF
Horsetail #30F-1942 - Hz - Hz	5,871.88	6,030.85	386.14	349.32	10.488	CC, ES, SF
Horsetail #30F-1943 - Hz - Hz	5,751.75	6,064.46	230.16	193.87	6.342	CC, ES, SF
Horsetail #30F-1944 - Hz - Hz	5,842.68	5,970.67	54.75	18.47	1.509	CC, ES, SF
Horsetail #30F-1945 - Hz - Hz	5,748.32	5,996.13	111.26	74.87	3.058	CC, ES, SF
Horsetail #30F-3105 - Hz - Hz	4,031.11	3,917.82	78.11	47.10	2.519	CC

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 30-T10N-R57W						
Horsetail #30F-3105 - Hz - Hz	13,460.79	13,013.00	202.43	24.56	1.138	Level 2, ES, SF
Horsetail #30F-3106 - Hz - Hz	11,915.73	11,668.42	159.91	-5.12	0.969	Level 1, CC
Horsetail #30F-3106 - Hz - Hz	13,400.00	13,150.06	167.78	-42.03	0.800	Level 1, ES, SF

<b>Offset Design</b> Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												<b>Offset Well Error:</b>	0.00 usft
Reference Measured Depth (usft)	Vertical Depth (usft)	Offset Measured Depth (usft)	Vertical Depth (usft)	Semi Major Axis Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Distance Between Centres (usft)	Distance Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-78.32	49.60	-239.91	244.99				
100.00	100.00	100.00	100.00	0.13	0.13	-78.32	49.60	-239.91	244.99	244.72	0.27	919.799	
200.00	200.00	200.00	200.00	0.47	0.47	-78.32	49.60	-239.91	244.99	244.05	0.94	260.445	
300.00	300.00	300.00	300.00	0.81	0.81	-78.32	49.60	-239.91	244.99	243.37	1.61	151.700	CC, ES
400.00	399.98	397.98	397.96	1.13	1.10	-161.46	48.08	-240.62	247.04	244.80	2.24	110.446	
500.00	499.84	495.42	495.27	1.46	1.40	-162.88	43.56	-242.73	253.31	250.45	2.86	88.518	
600.00	599.45	591.80	591.30	1.80	1.71	-165.09	36.14	-246.19	264.10	260.57	3.53	74.839	
700.00	698.70	686.64	685.46	2.15	2.03	-167.85	25.99	-250.93	279.79	275.57	4.23	66.155	
800.00	797.47	779.45	777.22	2.52	2.36	-170.92	13.33	-256.84	300.79	295.83	4.96	60.701	
900.00	895.62	869.84	866.09	2.92	2.72	-174.09	-1.59	-263.80	327.37	321.67	5.70	57.464	
1,000.00	993.06	961.30	956.60	3.34	3.10	-177.23	-18.61	-271.74	359.32	352.90	6.42	55.965	
1,100.00	1,089.86	1,053.23	1,045.55	3.79	3.49	-179.95	-35.82	-279.78	394.74	387.62	7.12	55.435	
1,200.00	1,186.61	1,145.11	1,135.44	4.26	3.89	-177.75	-53.03	-287.81	431.01	423.22	7.79	55.351	
1,300.00	1,283.37	1,236.98	1,225.33	4.73	4.30	-175.81	-70.23	-295.84	467.80	459.34	8.46	55.298	
1,400.00	1,380.13	1,328.85	1,315.22	5.20	4.70	-174.14	-87.44	-303.87	505.00	495.86	9.14	55.279	
1,500.00	1,476.89	1,420.73	1,405.11	5.68	5.12	-172.70	-104.64	-311.89	542.52	532.70	9.82	55.274	
1,600.00	1,573.64	1,512.60	1,495.00	6.17	5.53	-171.45	-121.85	-319.92	580.30	569.80	10.50	55.275	
1,700.00	1,670.40	1,604.48	1,584.89	6.65	5.94	-170.34	-139.05	-327.95	618.29	607.11	11.19	55.277	
1,800.00	1,767.16	1,696.35	1,674.78	7.14	6.36	-169.36	-156.26	-335.98	656.46	644.59	11.88	55.277	
1,900.00	1,863.92	1,788.22	1,764.68	7.63	6.78	-168.49	-173.46	-344.01	694.78	682.21	12.57	55.275	
2,000.00	1,960.68	1,880.10	1,854.57	8.12	7.20	-167.71	-190.67	-352.04	733.22	719.96	13.27	55.272	
2,100.00	2,057.43	1,971.97	1,944.46	8.61	7.62	-167.01	-207.87	-360.07	771.77	757.80	13.96	55.266	
2,200.00	2,154.19	2,063.85	2,034.35	9.10	8.04	-166.37	-225.08	-368.10	810.41	795.74	14.67	55.257	
2,300.00	2,250.95	2,155.72	2,124.24	9.59	8.46	-165.79	-242.28	-376.13	849.12	833.75	15.37	55.248	
2,400.00	2,347.71	2,247.60	2,214.13	10.09	8.88	-165.26	-259.49	-384.16	887.90	871.83	16.07	55.236	
2,500.00	2,444.46	2,339.47	2,304.02	10.58	9.30	-164.78	-276.69	-392.19	926.75	909.97	16.78	55.224	
2,600.00	2,541.22	2,431.34	2,393.91	11.08	9.72	-164.33	-293.90	-400.22	965.64	948.15	17.49	55.211	
2,700.00	2,637.98	2,523.22	2,483.80	11.57	10.14	-163.92	-311.10	-408.24	1,004.58	986.38	18.20	55.196	
2,800.00	2,734.74	2,615.09	2,573.69	12.06	10.57	-163.54	-328.31	-416.27	1,043.56	1,024.65	18.91	55.182	
2,900.00	2,831.49	2,706.97	2,663.58	12.56	10.99	-163.18	-345.51	-424.30	1,082.58	1,062.96	19.62	55.167	
3,000.00	2,928.25	2,798.84	2,753.48	13.06	11.41	-162.86	-362.72	-432.33	1,121.63	1,101.30	20.34	55.151	
3,100.00	3,025.01	2,890.71	2,843.37	13.55	11.84	-162.55	-379.92	-440.36	1,160.71	1,139.66	21.05	55.136	
3,200.00	3,121.77	2,982.59	2,933.26	14.05	12.26	-162.26	-397.13	-448.39	1,199.82	1,178.05	21.77	55.120	
3,300.00	3,218.52	3,074.46	3,023.15	14.54	12.68	-161.99	-414.33	-456.42	1,238.95	1,216.47	22.48	55.104	
3,400.00	3,315.28	3,166.34	3,113.04	15.04	13.11	-161.74	-431.54	-464.45	1,278.11	1,254.90	23.20	55.089	
3,500.00	3,412.04	3,258.21	3,202.93	15.54	13.53	-161.50	-448.74	-472.48	1,317.28	1,293.36	23.92	55.073	
3,600.00	3,508.80	3,350.09	3,292.82	16.03	13.95	-161.28	-465.95	-480.51	1,356.47	1,331.83	24.64	55.058	
3,700.00	3,605.56	3,441.96	3,382.71	16.53	14.38	-161.07	-483.15	-488.54	1,395.68	1,370.32	25.36	55.042	
3,800.00	3,702.31	3,533.83	3,472.60	17.03	14.80	-160.87	-500.36	-496.57	1,434.90	1,408.82	26.08	55.027	
3,900.00	3,799.07	3,625.71	3,562.49	17.53	15.23	-160.68	-517.56	-504.60	1,474.14	1,447.34	26.80	55.012	

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



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<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program:												0-MWD+IFR1+MS+sag		Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
4,000.00	3,895.83	3,717.58	3,652.38	18.02	15.65	160.50	-534.77	-512.62	1,513.39	1,485.87	27.52	54.997 SF					



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<b>Reference Well:</b>	Horsetail #30E-3138	<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	-74.52	49.60	-179.17	185.91					
100.00	100.00	100.00	100.00	0.13	0.13	-74.52	49.60	-179.17	185.91	185.64	0.27	697.980		
200.00	200.00	200.00	200.00	0.47	0.47	-74.52	49.60	-179.17	185.91	184.97	0.94	197.636		
300.00	300.00	300.00	300.00	0.81	0.81	-74.52	49.60	-179.17	185.91	184.29	1.61	115.116 CC, ES		
400.00	399.98	399.98	399.96	1.13	1.11	-157.89	47.92	-179.61	187.51	185.28	2.24	83.849		
500.00	499.84	499.46	499.30	1.46	1.41	-159.99	42.90	-180.95	192.51	189.66	2.85	67.513		
600.00	599.45	597.94	597.41	1.80	1.73	-163.21	34.65	-183.15	201.39	197.88	3.51	57.402		
700.00	698.70	694.97	693.72	2.15	2.05	-167.20	23.33	-186.16	214.78	210.58	4.20	51.121		
800.00	797.47	790.09	787.71	2.52	2.39	-171.57	9.19	-189.93	233.32	228.40	4.93	47.352		
900.00	895.62	884.03	880.04	2.92	2.76	-175.96	-7.47	-194.36	257.39	251.72	5.67	45.400		
1,000.00	993.06	978.09	972.42	3.34	3.15	-179.78	-24.64	-198.94	286.30	279.90	6.40	44.704		
1,100.00	1,089.86	1,071.35	1,063.99	3.79	3.54	177.09	-41.67	-203.47	318.74	311.62	7.12	44.740		
1,200.00	1,186.61	1,164.56	1,155.52	4.26	3.93	174.54	-58.69	-208.01	352.05	344.24	7.81	45.062		
1,300.00	1,283.37	1,257.77	1,247.05	4.73	4.33	172.42	-75.71	-212.54	385.89	377.39	8.51	45.357		
1,400.00	1,380.13	1,350.97	1,338.57	5.20	4.73	170.64	-92.73	-217.07	420.13	410.93	9.21	45.636		
1,500.00	1,476.89	1,444.18	1,430.10	5.68	5.14	169.12	-109.75	-221.60	454.68	444.77	9.91	45.888		
1,600.00	1,573.64	1,537.38	1,521.63	6.17	5.54	167.82	-126.77	-226.14	489.47	478.86	10.61	46.113		
1,700.00	1,670.40	1,630.59	1,613.15	6.65	5.95	166.69	-143.79	-230.67	524.46	513.14	11.32	46.312		
1,800.00	1,767.16	1,723.79	1,704.68	7.14	6.36	165.70	-160.81	-235.20	559.60	547.57	12.04	46.488		
1,900.00	1,863.92	1,817.00	1,796.21	7.63	6.76	164.83	-177.83	-239.73	594.88	582.13	12.75	46.644		
2,000.00	1,960.68	1,910.21	1,887.73	8.12	7.17	164.05	-194.85	-244.27	630.26	616.79	13.47	46.781		
2,100.00	2,057.43	2,003.41	1,979.26	8.61	7.59	163.36	-211.87	-248.80	665.74	651.54	14.19	46.903		
2,200.00	2,154.19	2,096.62	2,070.79	9.10	8.00	162.73	-228.88	-253.33	701.29	686.37	14.92	47.011		
2,300.00	2,250.95	2,189.82	2,162.31	9.59	8.41	162.17	-245.90	-257.87	736.91	721.27	15.64	47.108		
2,400.00	2,347.71	2,283.03	2,253.84	10.09	8.82	161.65	-262.92	-262.40	772.58	756.21	16.37	47.194		
2,500.00	2,444.46	2,376.23	2,345.37	10.58	9.23	161.19	-279.94	-266.93	808.31	791.21	17.10	47.272		
2,600.00	2,541.22	2,469.44	2,436.89	11.08	9.64	160.76	-296.96	-271.46	844.08	826.25	17.83	47.342		
2,700.00	2,637.98	2,562.65	2,528.42	11.57	10.06	160.36	-313.98	-276.00	879.88	861.32	18.56	47.405		
2,800.00	2,734.74	2,655.85	2,619.95	12.06	10.47	160.00	-331.00	-280.53	915.72	896.43	19.29	47.462		
2,900.00	2,831.49	2,749.06	2,711.47	12.56	10.88	159.67	-348.02	-285.06	951.59	931.56	20.03	47.515		
3,000.00	2,928.25	2,842.26	2,803.00	13.06	11.30	159.35	-365.04	-289.59	987.49	966.72	20.76	47.562		
3,100.00	3,025.01	2,935.47	2,894.53	13.55	11.71	159.07	-382.06	-294.13	1,023.40	1,001.91	21.50	47.605		
3,200.00	3,121.77	3,028.67	2,986.05	14.05	12.12	158.80	-399.08	-298.66	1,059.35	1,037.11	22.23	47.645		
3,300.00	3,218.52	3,121.88	3,077.58	14.54	12.54	158.54	-416.10	-303.19	1,095.30	1,072.33	22.97	47.682		
3,400.00	3,315.28	3,215.09	3,169.11	15.04	12.95	158.31	-433.12	-307.72	1,131.28	1,107.57	23.71	47.715		
3,500.00	3,412.04	3,308.29	3,260.63	15.54	13.37	158.09	-450.13	-312.26	1,167.27	1,142.83	24.45	47.746		
3,600.00	3,508.80	3,401.50	3,352.16	16.03	13.78	157.88	-467.15	-316.79	1,203.28	1,178.09	25.19	47.775		
3,700.00	3,605.56	3,494.70	3,443.68	16.53	14.19	157.68	-484.17	-321.32	1,239.30	1,213.37	25.93	47.801		
3,800.00	3,702.31	3,587.91	3,535.21	17.03	14.61	157.50	-501.19	-325.85	1,275.33	1,248.67	26.67	47.826		
3,900.00	3,799.07	3,681.11	3,626.74	17.53	15.02	157.32	-518.21	-330.39	1,311.38	1,283.97	27.41	47.849		
4,000.00	3,895.83	3,774.32	3,718.26	18.02	15.44	157.16	-535.23	-334.92	1,347.43	1,319.28	28.15	47.870		
4,100.00	3,992.59	3,867.53	3,809.79	18.52	15.85	157.00	-552.25	-339.45	1,383.49	1,354.60	28.89	47.889		
4,200.00	4,089.34	3,960.73	3,901.32	19.02	16.27	156.85	-569.27	-343.98	1,419.56	1,389.93	29.63	47.908		
4,300.00	4,186.10	4,053.94	3,992.84	19.52	16.68	156.71	-586.29	-348.52	1,455.64	1,425.27	30.37	47.925		
4,399.99	4,282.85	4,147.13	4,084.36	20.01	17.09	156.57	-603.31	-353.05	1,491.72	1,460.61	31.12	47.941		
4,500.00	4,379.98	4,240.80	4,176.34	20.44	17.51	156.69	-620.41	-357.60	1,526.55	1,494.74	31.81	47.993		
5,100.00	4,974.68	6,284.70	5,606.00	22.11	20.69	-172.80	130.11	-380.85	1,545.42	1,510.01	35.41	43.644		
5,200.00	5,074.68	6,284.73	5,606.00	22.33	20.69	-90.12	130.15	-380.85	1,507.59	1,471.25	36.33	41.496		
5,300.00	5,174.68	6,284.73	5,606.00	22.57	20.69	-90.12	130.15	-380.85	1,475.31	1,438.15	37.17	39.694		
5,400.00	5,274.55	6,281.20	5,606.00	22.79	20.68	91.32	126.62	-380.85	1,449.25	1,411.38	37.87	38.271		
5,500.00	5,372.15	6,260.15	5,606.00	22.99	20.60	92.64	105.56	-380.80	1,430.00	1,391.66	38.34	37.300		
5,600.00	5,463.94	6,220.87	5,606.00	23.19	20.47	92.55	66.28	-380.72	1,417.71	1,379.15	38.57	36.758		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 30-T10N-R57W - Horsetail #30E-1902 - Hz - APD												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												<b>Offset Well Error:</b>	0.00 usft
Reference		Offset		Semi Major Axis		Distance							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,700.00	5,546.55	6,164.79	5,606.00	23.37	20.32	91.35	10.21	-380.61	1,411.59	1,372.96	38.63	36.541	
5,794.27	5,613.30	6,098.40	5,606.00	23.54	20.18	89.61	-56.19	-380.48	1,410.07	1,371.47	38.60	36.533	
5,800.00	5,616.95	6,093.99	5,606.00	23.55	20.17	89.50	-60.60	-380.47	1,410.07	1,371.47	38.60	36.534	
5,900.00	5,672.56	6,011.06	5,606.00	23.74	20.08	87.50	-143.53	-380.30	1,411.24	1,372.64	38.60	36.560	
6,000.00	5,711.31	5,928.43	5,603.99	23.95	20.05	85.88	-226.09	-380.13	1,413.38	1,374.67	38.71	36.508	
6,100.00	5,731.81	5,850.00	5,591.27	24.21	20.07	84.44	-303.41	-379.98	1,416.15	1,377.25	38.90	36.403	
6,200.00	5,735.00	5,780.97	5,570.58	24.52	20.11	83.34	-369.21	-379.84	1,419.42	1,380.27	39.15	36.257	
6,300.00	5,735.00	5,715.14	5,542.92	24.91	20.16	82.23	-428.90	-379.72	1,424.84	1,385.42	39.42	36.146	
6,400.00	5,735.00	5,650.00	5,508.35	25.38	20.22	80.86	-484.07	-379.61	1,433.45	1,393.78	39.67	36.137 SF	
6,500.00	5,735.00	5,600.00	5,477.30	25.93	20.27	79.63	-523.23	-379.53	1,445.83	1,405.95	39.89	36.250	
6,600.00	5,735.00	5,563.90	5,452.63	26.55	20.30	78.66	-549.57	-379.48	1,462.49	1,422.41	40.08	36.486	
6,700.00	5,735.00	5,526.90	5,425.51	27.24	20.32	77.60	-574.73	-379.43	1,483.83	1,443.59	40.24	36.870	
6,800.00	5,735.00	5,500.00	5,404.70	27.99	20.34	76.80	-591.78	-379.39	1,510.03	1,469.64	40.40	37.381	
6,900.00	5,735.00	5,467.73	5,378.62	28.80	20.36	75.79	-610.78	-379.35	1,541.09	1,500.59	40.49	38.059	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-67.40	49.60	-119.19	129.10					
100.00	100.00	100.00	100.00	0.13	0.13	-67.40	49.60	-119.19	129.10	128.83	0.27	484.694		
200.00	200.00	200.00	200.00	0.47	0.47	-67.40	49.60	-119.19	129.10	128.16	0.94	137.243 CC		
300.00	300.00	300.00	300.00	0.81	0.81	-67.40	49.60	-119.19	129.10	127.48	1.61	79.939 ES		
400.00	399.98	401.99	401.97	1.13	1.12	-151.15	47.79	-119.06	129.84	127.58	2.25	57.640		
500.00	499.84	503.58	503.41	1.46	1.42	-154.35	42.39	-118.68	132.33	129.44	2.88	45.908		
600.00	599.45	604.37	603.80	1.80	1.75	-159.35	33.49	-118.05	137.34	133.81	3.54	38.821		
700.00	698.70	703.99	702.65	2.15	2.08	-165.61	21.24	-117.19	145.97	141.75	4.21	34.641		
800.00	797.47	802.06	799.49	2.52	2.43	-172.45	5.83	-116.10	159.28	154.36	4.92	32.378		
900.00	895.62	898.43	894.22	2.92	2.81	-179.04	-11.88	-114.86	178.07	172.41	5.66	31.462		
1,000.00	993.06	993.91	988.02	3.34	3.21	175.63	-29.64	-113.61	202.17	195.75	6.42	31.506		
1,100.00	1,089.86	1,088.74	1,081.19	3.79	3.60	171.53	-47.27	-112.36	230.15	222.98	7.17	32.097		
1,200.00	1,186.61	1,183.53	1,174.32	4.26	4.00	168.33	-64.90	-111.12	259.16	251.25	7.90	32.796		
1,300.00	1,283.37	1,278.32	1,267.45	4.73	4.41	165.76	-82.53	-109.88	288.77	280.12	8.64	33.420		
1,400.00	1,380.13	1,373.11	1,360.57	5.20	4.81	163.68	-100.15	-108.64	318.81	309.43	9.38	33.974		
1,500.00	1,476.89	1,467.90	1,453.70	5.68	5.22	161.95	-117.78	-107.40	349.18	339.04	10.13	34.461		
1,600.00	1,573.64	1,562.69	1,546.82	6.17	5.63	160.49	-135.41	-106.16	379.79	368.90	10.89	34.889		
1,700.00	1,670.40	1,657.47	1,639.95	6.65	6.05	159.25	-153.03	-104.92	410.59	398.95	11.64	35.266		
1,800.00	1,767.16	1,752.26	1,733.08	7.14	6.46	158.19	-170.66	-103.67	441.54	429.14	12.40	35.600		
1,900.00	1,863.92	1,847.05	1,826.20	7.63	6.87	157.26	-188.29	-102.43	472.62	459.45	13.17	35.896		
2,000.00	1,960.68	1,941.84	1,919.33	8.12	7.29	156.45	-205.91	-101.19	503.79	489.86	13.93	36.160		
2,100.00	2,057.43	2,036.63	2,012.46	8.61	7.70	155.73	-223.54	-99.95	535.04	520.34	14.70	36.397		
2,200.00	2,154.19	2,131.41	2,105.58	9.10	8.12	155.09	-241.17	-98.71	566.36	550.89	15.47	36.609		
2,300.00	2,250.95	2,226.20	2,198.71	9.59	8.54	154.51	-258.80	-97.47	597.74	581.50	16.24	36.801		
2,400.00	2,347.71	2,320.99	2,291.84	10.09	8.95	154.00	-276.42	-96.22	629.17	612.15	17.02	36.975		
2,500.00	2,444.46	2,415.78	2,384.96	10.58	9.37	153.53	-294.05	-94.98	660.64	642.85	17.79	37.133		
2,600.00	2,541.22	2,510.57	2,478.09	11.08	9.79	153.11	-311.68	-93.74	692.14	673.58	18.57	37.277		
2,700.00	2,637.98	2,605.35	2,571.21	11.57	10.21	152.72	-329.30	-92.50	723.68	704.34	19.34	37.410		
2,800.00	2,734.74	2,700.14	2,664.34	12.06	10.62	152.37	-346.93	-91.26	755.24	735.12	20.12	37.531		
2,900.00	2,831.49	2,794.93	2,757.47	12.56	11.04	152.04	-364.56	-90.02	786.83	765.93	20.90	37.643		
3,000.00	2,928.25	2,889.72	2,850.59	13.06	11.46	151.74	-382.19	-88.78	818.44	796.76	21.68	37.747		
3,100.00	3,025.01	2,984.51	2,943.72	13.55	11.88	151.46	-399.81	-87.53	850.07	827.61	22.46	37.843		
3,200.00	3,121.77	3,079.29	3,036.85	14.05	12.30	151.20	-417.44	-86.29	881.71	858.47	23.24	37.932		
3,300.00	3,218.52	3,174.08	3,129.97	14.54	12.72	150.96	-435.07	-85.05	913.37	889.35	24.03	38.015		
3,400.00	3,315.28	3,268.87	3,223.10	15.04	13.14	150.73	-452.69	-83.81	945.05	920.24	24.81	38.092		
3,500.00	3,412.04	3,363.66	3,316.23	15.54	13.55	150.52	-470.32	-82.57	976.73	951.14	25.59	38.165		
3,600.00	3,508.80	3,458.45	3,409.35	16.03	13.97	150.32	-487.95	-81.33	1,008.43	982.05	26.38	38.233		
3,700.00	3,605.56	3,553.23	3,502.48	16.53	14.39	150.14	-505.57	-80.08	1,040.14	1,012.98	27.16	38.297		
3,800.00	3,702.31	3,648.02	3,595.60	17.03	14.81	149.96	-523.20	-78.84	1,071.85	1,043.91	27.94	38.356		
3,900.00	3,799.07	3,742.81	3,688.73	17.53	15.23	149.80	-540.83	-77.60	1,103.58	1,074.85	28.73	38.413		
4,000.00	3,895.83	3,837.60	3,781.86	18.02	15.65	149.64	-558.46	-76.36	1,135.31	1,105.80	29.51	38.466		
4,100.00	3,992.59	3,932.39	3,874.98	18.52	16.07	149.50	-576.08	-75.12	1,167.05	1,136.75	30.30	38.516		
4,200.00	4,089.34	4,027.17	3,968.11	19.02	16.49	149.36	-593.71	-73.88	1,198.80	1,167.71	31.09	38.564		
4,300.00	4,186.10	4,121.96	4,061.24	19.52	16.91	149.23	-611.34	-72.64	1,230.55	1,198.68	31.87	38.609		
4,399.99	4,282.85	4,216.74	4,154.35	20.01	17.33	149.10	-628.96	-71.39	1,262.30	1,229.65	32.66	38.651		
4,500.00	4,379.98	4,311.91	4,247.85	20.44	17.75	149.25	-646.66	-70.15	1,292.86	1,259.47	33.39	38.721		
4,600.00	4,477.86	4,428.36	4,362.47	20.78	18.17	149.30	-667.20	-68.70	1,320.10	1,285.96	34.14	38.669		
4,700.00	4,576.40	4,559.48	4,492.35	21.09	18.51	149.38	-684.99	-67.45	1,342.19	1,307.33	34.86	38.506		
4,800.00	4,675.48	4,692.84	4,625.16	21.38	18.84	149.51	-696.98	-66.60	1,358.83	1,323.29	35.54	38.238		
4,900.00	4,774.96	4,717.33	4,648.00	21.65	20.51	-173.03	131.73	-66.15	1,327.46	1,294.87	32.59	40.736		
5,000.00	4,874.74	4,818.18	4,748.00	21.89	20.51	-172.84	132.57	-66.15	1,278.32	1,244.45	33.87	37.737		
5,100.00	4,974.68	4,918.58	4,848.00	22.11	20.51	-172.69	132.97	-66.15	1,232.18	1,197.11	35.08	35.126		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	5,074.68	6,218.61	5,538.00	22.33	20.51	-90.00	133.01	-66.15	1,190.04	1,153.85	36.19	32.882		
5,300.00	5,174.68	6,218.61	5,538.00	22.57	20.51	-90.00	133.01	-66.15	1,154.79	1,117.62	37.17	31.065		
5,400.00	5,274.55	6,215.08	5,538.00	22.79	20.50	91.47	129.48	-66.15	1,127.35	1,089.41	37.95	29.709		
5,500.00	5,372.15	6,194.03	5,538.00	22.99	20.41	92.50	108.42	-66.15	1,108.57	1,070.18	38.39	28.879		
5,600.00	5,463.94	6,154.75	5,538.00	23.19	20.28	91.74	69.14	-66.15	1,098.50	1,059.99	38.51	28.528 SF		
5,691.58	5,540.03	6,103.99	5,538.00	23.35	20.11	89.83	18.38	-66.15	1,095.88	1,057.52	38.37	28.563		
5,700.00	5,546.55	6,098.67	5,538.00	23.37	20.09	89.61	13.06	-66.15	1,095.90	1,057.56	38.35	28.579		
5,800.00	5,616.95	6,027.87	5,538.00	23.55	19.93	86.73	-57.74	-66.15	1,098.55	1,060.46	38.09	28.844		
5,900.00	5,672.56	5,944.94	5,538.00	23.74	19.80	83.77	-140.67	-66.15	1,103.75	1,065.90	37.85	29.161		
6,000.00	5,711.31	5,865.54	5,536.64	23.95	19.73	81.50	-220.04	-66.15	1,109.21	1,071.48	37.74	29.393		
6,100.00	5,731.81	5,800.00	5,527.81	24.21	19.72	79.75	-284.93	-66.15	1,114.84	1,077.14	37.70	29.571		
6,200.00	5,735.00	5,730.01	5,509.47	24.52	19.73	78.36	-352.43	-66.15	1,120.54	1,082.78	37.76	29.679		
6,300.00	5,735.00	5,668.14	5,485.86	24.91	19.76	77.18	-409.58	-66.15	1,129.08	1,091.29	37.79	29.877		
6,400.00	5,735.00	5,612.63	5,459.04	25.38	19.80	75.85	-458.15	-66.15	1,141.69	1,103.92	37.77	30.228		
6,500.00	5,735.00	5,563.61	5,431.19	25.93	19.84	74.49	-498.45	-66.15	1,158.97	1,121.28	37.69	30.746		
6,600.00	5,735.00	5,520.74	5,403.80	26.55	19.87	73.17	-531.43	-66.15	1,181.38	1,143.81	37.58	31.437		
6,700.00	5,735.00	5,483.40	5,377.82	27.24	19.90	71.93	-558.23	-66.15	1,209.20	1,171.76	37.44	32.297		
6,800.00	5,735.00	5,450.00	5,353.00	27.99	19.92	70.76	-580.57	-66.15	1,242.50	1,205.22	37.29	33.322		
6,900.00	5,735.00	5,422.57	5,331.58	28.80	19.94	69.77	-597.70	-66.15	1,281.23	1,244.08	37.15	34.489		
7,000.00	5,735.00	5,400.00	5,313.30	29.67	19.95	68.93	-610.94	-66.15	1,325.17	1,288.13	37.04	35.780		
7,100.00	5,735.00	5,376.04	5,293.29	30.59	19.96	68.02	-624.11	-66.15	1,374.02	1,337.11	36.91	37.225		
7,200.00	5,735.00	5,350.00	5,270.87	31.56	19.96	67.02	-637.36	-66.15	1,427.51	1,390.74	36.77	38.820		
7,300.00	5,735.00	5,350.00	5,270.87	32.56	19.96	67.02	-637.36	-66.15	1,485.21	1,448.37	36.84	40.313		
7,400.00	5,735.00	5,324.67	5,248.46	33.60	19.96	66.03	-649.16	-66.15	1,546.59	1,509.87	36.72	42.119		





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-50.06	49.58	-59.21	77.23					
100.00	100.00	100.00	100.00	0.13	0.13	-50.06	49.58	-59.21	77.23	76.96	0.27	289.952		
200.00	200.00	200.00	200.00	0.47	0.47	-50.06	49.58	-59.21	77.23	76.29	0.94	82.101		
300.00	300.00	300.00	300.00	0.81	0.81	-50.06	49.58	-59.21	77.23	75.61	1.61	47.821		
400.00	399.98	402.42	402.39	1.13	1.12	-134.30	47.90	-58.49	76.85	74.55	2.30	33.469		
500.00	499.84	504.55	504.38	1.46	1.43	-139.16	42.87	-56.34	76.06	73.06	2.99	25.398		
561.84	561.48	567.45	567.06	1.67	1.63	-143.82	38.11	-54.30	75.81	72.37	3.43	22.076	CC	
600.00	599.45	606.13	605.54	1.80	1.76	-147.30	34.56	-52.78	75.95	72.25	3.69	20.555	ES	
700.00	698.70	706.88	705.51	2.15	2.09	-158.24	23.06	-47.87	78.29	73.93	4.36	17.940		
800.00	797.47	806.54	803.91	2.52	2.46	-170.64	8.51	-41.65	85.11	80.09	5.02	16.951	SF	
900.00	895.62	904.68	900.23	2.92	2.86	177.44	-8.78	-34.25	97.90	92.19	5.71	17.131		
1,000.00	993.06	1,001.36	994.93	3.34	3.26	168.39	-26.64	-26.62	117.20	110.73	6.47	18.101		
1,100.00	1,089.86	1,097.56	1,089.17	3.79	3.67	162.28	-44.41	-19.02	141.01	133.75	7.26	19.411		
1,200.00	1,186.61	1,193.72	1,183.37	4.26	4.09	157.99	-62.17	-11.42	166.06	158.01	8.05	20.632		
1,300.00	1,283.37	1,289.89	1,277.58	4.73	4.52	154.82	-79.94	-3.82	191.76	182.92	8.84	21.683		
1,400.00	1,380.13	1,386.05	1,371.78	5.20	4.94	152.40	-97.71	3.78	217.88	208.24	9.65	22.586		
1,500.00	1,476.89	1,482.22	1,465.99	5.68	5.37	150.50	-115.47	11.37	244.29	233.83	10.46	23.365		
1,600.00	1,573.64	1,578.39	1,560.19	6.17	5.80	148.97	-133.24	18.97	270.90	259.63	11.27	24.040		
1,700.00	1,670.40	1,674.55	1,654.39	6.65	6.23	147.72	-151.00	26.57	297.66	285.57	12.09	24.628		
1,800.00	1,767.16	1,770.72	1,748.60	7.14	6.66	146.67	-168.77	34.16	324.52	311.62	12.91	25.143		
1,900.00	1,863.92	1,866.88	1,842.80	7.63	7.10	145.78	-186.54	41.76	351.48	337.75	13.73	25.598		
2,000.00	1,960.68	1,963.05	1,937.01	8.12	7.53	145.01	-204.30	49.36	378.50	363.94	14.56	26.002		
2,100.00	2,057.43	2,059.22	2,031.21	8.61	7.97	144.35	-222.07	56.96	405.58	390.19	15.38	26.363		
2,200.00	2,154.19	2,155.38	2,125.42	9.10	8.40	143.77	-239.83	64.55	432.70	416.48	16.21	26.686		
2,300.00	2,250.95	2,251.55	2,219.62	9.59	8.84	143.26	-257.60	72.15	459.85	442.81	17.05	26.978		
2,400.00	2,347.71	2,347.71	2,313.83	10.09	9.27	142.81	-275.36	79.75	487.04	469.16	17.88	27.243		
2,500.00	2,444.46	2,443.88	2,408.03	10.58	9.71	142.40	-293.13	87.34	514.25	495.54	18.71	27.483		
2,600.00	2,541.22	2,540.05	2,502.24	11.08	10.15	142.04	-310.90	94.94	541.49	521.94	19.55	27.703		
2,700.00	2,637.98	2,636.21	2,596.44	11.57	10.59	141.71	-328.66	102.54	568.74	548.36	20.38	27.904		
2,800.00	2,734.74	2,732.38	2,690.65	12.06	11.02	141.41	-346.43	110.13	596.01	574.79	21.22	28.089		
2,900.00	2,831.49	2,828.54	2,784.85	12.56	11.46	141.13	-364.19	117.73	623.29	601.23	22.06	28.260		
3,000.00	2,928.25	2,924.71	2,879.06	13.06	11.90	140.88	-381.96	125.33	650.58	627.69	22.89	28.418		
3,100.00	3,025.01	3,020.87	2,973.26	13.55	12.34	140.65	-399.72	132.93	677.88	654.15	23.73	28.565		
3,200.00	3,121.77	3,117.04	3,067.47	14.05	12.78	140.44	-417.49	140.52	705.20	680.63	24.57	28.701		
3,300.00	3,218.52	3,213.21	3,161.67	14.54	13.21	140.24	-435.26	148.12	732.52	707.11	25.41	28.828		
3,400.00	3,315.28	3,309.37	3,255.88	15.04	13.65	140.06	-453.02	155.72	759.85	733.60	26.25	28.947		
3,500.00	3,412.04	3,405.54	3,350.08	15.54	14.09	139.89	-470.79	163.31	787.18	760.09	27.09	29.058		
3,600.00	3,508.80	3,501.70	3,444.29	16.03	14.53	139.73	-488.55	170.91	814.53	786.60	27.93	29.162		
3,700.00	3,605.56	3,597.87	3,538.49	16.53	14.97	139.58	-506.32	178.51	841.87	813.10	28.77	29.261		
3,800.00	3,702.31	3,694.04	3,632.69	17.03	15.41	139.44	-524.08	186.11	869.23	839.61	29.61	29.353		
3,900.00	3,799.07	3,790.20	3,726.90	17.53	15.85	139.31	-541.85	193.70	896.58	866.13	30.45	29.440		
4,000.00	3,895.83	3,886.37	3,821.10	18.02	16.29	139.19	-559.62	201.30	923.94	892.65	31.30	29.522		
4,100.00	3,992.59	3,982.53	3,915.31	18.52	16.73	139.08	-577.38	208.90	951.31	919.17	32.14	29.600		
4,200.00	4,089.34	4,078.70	4,009.51	19.02	17.17	138.97	-595.15	216.49	978.68	945.69	32.98	29.674		
4,300.00	4,186.10	4,174.86	4,103.72	19.52	17.60	138.86	-612.91	224.09	1,006.05	972.22	33.82	29.744		
4,399.99	4,282.85	4,271.02	4,197.91	20.01	18.04	138.77	-630.68	231.69	1,033.42	998.75	34.67	29.810		
4,500.00	4,379.98	4,367.47	4,292.40	20.44	18.48	138.95	-648.50	239.31	1,059.72	1,024.27	35.45	29.896		
4,600.00	4,477.86	4,479.29	4,402.23	20.78	18.84	139.03	-667.75	247.54	1,082.95	1,046.80	36.15	29.958		
4,700.00	4,576.40	4,595.91	4,517.55	21.09	19.16	139.14	-683.66	254.34	1,102.00	1,065.19	36.81	29.938		
4,800.00	4,675.48	4,713.84	4,634.79	21.38	19.46	139.27	-695.35	259.34	1,116.78	1,079.35	37.43	29.835		
4,900.00	4,774.96	6,298.90	5,606.00	21.65	20.78	-173.24	131.72	263.65	1,123.76	1,094.53	29.23	38.448		
5,000.00	4,874.74	6,299.74	5,606.00	21.89	20.79	-172.96	132.57	263.65	1,056.83	1,025.96	30.88	34.229		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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		Highside Toolface (°)	Offset Wellbore Centre		Distance		Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		+N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)			
5,100.00	4,974.68	6,300.14	5,606.00	22.11	20.79	-172.72	132.97	263.65	992.69	960.16	32.54	30.511	
5,200.00	5,074.68	6,300.18	5,606.00	22.33	20.79	-90.00	133.00	263.65	932.52	898.32	34.20	27.269	
5,300.00	5,174.68	6,300.18	5,606.00	22.57	20.79	-90.00	133.00	263.65	879.39	843.58	35.81	24.555	
5,400.00	5,274.55	6,296.65	5,606.00	22.79	20.78	92.75	129.47	263.65	834.95	797.69	37.26	22.412	
5,500.00	5,372.15	6,275.60	5,606.00	22.99	20.72	95.17	108.42	263.65	801.18	762.87	38.31	20.915	
5,600.00	5,463.94	6,236.31	5,606.00	23.19	20.60	94.97	69.14	263.65	779.26	740.41	38.85	20.060	
5,700.00	5,546.55	6,180.24	5,606.00	23.37	20.47	92.73	13.06	263.65	768.37	729.47	38.90	19.752	
5,786.17	5,608.05	6,120.01	5,606.00	23.52	20.37	89.80	-47.17	263.65	765.93	727.25	38.69	19.797	
5,800.00	5,616.95	6,109.43	5,606.00	23.55	20.35	89.28	-57.74	263.65	765.99	727.35	38.64	19.825	
5,900.00	5,672.56	6,026.50	5,606.00	23.74	20.30	85.56	-140.68	263.65	768.60	730.30	38.30	20.066	
6,000.00	5,711.31	5,942.68	5,604.46	23.95	20.31	82.55	-224.46	263.65	772.97	734.92	38.05	20.315	
6,100.00	5,731.81	5,867.10	5,593.21	24.21	20.36	80.03	-299.13	263.65	778.35	740.54	37.81	20.584	
6,200.00	5,735.00	5,800.00	5,574.27	24.52	20.42	78.14	-363.45	263.65	784.60	747.00	37.60	20.865	
6,300.00	5,735.00	5,727.98	5,544.94	24.91	20.49	76.05	-429.16	263.65	794.54	757.24	37.30	21.301	
6,400.00	5,735.00	5,669.51	5,514.63	25.38	20.56	73.93	-479.13	263.65	809.94	773.10	36.83	21.990	
6,500.00	5,735.00	5,618.81	5,483.97	25.93	20.61	71.83	-519.48	263.65	831.68	795.42	36.26	22.934	
6,600.00	5,735.00	5,575.22	5,454.57	26.55	20.65	69.86	-551.65	263.65	860.33	824.66	35.67	24.119	
6,700.00	5,735.00	5,537.84	5,427.29	27.24	20.68	68.08	-577.20	263.65	896.04	860.92	35.12	25.517	
6,800.00	5,735.00	5,500.00	5,397.89	27.99	20.70	66.21	-601.00	263.65	938.67	904.09	34.58	27.144	
6,900.00	5,735.00	5,478.06	5,380.07	28.80	20.71	65.10	-613.81	263.65	987.70	953.40	34.30	28.798	
7,000.00	5,735.00	5,450.00	5,356.53	29.67	20.72	63.66	-629.07	263.65	1,042.68	1,008.67	34.01	30.661	
7,100.00	5,735.00	5,433.21	5,342.06	30.59	20.72	62.80	-637.59	263.65	1,102.89	1,068.95	33.93	32.503	
7,200.00	5,735.00	5,400.00	5,312.68	31.56	20.73	61.08	-653.04	263.65	1,168.01	1,134.32	33.69	34.668	
7,300.00	5,735.00	5,400.00	5,312.68	32.56	20.73	61.08	-653.04	263.65	1,236.66	1,202.73	33.94	36.439	
7,400.00	5,735.00	5,400.00	5,312.68	33.60	20.73	61.08	-653.04	263.65	1,309.36	1,275.17	34.19	38.291	
7,500.00	5,735.00	5,371.75	5,286.94	34.67	20.72	59.63	-664.69	263.65	1,384.54	1,350.42	34.12	40.573	
7,600.00	5,735.00	5,350.00	5,266.72	35.77	20.71	58.51	-672.70	263.65	1,462.75	1,428.60	34.15	42.829	
7,700.00	5,735.00	5,350.00	5,266.72	36.90	20.71	58.51	-672.70	263.65	1,542.99	1,508.56	34.43	44.812	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-76.66	49.60	-209.16	214.95					
100.00	100.00	100.00	100.00	0.13	0.13	-76.66	49.60	-209.16	214.95	214.69	0.27	807.045		
200.00	200.00	200.00	200.00	0.47	0.47	-76.66	49.60	-209.16	214.95	214.01	0.94	228.518		
300.00	300.00	300.00	300.00	0.81	0.81	-76.66	49.60	-209.16	214.95	213.34	1.61	133.104 CC, ES		
400.00	399.98	399.04	399.02	1.13	1.11	-159.90	47.99	-209.74	216.80	214.57	2.24	96.965		
500.00	499.84	497.55	497.39	1.46	1.40	-161.62	43.20	-211.50	222.49	219.64	2.86	77.929		
600.00	599.45	595.04	594.52	1.80	1.72	-164.28	35.34	-214.37	232.39	228.88	3.52	66.080		
700.00	698.70	691.01	689.79	2.15	2.04	-167.58	24.58	-218.32	247.02	242.81	4.21	58.618		
800.00	797.47	785.01	782.70	2.52	2.38	-171.23	11.13	-223.24	266.87	261.93	4.94	54.014		
900.00	895.62	877.99	874.12	2.92	2.74	-174.97	-4.77	-229.06	292.22	286.55	5.68	51.479		
1,000.00	993.06	971.72	966.17	3.34	3.12	-178.32	-21.35	-235.14	322.28	315.88	6.40	50.357		
1,100.00	1,089.86	1,064.61	1,057.40	3.79	3.51	178.87	-37.78	-241.15	355.74	348.63	7.11	50.047		
1,200.00	1,186.61	1,157.44	1,148.56	4.26	3.90	176.54	-54.21	-247.17	390.01	382.22	7.78	50.109		
1,300.00	1,283.37	1,250.27	1,239.73	4.73	4.30	174.58	-70.63	-253.18	424.77	416.30	8.47	50.171		
1,400.00	1,380.13	1,343.10	1,330.90	5.20	4.70	172.91	-87.05	-259.19	459.91	450.75	9.15	50.251		
1,500.00	1,476.89	1,435.93	1,422.07	5.68	5.10	171.47	-103.47	-265.21	495.34	485.50	9.84	50.330		
1,600.00	1,573.64	1,528.76	1,513.24	6.17	5.51	170.23	-119.89	-271.22	531.02	520.48	10.54	50.403		
1,700.00	1,670.40	1,621.59	1,604.41	6.65	5.91	169.14	-136.31	-277.23	566.89	555.66	11.23	50.468		
1,800.00	1,767.16	1,714.42	1,695.57	7.14	6.32	168.18	-152.73	-283.25	602.92	590.98	11.93	50.525		
1,900.00	1,863.92	1,807.25	1,786.74	7.63	6.72	167.32	-169.15	-289.26	639.08	626.44	12.64	50.574		
2,000.00	1,960.68	1,900.08	1,877.91	8.12	7.13	166.56	-185.57	-295.27	675.35	662.01	13.34	50.616		
2,100.00	2,057.43	1,992.91	1,969.08	8.61	7.54	165.88	-202.00	-301.28	711.71	697.66	14.05	50.652		
2,200.00	2,154.19	2,085.74	2,060.25	9.10	7.95	165.26	-218.42	-307.30	748.16	733.40	14.76	50.682		
2,300.00	2,250.95	2,178.57	2,151.42	9.59	8.36	164.70	-234.84	-313.31	784.68	769.20	15.47	50.707		
2,400.00	2,347.71	2,271.40	2,242.59	10.09	8.77	164.18	-251.26	-319.32	821.25	805.06	16.19	50.729		
2,500.00	2,444.46	2,364.24	2,333.75	10.58	9.18	163.72	-267.68	-325.34	857.88	840.97	16.91	50.746		
2,600.00	2,541.22	2,457.07	2,424.92	11.08	9.59	163.29	-284.10	-331.35	894.55	876.93	17.62	50.761		
2,700.00	2,637.98	2,549.90	2,516.09	11.57	10.00	162.89	-300.52	-337.36	931.26	912.92	18.34	50.773		
2,800.00	2,734.74	2,642.73	2,607.26	12.06	10.41	162.52	-316.94	-343.38	968.01	948.95	19.06	50.783		
2,900.00	2,831.49	2,735.56	2,698.43	12.56	10.82	162.18	-333.37	-349.39	1,004.79	985.01	19.78	50.792		
3,000.00	2,928.25	2,828.39	2,789.60	13.06	11.23	161.87	-349.79	-355.40	1,041.60	1,021.10	20.50	50.798		
3,100.00	3,025.01	2,921.22	2,880.76	13.55	11.64	161.57	-366.21	-361.42	1,078.44	1,057.21	21.23	50.803		
3,200.00	3,121.77	3,014.05	2,971.93	14.05	12.06	161.30	-382.63	-367.43	1,115.29	1,093.34	21.95	50.807		
3,300.00	3,218.52	3,106.88	3,063.10	14.54	12.47	161.04	-399.05	-373.44	1,152.17	1,129.50	22.68	50.810		
3,400.00	3,315.28	3,199.71	3,154.27	15.04	12.88	160.80	-415.47	-379.46	1,189.07	1,165.67	23.40	50.812		
3,500.00	3,412.04	3,292.54	3,245.44	15.54	13.29	160.57	-431.89	-385.47	1,225.99	1,201.86	24.13	50.813		
3,600.00	3,508.80	3,385.37	3,336.61	16.03	13.70	160.36	-448.31	-391.48	1,262.92	1,238.06	24.85	50.813		
3,700.00	3,605.56	3,478.20	3,427.78	16.53	14.11	160.16	-464.73	-397.50	1,299.86	1,274.28	25.58	50.813		
3,800.00	3,702.31	3,571.03	3,518.94	17.03	14.53	159.97	-481.16	-403.51	1,336.82	1,310.51	26.31	50.812		
3,900.00	3,799.07	3,663.86	3,610.11	17.53	14.94	159.79	-497.58	-409.52	1,373.79	1,346.75	27.04	50.811		
4,000.00	3,895.83	3,756.69	3,701.28	18.02	15.35	159.62	-514.00	-415.54	1,410.77	1,383.00	27.77	50.809		
4,100.00	3,992.59	3,849.52	3,792.45	18.52	15.76	159.45	-530.42	-421.55	1,447.76	1,419.27	28.50	50.807		
4,200.00	4,089.34	3,942.35	3,883.62	19.02	16.18	159.30	-546.84	-427.56	1,484.76	1,455.54	29.22	50.805		
4,300.00	4,186.10	4,035.18	3,974.79	19.52	16.59	159.15	-563.26	-433.58	1,521.77	1,491.82	29.95	50.802		
5,600.00	5,463.94	6,340.53	5,735.00	23.19	20.86	94.31	54.96	-491.21	1,545.09	1,506.42	38.67	39.959		
5,700.00	5,546.55	6,284.46	5,735.00	23.37	20.73	94.01	-1.10	-490.68	1,532.11	1,493.20	38.91	39.376		
5,800.00	5,616.95	6,213.66	5,735.00	23.55	20.62	93.02	-71.90	-490.03	1,524.23	1,485.15	39.07	39.009		
5,900.00	5,672.56	6,130.74	5,735.00	23.74	20.57	91.76	-154.82	-489.25	1,519.97	1,480.72	39.25	38.726		
6,000.00	5,711.31	6,035.97	5,730.42	23.95	20.57	90.46	-249.38	-488.37	1,517.74	1,478.24	39.50	38.424		
6,100.00	5,731.81	5,945.22	5,710.65	24.21	20.63	89.16	-337.83	-487.55	1,516.64	1,476.81	39.83	38.080		
6,145.43	5,735.69	5,906.29	5,697.51	24.34	20.66	88.55	-374.47	-487.21	1,516.51	1,476.51	40.00	37.915		
6,200.00	5,735.00	5,860.78	5,678.74	24.52	20.71	87.87	-415.91	-486.82	1,516.63	1,476.43	40.20	37.729		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 30-T10N-R57W - Horsetail #30E-1934 - Hz - APD												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												<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	
6,300.00	5,735.00	5,787.42	5,641.09	24.91	20.78	86.45	-478.80	-486.24	1,518.48	1,477.90	40.58	37.419	
6,400.00	5,735.00	5,726.07	5,603.08	25.38	20.84	85.02	-526.91	-485.79	1,523.27	1,482.33	40.94	37.208	
6,500.00	5,735.00	5,675.32	5,567.53	25.93	20.88	83.69	-563.10	-485.45	1,531.84	1,490.58	41.26	37.124 SF	
6,600.00	5,735.00	5,633.38	5,535.62	26.55	20.90	82.50	-590.29	-485.20	1,544.80	1,503.25	41.55	37.179	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-71.61	49.59	-149.18	157.20					
100.00	100.00	100.00	100.00	0.13	0.13	-71.61	49.59	-149.18	157.20	156.94	0.27	590.224		
200.00	200.00	200.00	200.00	0.47	0.47	-71.61	49.59	-149.18	157.20	156.26	0.94	167.124		
300.00	300.00	300.00	300.00	0.81	0.81	-71.61	49.59	-149.18	157.20	155.59	1.61	97.344 CC, ES		
400.00	399.98	401.09	401.07	1.13	1.11	-155.15	47.82	-149.37	158.43	156.18	2.24	70.709		
500.00	499.84	501.72	501.55	1.46	1.41	-157.74	42.54	-149.95	162.31	159.46	2.86	56.819		
600.00	599.45	601.44	600.88	1.80	1.74	-161.74	33.85	-150.90	169.49	165.98	3.51	48.303		
700.00	698.70	699.81	698.51	2.15	2.06	-166.69	21.91	-152.21	180.79	176.60	4.19	43.115		
800.00	797.47	796.43	793.95	2.52	2.41	-172.10	6.95	-153.85	197.05	192.14	4.91	40.111		
900.00	895.62	892.32	888.39	2.92	2.79	-177.17	-9.55	-155.65	218.57	212.92	5.65	38.671		
1,000.00	993.06	987.36	982.00	3.34	3.17	178.65	-25.90	-157.45	244.88	238.48	6.39	38.315		
1,100.00	1,089.86	1,081.68	1,074.90	3.79	3.55	175.31	-42.13	-159.22	274.74	267.62	7.12	38.587		
1,200.00	1,186.61	1,175.95	1,167.74	4.26	3.94	172.63	-58.35	-161.00	305.46	297.63	7.82	39.047		
1,300.00	1,283.37	1,270.22	1,260.59	4.73	4.33	170.44	-74.56	-162.78	336.68	328.15	8.53	39.463		
1,400.00	1,380.13	1,364.49	1,353.44	5.20	4.73	168.61	-90.78	-164.55	368.28	359.04	9.24	39.837		
1,500.00	1,476.89	1,458.76	1,446.28	5.68	5.12	167.07	-107.00	-166.33	400.17	390.21	9.96	40.168		
1,600.00	1,573.64	1,553.03	1,539.13	6.17	5.52	165.76	-123.22	-168.10	432.28	421.60	10.68	40.460		
1,700.00	1,670.40	1,647.30	1,631.98	6.65	5.92	164.63	-139.44	-169.88	464.57	453.16	11.41	40.717		
1,800.00	1,767.16	1,741.56	1,724.82	7.14	6.32	163.64	-155.65	-171.66	497.00	484.86	12.14	40.944		
1,900.00	1,863.92	1,835.83	1,817.67	7.63	6.72	162.78	-171.87	-173.43	529.55	516.68	12.87	41.145		
2,000.00	1,960.68	1,930.10	1,910.52	8.12	7.12	162.01	-188.09	-175.21	562.19	548.58	13.60	41.323		
2,100.00	2,057.43	2,024.37	2,003.36	8.61	7.53	161.33	-204.31	-176.99	594.91	580.57	14.34	41.482		
2,200.00	2,154.19	2,118.64	2,096.21	9.10	7.93	160.72	-220.53	-178.76	627.70	612.62	15.08	41.625		
2,300.00	2,250.95	2,212.91	2,189.05	9.59	8.33	160.17	-236.74	-180.54	660.55	644.73	15.82	41.752		
2,400.00	2,347.71	2,307.18	2,281.90	10.09	8.74	159.67	-252.96	-182.31	693.45	676.89	16.56	41.868		
2,500.00	2,444.46	2,401.45	2,374.75	10.58	9.14	159.21	-269.18	-184.09	726.39	709.08	17.31	41.972		
2,600.00	2,541.22	2,495.72	2,467.59	11.08	9.54	158.80	-285.40	-185.87	759.37	741.32	18.05	42.067		
2,700.00	2,637.98	2,589.99	2,560.44	11.57	9.95	158.42	-301.61	-187.64	792.38	773.58	18.80	42.153		
2,800.00	2,734.74	2,684.26	2,653.29	12.06	10.35	158.07	-317.83	-189.42	825.42	805.87	19.54	42.232		
2,900.00	2,831.49	2,778.52	2,746.13	12.56	10.76	157.75	-334.05	-191.20	858.48	838.19	20.29	42.305		
3,000.00	2,928.25	2,872.79	2,838.98	13.06	11.16	157.45	-350.27	-192.97	891.57	870.53	21.04	42.371		
3,100.00	3,025.01	2,967.06	2,931.83	13.55	11.57	157.17	-366.49	-194.75	924.68	902.89	21.79	42.433		
3,200.00	3,121.77	3,061.33	3,024.67	14.05	11.97	156.91	-382.70	-196.53	957.80	935.26	22.54	42.490		
3,300.00	3,218.52	3,155.60	3,117.52	14.54	12.38	156.67	-398.92	-198.30	990.94	967.65	23.29	42.542		
3,400.00	3,315.28	3,249.87	3,210.37	15.04	12.78	156.45	-415.14	-200.08	1,024.10	1,000.05	24.04	42.591		
3,500.00	3,412.04	3,344.14	3,303.21	15.54	13.19	156.23	-431.36	-201.85	1,057.27	1,032.47	24.80	42.637		
3,600.00	3,508.80	3,438.41	3,396.06	16.03	13.59	156.04	-447.58	-203.63	1,090.45	1,064.90	25.55	42.679		
3,700.00	3,605.56	3,532.68	3,488.91	16.53	14.00	155.85	-463.79	-205.41	1,123.64	1,097.34	26.30	42.719		
3,800.00	3,702.31	3,626.95	3,581.75	17.03	14.40	155.67	-480.01	-207.18	1,156.84	1,129.79	27.06	42.756		
3,900.00	3,799.07	3,721.22	3,674.60	17.53	14.81	155.51	-496.23	-208.96	1,190.06	1,162.25	27.81	42.791		
4,000.00	3,895.83	3,815.49	3,767.45	18.02	15.21	155.35	-512.45	-210.74	1,223.28	1,194.71	28.57	42.823		
4,100.00	3,992.59	3,909.75	3,860.29	18.52	15.62	155.20	-528.67	-212.51	1,256.50	1,227.18	29.32	42.854		
4,200.00	4,089.34	4,004.02	3,953.14	19.02	16.02	155.06	-544.88	-214.29	1,289.74	1,259.66	30.08	42.883		
4,300.00	4,186.10	4,098.29	4,045.99	19.52	16.43	154.92	-561.10	-216.06	1,322.98	1,292.15	30.83	42.910		
4,399.99	4,282.85	4,192.55	4,138.83	20.01	16.84	154.80	-577.32	-217.84	1,356.22	1,324.64	31.59	42.936		
4,500.00	4,379.98	4,287.24	4,232.09	20.44	17.24	154.91	-593.61	-219.62	1,388.21	1,355.92	32.29	42.991		
4,600.00	4,477.86	4,382.82	4,326.22	20.78	17.66	154.96	-610.05	-221.43	1,417.21	1,384.27	32.94	43.030		
4,700.00	4,576.40	4,479.18	4,421.13	21.09	18.07	154.93	-626.63	-223.24	1,443.18	1,409.60	33.58	42.976		
4,800.00	4,675.48	4,576.21	4,516.69	21.38	18.49	154.82	-643.32	-225.07	1,466.13	1,431.90	34.23	42.837		
4,900.00	4,774.96	4,678.52	4,617.46	21.65	18.92	154.62	-660.89	-226.99	1,486.02	1,451.12	34.90	42.585		
5,000.00	4,874.74	4,825.56	4,762.98	21.89	19.32	154.28	-681.75	-229.28	1,500.98	1,465.27	35.70	42.040		
5,100.00	4,974.68	4,974.99	4,911.77	22.11	19.68	154.03	-695.32	-230.76	1,509.59	1,473.14	36.45	41.420		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	5,074.68	6,494.15	5,820.00	22.33	21.39	-90.00	133.01	-231.43	1,465.16	1,430.17	34.99	41.876		
5,300.00	5,174.68	6,494.15	5,820.00	22.57	21.39	-90.00	133.01	-231.43	1,416.91	1,380.78	36.13	39.222		
5,400.00	5,274.55	6,490.62	5,820.00	22.79	21.38	92.75	129.48	-231.43	1,374.30	1,337.12	37.18	36.961		
5,500.00	5,372.15	6,469.57	5,820.00	22.99	21.30	96.03	108.42	-231.43	1,338.52	1,300.47	38.05	35.180		
5,600.00	5,463.94	6,430.28	5,820.00	23.19	21.17	97.60	69.14	-231.43	1,310.57	1,271.89	38.68	33.881		
5,700.00	5,546.55	6,374.21	5,820.00	23.37	21.00	97.78	13.07	-231.43	1,290.45	1,251.34	39.11	32.995		
5,800.00	5,616.95	6,303.40	5,820.00	23.55	20.83	97.02	-57.74	-231.43	1,277.23	1,237.84	39.39	32.425		
5,900.00	5,672.56	6,220.47	5,820.00	23.74	20.71	95.81	-140.67	-231.43	1,269.39	1,229.75	39.64	32.024		
6,000.00	5,711.31	6,115.02	5,815.86	23.95	20.64	94.31	-245.94	-231.43	1,264.98	1,225.04	39.94	31.671		
6,100.00	5,731.81	6,006.92	5,791.27	24.21	20.64	92.57	-351.02	-231.43	1,261.93	1,221.60	40.33	31.291		
6,200.00	5,735.00	5,909.59	5,751.02	24.52	20.69	90.73	-439.47	-231.43	1,260.26	1,219.54	40.72	30.948		
6,244.72	5,735.00	5,871.14	5,730.69	24.69	20.71	89.80	-472.10	-231.43	1,260.03	1,219.14	40.90	30.810		
6,300.00	5,735.00	5,828.41	5,705.34	24.91	20.74	88.65	-506.49	-231.43	1,260.47	1,219.40	41.06	30.696		
6,400.00	5,735.00	5,763.38	5,661.58	25.38	20.78	86.66	-554.53	-231.43	1,264.07	1,222.76	41.31	30.599 SF		
6,500.00	5,735.00	5,711.63	5,622.69	25.93	20.81	84.91	-588.65	-231.43	1,272.34	1,230.87	41.47	30.680		
6,600.00	5,735.00	5,670.22	5,589.26	26.55	20.82	83.40	-613.06	-231.43	1,286.08	1,244.53	41.56	30.946		
6,700.00	5,735.00	5,636.74	5,560.88	27.24	20.83	82.13	-630.81	-231.43	1,305.76	1,264.17	41.59	31.393		
6,800.00	5,735.00	5,600.00	5,528.49	27.99	20.83	80.69	-648.14	-231.43	1,331.58	1,290.03	41.55	32.049		
6,900.00	5,735.00	5,586.55	5,516.34	28.80	20.82	80.15	-653.91	-231.43	1,363.30	1,321.75	41.55	32.809		
7,000.00	5,735.00	5,567.42	5,498.82	29.67	20.81	79.38	-661.56	-231.43	1,400.89	1,359.39	41.49	33.761		
7,100.00	5,735.00	5,550.00	5,482.62	30.59	20.81	78.67	-667.98	-231.43	1,443.96	1,402.55	41.42	34.864		
7,200.00	5,735.00	5,550.00	5,482.62	31.56	20.81	78.67	-667.98	-231.43	1,492.28	1,450.87	41.42	36.031		
7,300.00	5,735.00	5,525.12	5,459.13	32.56	20.79	77.65	-676.19	-231.43	1,545.03	1,503.77	41.25	37.452		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-60.93	49.59	-89.20	102.06					
100.00	100.00	100.00	100.00	0.13	0.13	-60.93	49.59	-89.20	102.06	101.79	0.27	383.178		
200.00	200.00	200.00	200.00	0.47	0.47	-60.93	49.59	-89.20	102.06	101.12	0.94	108.499 CC		
300.00	300.00	300.00	300.00	0.81	0.81	-60.93	49.59	-89.20	102.06	100.44	1.61	63.197		
400.00	399.98	402.44	402.42	1.13	1.12	-144.91	47.82	-88.75	102.27	100.00	2.27	45.012 ES		
500.00	499.84	504.53	504.36	1.46	1.42	-148.87	42.51	-87.43	103.22	100.29	2.93	35.228		
600.00	599.45	605.95	605.37	1.80	1.75	-155.18	33.76	-85.24	105.85	102.25	3.60	29.400		
700.00	698.70	706.37	705.01	2.15	2.09	-163.26	21.68	-82.23	111.54	107.27	4.27	26.119		
800.00	797.47	805.49	802.87	2.52	2.45	-172.18	6.44	-78.42	121.71	116.75	4.96	24.556		
900.00	895.62	902.62	898.38	2.92	2.83	-179.53	-10.69	-74.14	137.53	131.86	5.68	24.227		
1,000.00	993.06	998.89	993.04	3.34	3.23	-173.10	-27.74	-69.88	159.04	152.61	6.43	24.724		
1,100.00	1,089.86	1,094.60	1,087.14	3.79	3.63	-168.37	-44.68	-65.65	184.56	177.37	7.20	25.647		
1,200.00	1,186.61	1,190.27	1,181.20	4.26	4.03	-164.82	-61.62	-61.42	211.15	203.20	7.95	26.573		
1,300.00	1,283.37	1,285.93	1,275.26	4.73	4.43	-162.06	-78.56	-57.19	238.32	229.62	8.70	27.381		
1,400.00	1,380.13	1,381.60	1,369.32	5.20	4.84	-159.87	-95.50	-52.96	265.90	256.43	9.47	28.083		
1,500.00	1,476.89	1,477.27	1,463.38	5.68	5.25	-158.08	-112.44	-48.72	293.78	283.54	10.24	28.692		
1,600.00	1,573.64	1,572.94	1,557.44	6.17	5.66	-156.61	-129.38	-44.49	321.88	310.87	11.01	29.223		
1,700.00	1,670.40	1,668.60	1,651.50	6.65	6.08	-155.37	-146.32	-40.26	350.15	338.35	11.79	29.688		
1,800.00	1,767.16	1,764.27	1,745.56	7.14	6.49	-154.31	-163.26	-36.03	378.54	365.96	12.58	30.097		
1,900.00	1,863.92	1,859.94	1,839.62	7.63	6.91	-153.40	-180.20	-31.80	407.04	393.67	13.36	30.459		
2,000.00	1,960.68	1,955.61	1,933.68	8.12	7.32	-152.62	-197.14	-27.57	435.62	421.46	14.15	30.782		
2,100.00	2,057.43	2,051.28	2,027.75	8.61	7.74	-151.92	-214.08	-23.34	464.26	449.32	14.94	31.070		
2,200.00	2,154.19	2,146.94	2,121.81	9.10	8.16	-151.31	-231.02	-19.11	492.96	477.22	15.73	31.329		
2,300.00	2,250.95	2,242.61	2,215.87	9.59	8.57	-150.77	-247.96	-14.87	521.71	505.18	16.53	31.563		
2,400.00	2,347.71	2,338.28	2,309.93	10.09	8.99	-150.28	-264.90	-10.64	550.49	533.16	17.32	31.775		
2,500.00	2,444.46	2,433.95	2,403.99	10.58	9.41	-149.84	-281.84	-6.41	579.31	561.19	18.12	31.968		
2,600.00	2,541.22	2,529.61	2,498.05	11.08	9.83	-149.44	-298.78	-2.18	608.15	589.23	18.92	32.144		
2,700.00	2,637.98	2,625.28	2,592.11	11.57	10.25	-149.08	-315.72	2.05	637.02	617.30	19.72	32.306		
2,800.00	2,734.74	2,720.95	2,686.17	12.06	10.66	-148.75	-332.66	6.28	665.92	645.40	20.52	32.454		
2,900.00	2,831.49	2,816.62	2,780.23	12.56	11.08	-148.45	-349.60	10.51	694.83	673.51	21.32	32.592		
3,000.00	2,928.25	2,912.29	2,874.29	13.06	11.50	-148.17	-366.54	14.74	723.75	701.63	22.12	32.718		
3,100.00	3,025.01	3,007.95	2,968.35	13.55	11.92	-147.91	-383.48	18.98	752.69	729.77	22.92	32.836		
3,200.00	3,121.77	3,103.62	3,062.42	14.05	12.34	-147.67	-400.42	23.21	781.65	757.92	23.73	32.946		
3,300.00	3,218.52	3,199.29	3,156.48	14.54	12.76	-147.45	-417.36	27.44	810.61	786.08	24.53	33.048		
3,400.00	3,315.28	3,294.96	3,250.54	15.04	13.18	-147.24	-434.30	31.67	839.59	814.26	25.33	33.143		
3,500.00	3,412.04	3,390.62	3,344.60	15.54	13.60	-147.05	-451.24	35.90	868.57	842.44	26.14	33.233		
3,600.00	3,508.80	3,486.29	3,438.66	16.03	14.02	-146.87	-468.18	40.13	897.57	870.63	26.94	33.316		
3,700.00	3,605.56	3,581.96	3,532.72	16.53	14.44	-146.70	-485.12	44.36	926.57	898.82	27.75	33.395		
3,800.00	3,702.31	3,677.63	3,626.78	17.03	14.86	-146.54	-502.06	48.60	955.58	927.03	28.55	33.469		
3,900.00	3,799.07	3,773.29	3,720.84	17.53	15.28	-146.40	-519.00	52.83	984.59	955.24	29.36	33.539		
4,000.00	3,895.83	3,868.96	3,814.90	18.02	15.70	-146.25	-535.94	57.06	1,013.61	983.45	30.16	33.605		
4,100.00	3,992.59	3,964.63	3,908.96	18.52	16.12	-146.12	-552.88	61.29	1,042.64	1,011.67	30.97	33.668		
4,200.00	4,089.34	4,060.30	4,003.03	19.02	16.54	-146.00	-569.82	65.52	1,071.67	1,039.89	31.77	33.727		
4,300.00	4,186.10	4,155.97	4,097.09	19.52	16.96	-145.88	-586.76	69.75	1,100.70	1,068.12	32.58	33.783		
4,399.99	4,282.85	4,251.63	4,191.14	20.01	17.38	-145.76	-603.69	73.98	1,129.74	1,096.35	33.39	33.836		
4,500.00	4,379.98	4,347.62	4,285.53	20.44	17.80	-145.91	-620.69	78.23	1,157.61	1,123.47	34.14	33.910		
4,600.00	4,477.86	4,444.30	4,380.58	20.78	18.23	-145.96	-637.81	82.50	1,182.71	1,147.89	34.82	33.967		
4,700.00	4,576.40	4,541.54	4,476.19	21.09	18.65	-145.89	-655.03	86.81	1,205.03	1,169.53	35.50	33.946		
4,800.00	4,675.48	4,639.49	4,592.46	21.38	19.03	-145.69	-674.15	91.58	1,223.89	1,187.67	36.22	33.793		
4,900.00	4,774.96	4,738.88	4,714.87	21.65	19.35	-145.54	-689.21	95.34	1,238.02	1,201.14	36.88	33.570		
5,000.00	4,874.74	4,839.61	4,839.16	21.89	19.65	-145.43	-699.22	97.84	1,247.32	1,209.82	37.50	33.262		
5,100.00	4,974.68	4,939.32	4,939.00	22.11	21.20	-172.72	132.97	99.14	1,201.70	1,169.09	32.61	36.851		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-1936 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
5,200.00	5,074.68	6,417.35	5,735.00	22.33	21.20	-90.00	133.00	99.14	1,141.28	1,107.21	34.07	33.502					
5,300.00	5,174.68	6,417.35	5,735.00	22.57	21.20	-90.00	133.00	99.14	1,086.49	1,050.98	35.51	30.599					
5,400.00	5,274.55	6,413.82	5,735.00	22.79	21.19	93.16	129.47	99.14	1,038.51	1,001.65	36.86	28.175					
5,500.00	5,372.15	6,392.77	5,735.00	22.99	21.11	96.62	108.42	99.14	999.03	961.07	37.96	26.319					
5,600.00	5,463.94	6,353.49	5,735.00	23.19	20.98	97.84	69.14	99.14	969.38	930.63	38.74	25.020					
5,700.00	5,546.55	6,297.41	5,735.00	23.37	20.81	97.26	13.06	99.14	949.47	910.28	39.19	24.229					
5,800.00	5,616.95	6,226.61	5,735.00	23.55	20.67	95.52	-57.74	99.14	937.88	898.47	39.41	23.799					
5,900.00	5,672.56	6,143.68	5,735.00	23.74	20.56	93.32	-140.67	99.14	932.32	892.80	39.52	23.589					
6,000.00	5,711.31	6,049.48	5,732.46	23.95	20.51	91.17	-234.79	99.14	930.26	890.59	39.67	23.450					
6,069.16	5,727.49	5,984.74	5,722.09	24.12	20.51	89.66	-298.65	99.14	929.87	890.07	39.80	23.363					
6,100.00	5,731.81	5,956.82	5,715.19	24.21	20.52	89.00	-325.69	99.14	929.95	890.10	39.85	23.337					
6,200.00	5,735.00	5,870.39	5,684.81	24.52	20.57	86.91	-406.51	99.14	931.21	891.22	40.00	23.283 SF					
6,300.00	5,735.00	5,794.90	5,647.67	24.91	20.63	84.63	-472.15	99.14	935.23	895.20	40.03	23.366					
6,400.00	5,735.00	5,731.57	5,609.45	25.38	20.67	82.31	-522.61	99.14	943.70	903.81	39.89	23.656					
6,500.00	5,735.00	5,679.12	5,573.37	25.93	20.71	80.13	-560.63	99.14	957.96	918.34	39.62	24.179					
6,600.00	5,735.00	5,635.81	5,540.80	26.55	20.74	78.20	-589.17	99.14	978.88	939.63	39.25	24.937					
6,700.00	5,735.00	5,600.00	5,512.16	27.24	20.75	76.51	-610.65	99.14	1,006.85	968.00	38.85	25.918					
6,800.00	5,735.00	5,569.90	5,486.99	27.99	20.76	75.05	-627.16	99.14	1,041.88	1,003.45	38.44	27.107					
6,900.00	5,735.00	5,550.00	5,469.85	28.80	20.76	74.07	-637.26	99.14	1,083.72	1,045.62	38.11	28.440					
7,000.00	5,735.00	5,523.15	5,446.13	29.67	20.76	72.73	-649.84	99.14	1,131.82	1,094.09	37.73	29.999					
7,100.00	5,735.00	5,500.00	5,425.18	30.59	20.75	71.56	-659.69	99.14	1,185.71	1,148.30	37.41	31.695					
7,200.00	5,735.00	5,500.00	5,425.18	31.56	20.75	71.56	-659.69	99.14	1,244.83	1,207.48	37.35	33.331					
7,300.00	5,735.00	5,474.86	5,401.96	32.56	20.74	70.28	-669.32	99.14	1,308.26	1,271.18	37.07	35.288					
7,400.00	5,735.00	5,450.00	5,378.57	33.60	20.73	69.01	-677.73	99.14	1,375.98	1,339.15	36.83	37.357					
7,500.00	5,735.00	5,450.00	5,378.57	34.67	20.73	69.01	-677.73	99.14	1,446.86	1,410.00	36.86	39.250					
7,600.00	5,735.00	5,450.00	5,378.57	35.77	20.73	69.01	-677.73	99.14	1,521.02	1,484.11	36.90	41.215					





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-119.96	119.96					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.01	-119.96	119.96	119.69	0.27	450.376		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.01	-119.96	119.96	119.02	0.94	127.526		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.01	-119.96	119.96	118.34	1.61	74.279 CC		
400.00	399.98	403.99	403.97	1.13	1.15	-172.39	0.76	-118.23	120.02	117.69	2.33	51.455		
500.00	499.84	507.96	507.78	1.46	1.50	-171.65	3.01	-113.03	120.24	117.14	3.09	38.890 ES		
600.00	599.45	608.83	608.32	1.80	1.84	-170.68	6.21	-105.65	121.61	117.87	3.75	32.470		
700.00	698.70	708.70	707.87	2.15	2.18	-169.99	9.41	-98.25	126.37	121.99	4.39	28.811		
800.00	797.47	808.35	807.20	2.52	2.52	-169.61	12.61	-90.87	134.57	129.53	5.04	26.683		
900.00	895.62	907.67	906.19	2.92	2.86	-169.52	15.80	-83.52	146.19	140.48	5.71	25.598		
1,000.00	993.06	1,006.53	1,004.73	3.34	3.21	-169.64	18.97	-76.19	161.22	154.83	6.38	25.251		
1,100.00	1,089.86	1,104.96	1,102.84	3.79	3.55	-169.93	22.13	-68.90	178.84	171.78	7.06	25.337		
1,200.00	1,186.61	1,203.36	1,200.92	4.26	3.90	-170.19	25.29	-61.62	196.63	188.91	7.72	25.472		
1,300.00	1,283.37	1,301.76	1,299.00	4.73	4.24	-170.40	28.45	-54.33	214.42	206.04	8.38	25.575		
1,400.00	1,380.13	1,400.17	1,397.08	5.20	4.59	-170.59	31.61	-47.04	232.22	223.17	9.05	25.654		
1,500.00	1,476.89	1,498.57	1,495.16	5.68	4.93	-170.74	34.77	-39.75	250.02	240.29	9.72	25.716		
1,600.00	1,573.64	1,596.97	1,593.24	6.17	5.28	-170.88	37.92	-32.46	267.82	257.42	10.39	25.766		
1,700.00	1,670.40	1,695.37	1,691.32	6.65	5.62	-171.00	41.08	-25.17	285.62	274.55	11.07	25.806		
1,800.00	1,767.16	1,793.77	1,789.40	7.14	5.97	-171.11	44.24	-17.88	303.42	291.68	11.74	25.838		
1,900.00	1,863.92	1,892.17	1,887.48	7.63	6.32	-171.20	47.40	-10.60	321.22	308.81	12.42	25.865		
2,000.00	1,960.68	1,990.57	1,985.56	8.12	6.66	-171.28	50.56	-3.31	339.03	325.93	13.10	25.887		
2,100.00	2,057.43	2,088.97	2,083.64	8.61	7.01	-171.36	53.72	3.98	356.83	343.06	13.77	25.906		
2,200.00	2,154.19	2,187.37	2,181.72	9.10	7.36	-171.43	56.87	11.27	374.64	360.19	14.45	25.922		
2,300.00	2,250.95	2,285.78	2,279.80	9.59	7.70	-171.49	60.03	18.56	392.45	377.31	15.13	25.935		
2,400.00	2,347.71	2,384.18	2,377.88	10.09	8.05	-171.54	63.19	25.85	410.25	394.44	15.81	25.947		
2,500.00	2,444.46	2,482.58	2,475.96	10.58	8.40	-171.60	66.35	33.13	428.06	411.57	16.49	25.957		
2,600.00	2,541.22	2,580.98	2,574.04	11.08	8.74	-171.64	69.51	40.42	445.87	428.69	17.17	25.965		
2,700.00	2,637.98	2,679.38	2,672.12	11.57	9.09	-171.69	72.67	47.71	463.67	445.82	17.85	25.973		
2,800.00	2,734.74	2,777.78	2,770.20	12.06	9.44	-171.73	75.82	55.00	481.48	462.95	18.53	25.979		
2,900.00	2,831.49	2,876.18	2,868.28	12.56	9.78	-171.77	78.98	62.29	499.29	480.07	19.21	25.985		
3,000.00	2,928.25	2,974.58	2,966.36	13.06	10.13	-171.80	82.14	69.58	517.10	497.20	19.90	25.990		
3,100.00	3,025.01	3,072.98	3,064.44	13.55	10.48	-171.84	85.30	76.87	534.90	514.33	20.58	25.994		
3,200.00	3,121.77	3,171.39	3,162.52	14.05	10.82	-171.87	88.46	84.15	552.71	531.45	21.26	25.998		
3,300.00	3,218.52	3,269.79	3,260.60	14.54	11.17	-171.89	91.62	91.44	570.52	548.58	21.94	26.001		
3,400.00	3,315.28	3,368.19	3,358.68	15.04	11.52	-171.92	94.77	98.73	588.33	565.70	22.62	26.004		
3,500.00	3,412.04	3,466.59	3,456.76	15.54	11.87	-171.95	97.93	106.02	606.14	582.83	23.31	26.007		
3,600.00	3,508.80	3,564.99	3,554.84	16.03	12.21	-171.97	101.09	113.31	623.95	599.96	23.99	26.009		
3,700.00	3,605.56	3,663.39	3,652.92	16.53	12.56	-171.99	104.25	120.60	641.76	617.08	24.67	26.011		
3,800.00	3,702.31	3,761.79	3,751.00	17.03	12.91	-172.02	107.41	127.88	659.56	634.21	25.36	26.013		
3,900.00	3,799.07	3,860.19	3,849.08	17.53	13.25	-172.04	110.57	135.17	677.37	651.34	26.04	26.014		
4,000.00	3,895.83	3,958.59	3,947.16	18.02	13.60	-172.06	113.73	142.46	695.18	668.46	26.72	26.016		
4,100.00	3,992.59	4,057.00	4,045.24	18.52	13.95	-172.07	116.88	149.75	712.99	685.59	27.40	26.017		
4,200.00	4,089.34	4,155.40	4,143.32	19.02	14.30	-172.09	120.04	157.04	730.80	702.71	28.09	26.018		
4,300.00	4,186.10	4,253.80	4,241.40	19.52	14.64	-172.11	123.20	164.33	748.61	719.84	28.77	26.019		
4,399.99	4,282.85	4,352.19	4,339.47	20.01	14.99	-172.12	126.36	171.61	766.42	736.96	29.45	26.020		
4,500.00	4,379.98	4,450.85	4,437.80	20.44	15.34	-172.17	129.53	178.92	782.78	752.68	30.11	26.001		
4,600.00	4,477.86	4,550.00	4,536.63	20.78	15.69	-172.17	132.71	186.27	795.73	765.01	30.72	25.902		
4,700.00	4,576.40	4,639.25	4,625.62	21.09	15.98	-172.14	135.46	192.62	805.57	774.32	31.25	25.775		
4,800.00	4,675.48	4,718.42	4,704.67	21.38	16.22	-172.15	137.13	196.47	814.17	782.49	31.68	25.698		
4,900.00	4,774.96	4,800.00	4,786.22	21.65	16.42	-172.19	137.94	198.34	821.85	789.77	32.08	25.619		
5,000.00	4,874.74	4,888.52	4,874.74	21.89	16.67	-172.26	138.01	198.49	828.17	795.63	32.54	25.452		
5,100.00	4,974.68	4,988.46	4,974.68	22.11	16.97	-172.29	138.01	198.49	831.25	798.15	33.11	25.107		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	5,074.68	5,088.78	5,074.88	22.33	17.26	-89.88	134.78	198.49	831.51	797.83	33.67	24.693		
5,214.35	5,089.03	5,103.04	5,089.03	22.36	17.30	-90.00	133.00	198.49	831.51	797.76	33.75	24.638		
5,300.00	5,174.68	5,185.30	5,169.26	22.57	17.51	-91.22	115.26	198.49	831.71	797.56	34.15	24.355		
5,400.00	5,274.55	5,273.41	5,250.95	22.79	17.74	86.47	82.53	198.49	833.16	798.65	34.51	24.144		
5,500.00	5,372.15	5,356.82	5,322.17	22.99	17.95	84.31	39.27	198.49	835.82	801.04	34.77	24.036		
5,600.00	5,463.94	5,436.96	5,383.27	23.19	18.15	82.33	-12.47	198.49	839.24	804.27	34.97	23.997		
5,700.00	5,546.55	5,514.60	5,434.22	23.37	18.34	80.58	-70.95	198.49	842.98	807.85	35.13	23.997		
5,800.00	5,616.95	5,590.34	5,475.02	23.55	18.54	79.12	-134.69	198.49	846.60	811.32	35.28	23.998		
5,900.00	5,672.56	5,664.70	5,505.68	23.74	18.76	77.97	-202.36	198.49	849.71	814.24	35.47	23.957		
6,000.00	5,711.31	5,738.09	5,526.21	23.95	19.01	77.17	-272.76	198.49	851.98	816.24	35.74	23.836		
6,100.00	5,731.81	5,810.91	5,536.60	24.21	19.28	76.73	-344.77	198.49	853.19	817.05	36.14	23.607		
6,200.00	5,735.00	5,896.46	5,538.00	24.52	19.66	76.65	-430.29	198.49	853.26	816.42	36.84	23.160		
6,300.00	5,735.00	5,996.46	5,538.00	24.91	20.19	76.65	-530.29	198.49	853.03	815.12	37.92	22.498		
6,400.00	5,735.00	6,096.46	5,538.00	25.38	20.82	76.64	-630.29	198.49	852.81	813.64	39.17	21.771		
6,500.00	5,735.00	6,196.46	5,538.00	25.93	21.53	76.64	-730.29	198.49	852.58	811.99	40.59	21.004		
6,600.00	5,735.00	6,296.46	5,538.00	26.55	22.31	76.64	-830.29	198.49	852.36	810.20	42.16	20.218		
6,700.00	5,735.00	6,396.46	5,538.00	27.24	23.16	76.63	-930.29	198.49	852.13	808.27	43.86	19.429		
6,800.00	5,735.00	6,496.46	5,538.00	27.99	24.08	76.63	-1,030.29	198.49	851.91	806.23	45.68	18.651		
6,900.00	5,735.00	6,596.46	5,538.00	28.80	25.05	76.63	-1,130.29	198.49	851.68	804.08	47.60	17.893		
7,000.00	5,735.00	6,696.46	5,538.00	29.67	26.06	76.62	-1,230.29	198.49	851.46	801.85	49.61	17.162		
7,100.00	5,735.00	6,796.46	5,538.00	30.59	27.12	76.62	-1,330.29	198.49	851.23	799.53	51.71	16.463		
7,200.00	5,735.00	6,896.46	5,538.00	31.56	28.21	76.62	-1,430.29	198.49	851.01	797.14	53.87	15.797		
7,300.00	5,735.00	6,996.46	5,538.00	32.56	29.34	76.61	-1,530.29	198.49	850.78	794.68	56.10	15.165		
7,400.00	5,735.00	7,096.46	5,538.00	33.60	30.50	76.61	-1,630.29	198.49	850.56	792.17	58.39	14.568		
7,500.00	5,735.00	7,196.46	5,538.00	34.67	31.68	76.60	-1,730.29	198.49	850.33	789.61	60.72	14.004		
7,600.00	5,735.00	7,296.46	5,538.00	35.77	32.89	76.60	-1,830.29	198.48	850.11	787.01	63.10	13.472		
7,700.00	5,735.00	7,396.46	5,538.00	36.90	34.12	76.60	-1,930.29	198.48	849.88	784.36	65.52	12.971		
7,800.00	5,735.00	7,496.46	5,538.00	38.06	35.37	76.59	-2,030.29	198.48	849.66	781.68	67.97	12.500		
7,900.00	5,735.00	7,596.46	5,538.00	39.23	36.63	76.59	-2,130.29	198.48	849.43	778.97	70.46	12.056		
8,000.00	5,735.00	7,696.46	5,538.00	40.43	37.91	76.59	-2,230.29	198.48	849.21	776.24	72.97	11.637		
8,100.00	5,735.00	7,796.46	5,538.00	41.64	39.20	76.58	-2,330.29	198.48	848.98	773.47	75.51	11.243		
8,200.00	5,735.00	7,896.46	5,538.00	42.87	40.50	76.58	-2,430.29	198.48	848.76	770.68	78.07	10.871		
8,300.00	5,735.00	7,996.46	5,538.00	44.12	41.82	76.58	-2,530.29	198.48	848.53	767.88	80.66	10.520		
8,400.00	5,735.00	8,096.46	5,538.00	45.38	43.15	76.57	-2,630.29	198.48	848.31	765.05	83.26	10.189		
8,500.00	5,735.00	8,196.46	5,538.00	46.65	44.48	76.57	-2,730.29	198.48	848.08	762.21	85.88	9.876		
8,600.00	5,735.00	8,296.46	5,538.00	47.93	45.82	76.56	-2,830.29	198.48	847.86	759.35	88.51	9.579		
8,700.00	5,735.00	8,396.46	5,538.00	49.23	47.17	76.56	-2,930.29	198.48	847.63	756.47	91.16	9.298		
8,800.00	5,735.00	8,496.46	5,538.00	50.53	48.53	76.56	-3,030.29	198.48	847.41	753.59	93.82	9.032		
8,900.00	5,735.00	8,596.46	5,538.00	51.85	49.90	76.55	-3,130.29	198.48	847.18	750.69	96.49	8.780		
9,000.00	5,735.00	8,696.46	5,538.00	53.17	51.27	76.55	-3,230.29	198.48	846.96	747.78	99.18	8.540		
9,100.00	5,735.00	8,796.46	5,538.00	54.50	52.64	76.55	-3,330.28	198.48	846.73	744.86	101.87	8.312		
9,200.00	5,735.00	8,896.46	5,538.00	55.83	54.02	76.54	-3,430.28	198.48	846.51	741.93	104.58	8.095		
9,300.00	5,735.00	8,996.45	5,538.00	57.18	55.41	76.54	-3,530.28	198.48	846.28	739.00	107.29	7.888		
9,400.00	5,735.00	9,096.45	5,538.00	58.53	56.80	76.54	-3,630.28	198.48	846.06	736.05	110.01	7.691		
9,500.00	5,735.00	9,196.45	5,538.00	59.88	58.19	76.53	-3,730.28	198.48	845.83	733.10	112.74	7.503		
9,600.00	5,735.00	9,296.45	5,538.00	61.24	59.59	76.53	-3,830.28	198.48	845.61	730.14	115.47	7.323		
9,700.00	5,735.00	9,396.45	5,538.00	62.61	60.99	76.52	-3,930.28	198.48	845.38	727.17	118.21	7.152		
9,800.00	5,735.00	9,496.45	5,538.00	63.98	62.40	76.52	-4,030.28	198.48	845.16	724.20	120.96	6.987		
9,900.00	5,735.00	9,596.45	5,538.00	65.36	63.81	76.52	-4,130.28	198.47	844.94	721.23	123.71	6.830		
10,000.00	5,735.00	9,696.45	5,538.00	66.74	65.22	76.51	-4,230.28	198.47	844.71	718.24	126.47	6.679		
10,100.00	5,735.00	9,796.45	5,538.00	68.12	66.63	76.51	-4,330.28	198.47	844.49	715.26	129.23	6.535		
10,200.00	5,735.00	9,896.45	5,538.00	69.50	68.04	76.51	-4,430.28	198.47	844.26	712.27	131.99	6.396		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	9,996.45	5,538.00	70.90	69.46	76.50	-4,530.28	198.47	844.04	709.27	134.77	6.263		
10,400.00	5,735.00	10,096.45	5,538.00	72.29	70.88	76.50	-4,630.28	198.47	843.81	706.27	137.54	6.135		
10,500.00	5,735.00	10,196.45	5,538.00	73.68	72.30	76.50	-4,730.28	198.47	843.59	703.27	140.32	6.012		
10,600.00	5,735.00	10,296.45	5,538.00	75.08	73.73	76.49	-4,830.28	198.47	843.36	700.26	143.10	5.894		
10,700.00	5,735.00	10,396.45	5,538.00	76.49	75.15	76.49	-4,930.28	198.47	843.14	697.25	145.89	5.779		
10,800.00	5,735.00	10,496.45	5,538.00	77.89	76.58	76.48	-5,030.28	198.47	842.91	694.24	148.67	5.670		
10,900.00	5,735.00	10,596.45	5,538.00	79.30	78.01	76.48	-5,130.28	198.47	842.69	691.22	151.46	5.564		
11,000.00	5,735.00	10,696.45	5,538.00	80.71	79.44	76.48	-5,230.28	198.47	842.46	688.20	154.26	5.461		
11,100.00	5,735.00	10,796.45	5,538.00	82.12	80.87	76.47	-5,330.28	198.47	842.24	685.18	157.06	5.363		
11,200.00	5,735.00	10,896.45	5,538.00	83.53	82.31	76.47	-5,430.28	198.47	842.01	682.16	159.85	5.267		
11,300.00	5,735.00	10,996.45	5,538.00	84.95	83.74	76.47	-5,530.28	198.47	841.79	679.13	162.66	5.175		
11,400.00	5,735.00	11,096.45	5,538.00	86.37	85.18	76.46	-5,630.28	198.47	841.56	676.10	165.46	5.086		
11,500.00	5,735.00	11,196.45	5,538.00	87.78	86.62	76.46	-5,730.28	198.47	841.34	673.07	168.27	5.000		
11,600.00	5,735.00	11,296.45	5,538.00	89.21	88.05	76.45	-5,830.28	198.47	841.11	670.04	171.07	4.917		
11,700.00	5,735.00	11,396.45	5,538.00	90.63	89.49	76.45	-5,930.28	198.47	840.89	667.01	173.88	4.836		
11,800.00	5,735.00	11,496.45	5,538.00	92.05	90.93	76.45	-6,030.28	198.47	840.66	663.97	176.69	4.758		
11,900.00	5,735.00	11,596.45	5,538.00	93.48	92.38	76.44	-6,130.28	198.47	840.44	660.93	179.51	4.682		
12,000.00	5,735.00	11,696.45	5,538.00	94.90	93.82	76.44	-6,230.28	198.47	840.21	657.89	182.32	4.608		
12,100.00	5,735.00	11,796.45	5,538.00	96.33	95.26	76.44	-6,330.28	198.46	839.99	654.85	185.14	4.537		
12,200.00	5,735.00	11,896.45	5,538.00	97.76	96.71	76.43	-6,430.28	198.46	839.76	651.81	187.96	4.468		
12,300.00	5,735.00	11,996.45	5,538.00	99.19	98.15	76.43	-6,530.28	198.46	839.54	648.76	190.78	4.401		
12,400.00	5,735.00	12,096.45	5,538.00	100.62	99.60	76.43	-6,630.28	198.46	839.32	645.72	193.60	4.335		
12,500.00	5,735.00	12,196.45	5,538.00	102.06	101.04	76.42	-6,730.28	198.46	839.09	642.67	196.42	4.272		
12,600.00	5,735.00	12,296.45	5,538.00	103.49	102.49	76.42	-6,830.28	198.46	838.87	639.62	199.24	4.210		
12,700.00	5,735.00	12,396.45	5,538.00	104.93	103.94	76.41	-6,930.28	198.46	838.64	636.58	202.07	4.150		
12,800.00	5,735.00	12,496.45	5,538.00	106.36	105.39	76.41	-7,030.27	198.46	838.42	633.53	204.89	4.092		
12,900.00	5,735.00	12,596.45	5,538.00	107.80	106.84	76.41	-7,130.27	198.46	838.19	630.47	207.72	4.035		
13,000.00	5,735.00	12,696.45	5,538.00	109.24	108.29	76.40	-7,230.27	198.46	837.97	627.42	210.54	3.980		
13,100.00	5,735.00	12,796.44	5,538.00	110.68	109.74	76.40	-7,330.27	198.46	837.74	624.37	213.37	3.926		
13,200.00	5,735.00	12,896.44	5,538.00	112.12	111.19	76.40	-7,430.27	198.46	837.52	621.31	216.20	3.874		
13,300.00	5,735.00	12,996.44	5,538.00	113.56	112.64	76.39	-7,530.27	198.46	837.29	618.26	219.03	3.823		
13,400.00	5,735.00	13,096.44	5,538.00	115.00	114.09	76.39	-7,630.27	198.46	837.07	615.20	221.86	3.773		
13,500.00	5,735.00	13,196.44	5,538.00	116.44	115.55	76.38	-7,730.27	198.46	836.84	612.15	224.70	3.724		
13,600.00	5,735.00	13,296.44	5,538.00	117.88	117.00	76.38	-7,830.27	198.46	836.62	609.09	227.53	3.677		
13,700.00	5,735.00	13,396.44	5,538.00	119.33	118.45	76.38	-7,930.27	198.46	836.39	606.03	230.36	3.631		
13,800.00	5,735.00	13,496.44	5,538.00	120.77	119.91	76.37	-8,030.27	198.46	836.17	602.97	233.20	3.586		
13,900.00	5,735.00	13,596.44	5,538.00	122.22	121.36	76.37	-8,130.27	198.46	835.94	599.91	236.03	3.542		
13,949.06	5,735.00	13,645.51	5,538.00	122.92	122.01	76.37	-8,179.34	198.46	835.83	598.48	237.36	3.521 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-90.01	-0.01	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-90.01	-0.01	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-90.01	-0.01	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-90.01	-0.01	-59.98	59.98	58.36	1.61	37.140		
400.00	399.98	402.08	402.06	1.13	1.14	-172.48	0.40	-58.21	59.97	57.65	2.33	25.755		
500.00	499.84	504.16	503.99	1.46	1.48	-171.96	1.63	-52.89	59.96	56.87	3.09	19.411		
600.00	599.45	606.23	605.64	1.80	1.83	-171.09	3.67	-44.05	59.96	56.08	3.88	15.472		
604.55	603.98	610.87	610.26	1.82	1.85	-171.04	3.79	-43.56	59.96	56.04	3.91	15.328 CC		
700.00	698.70	708.28	706.90	2.15	2.20	-169.88	6.53	-31.68	59.97	55.30	4.67	12.852 ES		
800.00	797.47	808.33	805.92	2.52	2.55	-168.81	9.76	-17.72	61.61	56.33	5.28	11.673		
900.00	895.62	908.19	904.75	2.92	2.92	-168.42	12.98	-3.78	66.68	60.77	5.91	11.283		
1,000.00	993.06	1,007.83	1,003.36	3.34	3.30	-168.61	16.19	10.13	75.17	68.61	6.56	11.456		
1,100.00	1,089.86	1,107.21	1,101.71	3.79	3.68	-169.13	19.40	24.00	86.26	79.04	7.22	11.949		
1,200.00	1,186.61	1,206.57	1,200.05	4.26	4.06	-169.55	22.61	37.87	97.53	89.66	7.88	12.383		
1,300.00	1,283.37	1,305.93	1,298.38	4.73	4.44	-169.89	25.81	51.74	108.81	100.27	8.54	12.743		
1,400.00	1,380.13	1,405.29	1,396.72	5.20	4.82	-170.17	29.02	65.60	120.09	110.88	9.21	13.044		
1,500.00	1,476.89	1,504.65	1,495.05	5.68	5.21	-170.40	32.22	79.47	131.37	121.49	9.88	13.300		
1,600.00	1,573.64	1,604.01	1,593.39	6.17	5.59	-170.59	35.43	93.34	142.65	132.10	10.55	13.520		
1,700.00	1,670.40	1,703.37	1,691.72	6.65	5.98	-170.75	38.63	107.21	153.94	142.71	11.23	13.710		
1,800.00	1,767.16	1,802.73	1,790.06	7.14	6.36	-170.89	41.84	121.08	165.22	153.32	11.91	13.876		
1,900.00	1,863.92	1,902.09	1,888.40	7.63	6.75	-171.02	45.04	134.95	176.51	163.92	12.59	14.022		
2,000.00	1,960.68	2,001.45	1,986.73	8.12	7.14	-171.12	48.25	148.81	187.80	174.53	13.27	14.152		
2,100.00	2,057.43	2,100.81	2,085.07	8.61	7.52	-171.22	51.45	162.68	199.08	185.13	13.95	14.268		
2,200.00	2,154.19	2,200.17	2,183.40	9.10	7.91	-171.31	54.66	176.55	210.37	195.74	14.64	14.372		
2,300.00	2,250.95	2,299.53	2,281.74	9.59	8.30	-171.38	57.86	190.42	221.66	206.34	15.32	14.466		
2,400.00	2,347.71	2,398.89	2,380.07	10.09	8.68	-171.45	61.07	204.29	232.95	216.94	16.01	14.551		
2,500.00	2,444.46	2,498.25	2,478.41	10.58	9.07	-171.52	64.27	218.16	244.24	227.54	16.70	14.628		
2,600.00	2,541.22	2,597.61	2,576.74	11.08	9.46	-171.57	67.48	232.02	255.53	238.14	17.38	14.699		
2,700.00	2,637.98	2,696.97	2,675.08	11.57	9.85	-171.63	70.68	245.89	266.82	248.75	18.07	14.764		
2,800.00	2,734.74	2,796.33	2,773.42	12.06	10.23	-171.67	73.89	259.76	278.11	259.35	18.76	14.824		
2,900.00	2,831.49	2,895.69	2,871.75	12.56	10.62	-171.72	77.09	273.63	289.40	269.95	19.45	14.879		
3,000.00	2,928.25	2,995.05	2,970.09	13.06	11.01	-171.76	80.30	287.50	300.69	280.55	20.14	14.930		
3,100.00	3,025.01	3,094.41	3,068.42	13.55	11.40	-171.80	83.50	301.37	311.98	291.15	20.83	14.977		
3,200.00	3,121.77	3,193.77	3,166.76	14.05	11.78	-171.83	86.71	315.24	323.27	301.75	21.52	15.022		
3,300.00	3,218.52	3,293.13	3,265.09	14.54	12.17	-171.87	89.91	329.10	334.56	312.35	22.21	15.063		
3,400.00	3,315.28	3,392.49	3,363.43	15.04	12.56	-171.90	93.12	342.97	345.85	322.95	22.90	15.102		
3,500.00	3,412.04	3,491.86	3,461.76	15.54	12.95	-171.93	96.32	356.84	357.14	333.55	23.59	15.138		
3,600.00	3,508.80	3,591.22	3,560.10	16.03	13.34	-171.95	99.53	370.71	368.43	344.15	24.28	15.172		
3,700.00	3,605.56	3,690.58	3,658.44	16.53	13.72	-171.98	102.73	384.58	379.72	354.75	24.98	15.204		
3,800.00	3,702.31	3,789.94	3,756.77	17.03	14.11	-172.00	105.94	398.45	391.01	365.35	25.67	15.234		
3,900.00	3,799.07	3,889.30	3,855.11	17.53	14.50	-172.03	109.15	412.31	402.31	375.95	26.36	15.262		
4,000.00	3,895.83	3,988.66	3,953.44	18.02	14.89	-172.05	112.35	426.18	413.60	386.54	27.05	15.289		
4,100.00	3,992.59	4,088.02	4,051.78	18.52	15.28	-172.07	115.56	440.05	424.89	397.14	27.74	15.314		
4,200.00	4,089.34	4,187.38	4,150.11	19.02	15.67	-172.09	118.76	453.92	436.18	407.74	28.44	15.339		
4,300.00	4,186.10	4,286.74	4,248.45	19.52	16.05	-172.11	121.97	467.79	447.47	418.34	29.13	15.362		
4,399.99	4,282.85	4,386.09	4,346.78	20.01	16.44	-172.12	125.17	481.65	458.76	428.94	29.82	15.383		
4,500.00	4,379.98	4,485.61	4,445.27	20.44	16.83	-172.14	128.38	495.55	468.59	438.11	30.48	15.372		
4,600.00	4,477.86	4,575.65	4,534.47	20.78	17.15	-172.12	131.14	507.50	475.71	444.68	31.02	15.335		
4,700.00	4,576.40	4,661.49	4,619.80	21.09	17.40	-172.12	133.22	516.49	482.15	450.67	31.47	15.319		
4,800.00	4,675.48	4,747.20	4,705.25	21.38	17.63	-172.14	134.72	522.97	488.05	456.16	31.89	15.305		
4,900.00	4,774.96	4,832.79	4,790.75	21.65	17.85	-172.18	135.64	526.96	493.40	461.13	32.27	15.291		
5,000.00	4,874.74	4,918.29	4,876.22	21.89	18.05	-172.24	135.99	528.46	498.20	465.58	32.62	15.275		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	4,974.68	5,016.75	4,974.68	22.11	18.32	-172.30	135.99	528.47	501.27	468.12	33.15	15.122		
5,200.00	5,074.68	5,116.75	5,074.68	22.33	18.60	-89.66	135.99	528.47	501.54	467.81	33.73	14.870		
5,266.05	5,140.73	5,182.90	5,140.73	22.48	18.77	-90.00	133.00	528.47	501.53	467.43	34.10	14.708		
5,300.00	5,174.68	5,216.38	5,173.88	22.57	18.85	-90.53	128.35	528.47	501.55	467.28	34.27	14.637		
5,400.00	5,274.55	5,310.97	5,265.11	22.79	19.09	86.84	103.87	528.47	502.26	467.60	34.66	14.492		
5,500.00	5,372.15	5,400.00	5,345.62	22.99	19.30	84.37	66.12	528.47	503.95	469.03	34.92	14.432		
5,600.00	5,463.94	5,489.35	5,418.79	23.19	19.50	82.03	15.02	528.47	506.31	471.17	35.14	14.407		
5,700.00	5,546.55	5,574.66	5,479.54	23.37	19.69	80.02	-44.74	528.47	509.00	473.73	35.27	14.432		
5,800.00	5,616.95	5,658.10	5,528.75	23.55	19.89	78.34	-112.01	528.47	511.68	476.32	35.36	14.471		
5,900.00	5,672.56	5,740.13	5,566.06	23.74	20.10	77.03	-184.96	528.47	514.00	478.54	35.46	14.495		
6,000.00	5,711.31	5,821.16	5,591.24	23.95	20.34	76.12	-261.89	528.47	515.71	480.07	35.64	14.470		
6,100.00	5,731.81	5,900.00	5,604.02	24.21	20.62	75.64	-339.62	528.47	516.60	480.67	35.92	14.381		
6,200.00	5,735.00	5,990.73	5,606.00	24.52	20.99	75.54	-430.29	528.47	516.59	479.98	36.61	14.110		
6,300.00	5,735.00	6,090.73	5,606.00	24.91	21.49	75.53	-530.29	528.47	516.37	478.69	37.68	13.704		
6,400.00	5,735.00	6,190.73	5,606.00	25.38	22.07	75.53	-630.29	528.47	516.14	477.22	38.93	13.259		
6,500.00	5,735.00	6,290.73	5,606.00	25.93	22.74	75.52	-730.29	528.47	515.92	475.58	40.34	12.790		
6,600.00	5,735.00	6,390.73	5,606.00	26.55	23.49	75.51	-830.29	528.47	515.69	473.80	41.90	12.309		
6,700.00	5,735.00	6,490.73	5,606.00	27.24	24.30	75.51	-930.29	528.47	515.47	471.88	43.59	11.826		
6,800.00	5,735.00	6,590.73	5,606.00	27.99	25.17	75.50	-1,030.29	528.47	515.25	469.85	45.40	11.350		
6,900.00	5,735.00	6,690.73	5,606.00	28.80	26.10	75.49	-1,130.29	528.47	515.02	467.71	47.31	10.886		
7,000.00	5,735.00	6,790.73	5,606.00	29.67	27.08	75.49	-1,230.29	528.47	514.80	465.49	49.31	10.439		
7,100.00	5,735.00	6,890.73	5,606.00	30.59	28.11	75.48	-1,330.29	528.47	514.57	463.18	51.40	10.012		
7,200.00	5,735.00	6,990.73	5,606.00	31.56	29.17	75.48	-1,430.29	528.47	514.35	460.80	53.55	9.604		
7,300.00	5,735.00	7,090.73	5,606.00	32.56	30.27	75.47	-1,530.29	528.47	514.13	458.35	55.77	9.218		
7,400.00	5,735.00	7,190.73	5,606.00	33.60	31.39	75.46	-1,630.29	528.47	513.90	455.85	58.05	8.853		
7,500.00	5,735.00	7,290.73	5,606.00	34.67	32.55	75.46	-1,730.29	528.47	513.68	453.31	60.37	8.509		
7,600.00	5,735.00	7,390.73	5,606.00	35.77	33.73	75.45	-1,830.29	528.47	513.45	450.71	62.74	8.184		
7,700.00	5,735.00	7,490.73	5,606.00	36.90	34.93	75.44	-1,930.29	528.47	513.23	448.08	65.15	7.878		
7,800.00	5,735.00	7,590.73	5,606.00	38.06	36.15	75.44	-2,030.29	528.47	513.01	445.42	67.59	7.590		
7,900.00	5,735.00	7,690.73	5,606.00	39.23	37.40	75.43	-2,130.29	528.47	512.78	442.72	70.06	7.319		
8,000.00	5,735.00	7,790.73	5,606.00	40.43	38.65	75.42	-2,230.29	528.47	512.56	439.99	72.57	7.063		
8,100.00	5,735.00	7,890.73	5,606.00	41.64	39.92	75.42	-2,330.29	528.46	512.33	437.24	75.09	6.823		
8,200.00	5,735.00	7,990.73	5,606.00	42.87	41.21	75.41	-2,430.29	528.46	512.11	434.47	77.64	6.596		
8,300.00	5,735.00	8,090.73	5,606.00	44.12	42.51	75.40	-2,530.29	528.46	511.89	431.67	80.21	6.382		
8,400.00	5,735.00	8,190.73	5,606.00	45.38	43.82	75.40	-2,630.29	528.46	511.66	428.86	82.80	6.179		
8,500.00	5,735.00	8,290.73	5,606.00	46.65	45.13	75.39	-2,730.29	528.46	511.44	426.03	85.41	5.988		
8,600.00	5,735.00	8,390.73	5,606.00	47.93	46.46	75.38	-2,830.29	528.46	511.22	423.18	88.03	5.807		
8,700.00	5,735.00	8,490.73	5,606.00	49.23	47.80	75.38	-2,930.29	528.46	510.99	420.33	90.67	5.636		
8,800.00	5,735.00	8,590.73	5,606.00	50.53	49.14	75.37	-3,030.29	528.46	510.77	417.45	93.31	5.474		
8,900.00	5,735.00	8,690.73	5,606.00	51.85	50.49	75.36	-3,130.29	528.46	510.54	414.57	95.97	5.320		
9,000.00	5,735.00	8,790.73	5,606.00	53.17	51.85	75.36	-3,230.29	528.46	510.32	411.67	98.65	5.173		
9,100.00	5,735.00	8,890.73	5,606.00	54.50	53.22	75.35	-3,330.29	528.46	510.10	408.77	101.33	5.034		
9,200.00	5,735.00	8,990.73	5,606.00	55.83	54.59	75.34	-3,430.29	528.46	509.87	405.86	104.02	4.902		
9,300.00	5,735.00	9,090.73	5,606.00	57.18	55.96	75.34	-3,530.29	528.46	509.65	402.93	106.72	4.776		
9,400.00	5,735.00	9,190.73	5,606.00	58.53	57.34	75.33	-3,630.29	528.46	509.42	400.00	109.42	4.656		
9,500.00	5,735.00	9,290.73	5,606.00	59.88	58.72	75.32	-3,730.29	528.46	509.20	397.06	112.14	4.541		
9,600.00	5,735.00	9,390.73	5,606.00	61.24	60.11	75.32	-3,830.29	528.46	508.98	394.12	114.86	4.431		
9,700.00	5,735.00	9,490.72	5,606.00	62.61	61.50	75.31	-3,930.29	528.46	508.75	391.17	117.58	4.327		
9,800.00	5,735.00	9,590.72	5,606.00	63.98	62.90	75.31	-4,030.29	528.46	508.53	388.21	120.31	4.227		
9,900.00	5,735.00	9,690.72	5,606.00	65.36	64.30	75.30	-4,130.28	528.46	508.31	385.25	123.05	4.131		
10,000.00	5,735.00	9,790.72	5,606.00	66.74	65.70	75.29	-4,230.28	528.46	508.08	382.29	125.80	4.039		
10,100.00	5,735.00	9,890.72	5,606.00	68.12	67.11	75.29	-4,330.28	528.46	507.86	379.31	128.54	3.951		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3104 - Hz - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis			Distance							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	9,990.72	5,606.00	69.50	68.51	75.28	-4,430.28	528.46	507.63	376.34	131.30	3.866					
10,300.00	5,735.00	10,090.72	5,606.00	70.90	69.92	75.27	-4,530.28	528.46	507.41	373.36	134.05	3.785					
10,400.00	5,735.00	10,190.72	5,606.00	72.29	71.34	75.27	-4,630.28	528.46	507.19	370.38	136.81	3.707					
10,500.00	5,735.00	10,290.72	5,606.00	73.68	72.75	75.26	-4,730.28	528.46	506.96	367.39	139.57	3.632					
10,600.00	5,735.00	10,390.72	5,606.00	75.08	74.17	75.25	-4,830.28	528.46	506.74	364.40	142.34	3.560					
10,700.00	5,735.00	10,490.72	5,606.00	76.49	75.59	75.25	-4,930.28	528.46	506.51	361.40	145.11	3.491					
10,800.00	5,735.00	10,590.72	5,606.00	77.89	77.01	75.24	-5,030.28	528.46	506.29	358.41	147.89	3.424					
10,900.00	5,735.00	10,690.72	5,606.00	79.30	78.44	75.23	-5,130.28	528.46	506.07	355.41	150.66	3.359					
11,000.00	5,735.00	10,790.72	5,606.00	80.71	79.86	75.23	-5,230.28	528.46	505.84	352.40	153.44	3.297					
11,100.00	5,735.00	10,890.72	5,606.00	82.12	81.29	75.22	-5,330.28	528.46	505.62	349.40	156.22	3.237					
11,200.00	5,735.00	10,990.72	5,606.00	83.53	82.72	75.21	-5,430.28	528.46	505.40	346.39	159.00	3.179					
11,300.00	5,735.00	11,090.72	5,606.00	84.95	84.15	75.21	-5,530.28	528.46	505.17	343.38	161.79	3.122					
11,400.00	5,735.00	11,190.72	5,606.00	86.37	85.58	75.20	-5,630.28	528.46	504.95	340.37	164.58	3.068					
11,500.00	5,735.00	11,290.72	5,606.00	87.78	87.01	75.19	-5,730.28	528.45	504.73	337.36	167.37	3.016					
11,600.00	5,735.00	11,390.72	5,606.00	89.21	88.44	75.19	-5,830.28	528.45	504.50	334.34	170.16	2.965					
11,700.00	5,735.00	11,490.72	5,606.00	90.63	89.88	75.18	-5,930.28	528.45	504.28	331.32	172.95	2.916					
11,800.00	5,735.00	11,590.72	5,606.00	92.05	91.32	75.17	-6,030.28	528.45	504.05	328.31	175.75	2.868					
11,900.00	5,735.00	11,690.72	5,606.00	93.48	92.75	75.16	-6,130.28	528.45	503.83	325.28	178.55	2.822					
12,000.00	5,735.00	11,790.72	5,606.00	94.90	94.19	75.16	-6,230.28	528.45	503.61	322.26	181.34	2.777					
12,100.00	5,735.00	11,890.72	5,606.00	96.33	95.63	75.15	-6,330.28	528.45	503.38	319.24	184.14	2.734					
12,200.00	5,735.00	11,990.72	5,606.00	97.76	97.07	75.14	-6,430.28	528.45	503.16	316.21	186.95	2.691					
12,300.00	5,735.00	12,090.72	5,606.00	99.19	98.51	75.14	-6,530.28	528.45	502.94	313.19	189.75	2.651					
12,400.00	5,735.00	12,190.72	5,606.00	100.62	99.96	75.13	-6,630.28	528.45	502.71	310.16	192.55	2.611					
12,500.00	5,735.00	12,290.72	5,606.00	102.06	101.40	75.12	-6,730.28	528.45	502.49	307.13	195.36	2.572					
12,600.00	5,735.00	12,390.72	5,606.00	103.49	102.84	75.12	-6,830.28	528.45	502.26	304.10	198.16	2.535					
12,700.00	5,735.00	12,490.72	5,606.00	104.93	104.29	75.11	-6,930.28	528.45	502.04	301.07	200.97	2.498					
12,800.00	5,735.00	12,590.72	5,606.00	106.36	105.73	75.10	-7,030.28	528.45	501.82	298.04	203.78	2.463					
12,900.00	5,735.00	12,690.72	5,606.00	107.80	107.18	75.10	-7,130.28	528.45	501.59	295.01	206.59	2.428					
13,000.00	5,735.00	12,790.72	5,606.00	109.24	108.63	75.09	-7,230.28	528.45	501.37	291.97	209.40	2.394					
13,100.00	5,735.00	12,890.72	5,606.00	110.68	110.07	75.08	-7,330.28	528.45	501.15	288.94	212.21	2.362					
13,200.00	5,735.00	12,990.72	5,606.00	112.12	111.52	75.08	-7,430.28	528.45	500.92	285.90	215.02	2.330					
13,300.00	5,735.00	13,090.72	5,606.00	113.56	112.97	75.07	-7,530.28	528.45	500.70	282.86	217.84	2.299					
13,400.00	5,735.00	13,190.71	5,606.00	115.00	114.42	75.06	-7,630.28	528.45	500.48	279.83	220.65	2.268					
13,500.00	5,735.00	13,290.71	5,606.00	116.44	115.87	75.06	-7,730.28	528.45	500.25	276.79	223.46	2.239					
13,600.00	5,735.00	13,390.71	5,606.00	117.88	117.32	75.05	-7,830.28	528.45	500.03	273.75	226.28	2.210					
13,700.00	5,735.00	13,490.71	5,606.00	119.33	118.77	75.04	-7,930.27	528.45	499.81	270.71	229.09	2.182					
13,800.00	5,735.00	13,590.71	5,606.00	120.77	120.22	75.04	-8,030.27	528.45	499.58	267.67	231.91	2.154					
13,900.00	5,735.00	13,690.71	5,606.00	122.22	121.68	75.03	-8,130.27	528.45	499.36	264.63	234.73	2.127					
13,949.06	5,735.00	13,739.78	5,606.00	122.92	122.39	75.03	-8,179.34	528.45	499.25	263.14	236.11	2.114 SF					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	562.970		
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		
400.00	399.98	404.21	404.19	1.13	1.16	-172.27	1.21	-148.48	150.27	147.95	2.32	64.754 ES		
500.00	499.84	505.40	505.28	1.46	1.50	-171.43	4.12	-144.92	151.97	148.99	2.98	50.984		
600.00	599.45	605.26	605.02	1.80	1.83	-170.77	7.09	-141.29	157.03	153.40	3.63	43.203		
700.00	698.70	704.88	704.53	2.15	2.16	-170.35	10.06	-137.66	165.54	161.24	4.30	38.486		
800.00	797.47	804.16	803.70	2.52	2.50	-170.15	13.01	-134.04	177.47	172.50	4.97	35.675		
900.00	895.62	902.97	902.40	2.92	2.83	-170.14	15.95	-130.45	192.82	187.17	5.65	34.115		
1,000.00	993.06	1,001.19	1,000.52	3.34	3.16	-170.28	18.88	-126.87	211.55	205.22	6.33	33.415		
1,100.00	1,089.86	1,098.89	1,098.10	3.79	3.49	-170.54	21.78	-123.31	232.87	225.86	7.01	33.240		
1,200.00	1,186.61	1,196.55	1,195.66	4.26	3.82	-170.77	24.69	-119.76	254.36	246.69	7.66	33.191		
1,300.00	1,283.37	1,294.21	1,293.21	4.73	4.16	-170.98	27.60	-116.20	275.85	267.52	8.32	33.137		
1,400.00	1,380.13	1,391.87	1,390.76	5.20	4.49	-171.15	30.51	-112.65	297.34	288.35	8.99	33.081		
1,500.00	1,476.89	1,489.52	1,488.31	5.68	4.82	-171.30	33.41	-109.09	318.84	309.19	9.65	33.026		
1,600.00	1,573.64	1,587.18	1,585.86	6.17	5.15	-171.43	36.32	-105.54	340.34	330.02	10.32	32.972		
1,700.00	1,670.40	1,684.84	1,683.41	6.65	5.49	-171.54	39.23	-101.98	361.84	350.85	10.99	32.921		
1,800.00	1,767.16	1,782.50	1,780.96	7.14	5.82	-171.65	42.13	-98.43	383.34	371.68	11.66	32.873		
1,900.00	1,863.92	1,880.16	1,878.51	7.63	6.15	-171.74	45.04	-94.87	404.84	392.51	12.33	32.828		
2,000.00	1,960.68	1,977.82	1,976.06	8.12	6.48	-171.82	47.95	-91.32	426.35	413.34	13.00	32.785		
2,100.00	2,057.43	2,075.48	2,073.61	8.61	6.82	-171.89	50.86	-87.76	447.85	434.18	13.68	32.746		
2,200.00	2,154.19	2,173.14	2,171.16	9.10	7.15	-171.96	53.76	-84.21	469.36	455.01	14.35	32.708		
2,300.00	2,250.95	2,270.80	2,268.71	9.59	7.48	-172.02	56.67	-80.65	490.86	475.84	15.02	32.673		
2,400.00	2,347.71	2,368.45	2,366.26	10.09	7.81	-172.08	59.58	-77.10	512.37	496.67	15.70	32.640		
2,500.00	2,444.46	2,466.11	2,463.82	10.58	8.15	-172.13	62.48	-73.54	533.88	517.50	16.37	32.609		
2,600.00	2,541.22	2,563.77	2,561.37	11.08	8.48	-172.18	65.39	-69.99	555.38	538.34	17.05	32.580		
2,700.00	2,637.98	2,661.43	2,658.92	11.57	8.81	-172.22	68.30	-66.43	576.89	559.17	17.72	32.552		
2,800.00	2,734.74	2,759.09	2,756.47	12.06	9.14	-172.26	71.21	-62.87	598.40	580.00	18.40	32.526		
2,900.00	2,831.49	2,856.75	2,854.02	12.56	9.48	-172.30	74.11	-59.32	619.91	600.83	19.07	32.502		
3,000.00	2,928.25	2,954.41	2,951.57	13.06	9.81	-172.34	77.02	-55.76	641.41	621.67	19.75	32.479		
3,100.00	3,025.01	3,052.07	3,049.12	13.55	10.14	-172.37	79.93	-52.21	662.92	642.50	20.42	32.457		
3,200.00	3,121.77	3,149.72	3,146.67	14.05	10.48	-172.40	82.83	-48.65	684.43	663.33	21.10	32.436		
3,300.00	3,218.52	3,247.38	3,244.22	14.54	10.81	-172.43	85.74	-45.10	705.94	684.16	21.78	32.416		
3,400.00	3,315.28	3,345.04	3,341.77	15.04	11.14	-172.46	88.65	-41.54	727.45	705.00	22.45	32.398		
3,500.00	3,412.04	3,442.70	3,439.32	15.54	11.47	-172.48	91.56	-37.99	748.96	725.83	23.13	32.380		
3,600.00	3,508.80	3,540.36	3,536.87	16.03	11.81	-172.51	94.46	-34.43	770.47	746.66	23.81	32.363		
3,700.00	3,605.56	3,638.02	3,634.43	16.53	12.14	-172.53	97.37	-30.88	791.98	767.49	24.48	32.347		
3,800.00	3,702.31	3,735.68	3,731.98	17.03	12.47	-172.55	100.28	-27.32	813.49	788.33	25.16	32.331		
3,900.00	3,799.07	3,833.34	3,829.53	17.53	12.81	-172.58	103.18	-23.77	835.00	809.16	25.84	32.316		
4,000.00	3,895.83	3,931.00	3,927.08	18.02	13.14	-172.59	106.09	-20.21	856.51	829.99	26.52	32.302		
4,100.00	3,992.59	4,028.65	4,024.63	18.52	13.47	-172.61	109.00	-16.66	878.01	850.82	27.19	32.289		
4,200.00	4,089.34	4,126.31	4,122.18	19.02	13.80	-172.63	111.91	-13.10	899.52	871.65	27.87	32.276		
4,300.00	4,186.10	4,223.97	4,219.73	19.52	14.14	-172.65	114.81	-9.54	921.03	892.49	28.55	32.263		
4,399.99	4,282.85	4,321.62	4,317.27	20.01	14.47	-172.67	117.72	-5.99	942.54	913.32	29.22	32.251		
4,500.00	4,379.98	4,419.59	4,415.13	20.44	14.80	-172.72	120.64	-2.42	962.61	932.74	29.87	32.227		
4,600.00	4,477.86	4,518.19	4,513.62	20.78	15.14	-172.74	123.57	1.17	979.29	948.81	30.48	32.130		
4,700.00	4,576.40	4,617.29	4,612.62	21.09	15.48	-172.72	126.52	4.77	992.55	961.46	31.09	31.927		
4,800.00	4,675.48	4,716.80	4,712.01	21.38	15.82	-172.68	129.48	8.40	1,002.36	970.67	31.70	31.624		
4,900.00	4,774.96	4,816.58	4,811.68	21.65	16.16	-172.60	132.45	12.03	1,008.73	976.43	32.30	31.228		
5,000.00	4,874.74	4,916.51	4,911.50	21.89	16.50	-172.48	135.43	15.67	1,011.65	978.74	32.91	30.743		
5,100.00	4,974.68	5,000.00	4,994.91	22.11	16.77	-172.37	137.81	18.58	1,011.37	977.98	33.39	30.292		

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





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	5,074.68	5,084.99	5,079.88	22.33	16.99	-89.66	138.97	20.00	1,010.04	976.20	33.84	29.850		
5,244.04	5,118.73	5,123.84	5,118.73	22.43	17.10	-89.66	139.01	20.04	1,009.97	975.92	34.05	29.658		
5,300.00	5,174.68	5,179.80	5,174.68	22.57	17.26	-89.66	139.01	20.04	1,009.97	975.59	34.38	29.376		
5,302.88	5,177.57	5,182.68	5,177.57	22.57	17.27	90.21	139.01	20.04	1,009.97	975.58	34.40	29.362		
5,400.00	5,274.55	5,279.66	5,274.55	22.79	17.58	90.41	139.01	20.04	1,009.99	975.01	34.98	28.874		
5,500.00	5,372.15	5,381.52	5,376.12	22.99	17.87	91.28	133.27	20.05	1,010.20	974.66	35.54	28.422		
5,600.00	5,463.94	5,487.36	5,478.49	23.19	18.15	92.17	107.11	20.10	1,010.57	974.52	36.05	28.032		
5,700.00	5,546.55	5,596.76	5,576.49	23.37	18.44	92.98	58.96	20.18	1,011.03	974.50	36.53	27.676		
5,800.00	5,616.95	5,709.55	5,664.74	23.55	18.72	93.69	-10.94	20.29	1,011.48	974.46	37.02	27.321		
5,900.00	5,672.56	5,825.33	5,737.52	23.74	18.99	94.25	-100.67	20.44	1,011.80	974.22	37.59	26.920		
6,000.00	5,711.31	5,943.37	5,789.51	23.95	19.29	94.64	-206.37	20.62	1,011.90	973.62	38.29	26.430		
6,100.00	5,731.81	6,062.69	5,816.57	24.21	19.68	94.81	-322.31	20.81	1,011.71	972.54	39.17	25.830		
6,200.00	5,735.00	6,172.48	5,820.00	24.52	20.12	94.82	-431.97	20.99	1,011.28	971.15	40.14	25.195		
6,300.00	5,735.00	6,272.48	5,820.00	24.91	20.63	94.82	-531.97	21.16	1,010.89	969.67	41.21	24.528		
6,400.00	5,735.00	6,372.47	5,820.00	25.38	21.23	94.83	-631.96	21.32	1,010.49	968.03	42.46	23.796		
6,500.00	5,735.00	6,472.47	5,820.00	25.93	21.91	94.83	-731.96	21.49	1,010.10	966.22	43.88	23.022		
6,600.00	5,735.00	6,572.47	5,820.00	26.55	22.68	94.83	-831.96	21.65	1,009.70	964.27	45.43	22.224		
6,700.00	5,735.00	6,672.47	5,820.00	27.24	23.50	94.83	-931.96	21.82	1,009.30	962.18	47.12	21.419		
6,800.00	5,735.00	6,772.47	5,820.00	27.99	24.40	94.83	-1,031.96	21.99	1,008.91	959.98	48.93	20.620		
6,900.00	5,735.00	6,872.47	5,820.00	28.80	25.34	94.83	-1,131.96	22.15	1,008.51	957.67	50.84	19.837		
7,000.00	5,735.00	6,972.47	5,820.00	29.67	26.34	94.84	-1,231.96	22.32	1,008.12	955.27	52.85	19.077		
7,100.00	5,735.00	7,072.47	5,820.00	30.59	27.37	94.84	-1,331.96	22.48	1,007.72	952.78	54.93	18.344		
7,200.00	5,735.00	7,172.47	5,820.00	31.56	28.45	94.84	-1,431.96	22.65	1,007.32	950.22	57.10	17.642		
7,300.00	5,735.00	7,272.47	5,820.00	32.56	29.56	94.84	-1,531.96	22.81	1,006.93	947.60	59.33	16.972		
7,400.00	5,735.00	7,372.47	5,820.00	33.60	30.70	94.84	-1,631.96	22.98	1,006.53	944.91	61.62	16.335		
7,500.00	5,735.00	7,472.47	5,820.00	34.67	31.87	94.85	-1,731.95	23.15	1,006.14	942.17	63.96	15.731		
7,600.00	5,735.00	7,572.47	5,820.00	35.77	33.06	94.85	-1,831.95	23.31	1,005.74	939.39	66.35	15.158		
7,700.00	5,735.00	7,672.46	5,820.00	36.90	34.28	94.85	-1,931.95	23.48	1,005.34	936.56	68.78	14.617		
7,800.00	5,735.00	7,772.46	5,820.00	38.06	35.51	94.85	-2,031.95	23.64	1,004.95	933.70	71.25	14.104		
7,900.00	5,735.00	7,872.46	5,820.00	39.23	36.76	94.85	-2,131.95	23.81	1,004.55	930.80	73.75	13.620		
8,000.00	5,735.00	7,972.46	5,820.00	40.43	38.03	94.86	-2,231.95	23.98	1,004.15	927.87	76.29	13.163		
8,100.00	5,735.00	8,072.46	5,820.00	41.64	39.31	94.86	-2,331.95	24.14	1,003.76	924.91	78.85	12.730		
8,200.00	5,735.00	8,172.46	5,820.00	42.87	40.61	94.86	-2,431.95	24.31	1,003.36	921.93	81.44	12.321		
8,300.00	5,735.00	8,272.46	5,820.00	44.12	41.91	94.86	-2,531.95	24.47	1,002.97	918.92	84.05	11.933		
8,400.00	5,735.00	8,372.46	5,820.00	45.38	43.23	94.86	-2,631.95	24.64	1,002.57	915.89	86.68	11.567		
8,500.00	5,735.00	8,472.46	5,820.00	46.65	44.56	94.87	-2,731.95	24.80	1,002.17	912.85	89.33	11.219		
8,600.00	5,735.00	8,572.46	5,820.00	47.93	45.89	94.87	-2,831.94	24.97	1,001.78	909.78	91.99	10.890		
8,700.00	5,735.00	8,672.46	5,820.00	49.23	47.24	94.87	-2,931.94	25.14	1,001.38	906.71	94.68	10.577		
8,800.00	5,735.00	8,772.46	5,820.00	50.53	48.59	94.87	-3,031.94	25.30	1,000.99	903.61	97.37	10.280		
8,900.00	5,735.00	8,872.45	5,820.00	51.85	49.95	94.87	-3,131.94	25.47	1,000.59	900.51	100.08	9.997		
9,000.00	5,735.00	8,972.45	5,820.00	53.17	51.31	94.88	-3,231.94	25.63	1,000.19	897.39	102.81	9.729		
9,100.00	5,735.00	9,072.45	5,820.00	54.50	52.68	94.88	-3,331.94	25.80	999.80	894.26	105.54	9.473		
9,200.00	5,735.00	9,172.45	5,820.00	55.83	54.06	94.88	-3,431.94	25.96	999.40	891.12	108.29	9.229		
9,300.00	5,735.00	9,272.45	5,820.00	57.18	55.44	94.88	-3,531.94	26.13	999.01	887.97	111.04	8.997		
9,400.00	5,735.00	9,372.45	5,820.00	58.53	56.82	94.88	-3,631.94	26.30	998.61	884.81	113.80	8.775		
9,500.00	5,735.00	9,472.45	5,820.00	59.88	58.21	94.88	-3,731.94	26.46	998.21	881.64	116.58	8.563		
9,600.00	5,735.00	9,572.45	5,820.00	61.24	59.61	94.89	-3,831.94	26.63	997.82	878.46	119.35	8.360		
9,700.00	5,735.00	9,672.45	5,820.00	62.61	61.00	94.89	-3,931.93	26.79	997.42	875.28	122.14	8.166		
9,800.00	5,735.00	9,772.45	5,820.00	63.98	62.40	94.89	-4,031.93	26.96	997.03	872.09	124.94	7.980		
9,900.00	5,735.00	9,872.45	5,820.00	65.36	63.81	94.89	-4,131.93	27.13	996.63	868.90	127.73	7.802		
10,000.00	5,735.00	9,972.45	5,820.00	66.74	65.21	94.89	-4,231.93	27.29	996.23	865.69	130.54	7.632		
10,100.00	5,735.00	10,072.45	5,820.00	68.12	66.62	94.90	-4,331.93	27.46	995.84	862.49	133.35	7.468		

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





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3135 - 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	10,172.44	5,820.00	69.50	68.04	94.90	-4,431.93	27.62	995.44	859.27	136.17	7.310						
10,300.00	5,735.00	10,272.44	5,820.00	70.90	69.45	94.90	-4,531.93	27.79	995.05	856.06	138.99	7.159						
10,400.00	5,735.00	10,372.44	5,820.00	72.29	70.87	94.90	-4,631.93	27.95	994.65	852.84	141.81	7.014						
10,500.00	5,735.00	10,472.44	5,820.00	73.68	72.29	94.90	-4,731.93	28.12	994.25	849.61	144.64	6.874						
10,600.00	5,735.00	10,572.44	5,820.00	75.08	73.71	94.91	-4,831.93	28.29	993.86	846.38	147.48	6.739						
10,700.00	5,735.00	10,672.44	5,820.00	76.49	75.13	94.91	-4,931.93	28.45	993.46	843.15	150.32	6.609						
10,800.00	5,735.00	10,772.44	5,820.00	77.89	76.56	94.91	-5,031.92	28.62	993.07	839.91	153.16	6.484						
10,900.00	5,735.00	10,872.44	5,820.00	79.30	77.98	94.91	-5,131.92	28.78	992.67	836.67	156.00	6.363						
11,000.00	5,735.00	10,972.44	5,820.00	80.71	79.41	94.91	-5,231.92	28.95	992.27	833.42	158.85	6.247						
11,100.00	5,735.00	11,072.44	5,820.00	82.12	80.84	94.92	-5,331.92	29.11	991.88	830.18	161.70	6.134						
11,200.00	5,735.00	11,172.44	5,820.00	83.53	82.27	94.92	-5,431.92	29.28	991.48	826.93	164.56	6.025						
11,300.00	5,735.00	11,272.44	5,820.00	84.95	83.71	94.92	-5,531.92	29.45	991.09	823.67	167.41	5.920						
11,400.00	5,735.00	11,372.44	5,820.00	86.37	85.14	94.92	-5,631.92	29.61	990.69	820.42	170.27	5.818						
11,500.00	5,735.00	11,472.43	5,820.00	87.78	86.58	94.92	-5,731.92	29.78	990.29	817.16	173.14	5.720						
11,600.00	5,735.00	11,572.43	5,820.00	89.21	88.01	94.93	-5,831.92	29.94	989.90	813.90	176.00	5.624						
11,700.00	5,735.00	11,672.43	5,820.00	90.63	89.45	94.93	-5,931.92	30.11	989.50	810.64	178.87	5.532						
11,800.00	5,735.00	11,772.43	5,820.00	92.05	90.89	94.93	-6,031.92	30.28	989.11	807.37	181.74	5.443						
11,900.00	5,735.00	11,872.43	5,820.00	93.48	92.33	94.93	-6,131.91	30.44	988.71	804.10	184.61	5.356						
12,000.00	5,735.00	11,972.43	5,820.00	94.90	93.77	94.93	-6,231.91	30.61	988.31	800.84	187.48	5.272						
12,100.00	5,735.00	12,072.43	5,820.00	96.33	95.21	94.94	-6,331.91	30.77	987.92	797.57	190.35	5.190						
12,200.00	5,735.00	12,172.43	5,820.00	97.76	96.66	94.94	-6,431.91	30.94	987.52	794.29	193.23	5.111						
12,300.00	5,735.00	12,272.43	5,820.00	99.19	98.10	94.94	-6,531.91	31.10	987.13	791.02	196.11	5.034						
12,400.00	5,735.00	12,372.43	5,820.00	100.62	99.55	94.94	-6,631.91	31.27	986.73	787.74	198.99	4.959						
12,500.00	5,735.00	12,472.43	5,820.00	102.06	100.99	94.94	-6,731.91	31.44	986.33	784.47	201.87	4.886						
12,600.00	5,735.00	12,572.43	5,820.00	103.49	102.44	94.95	-6,831.91	31.60	985.94	781.19	204.75	4.815						
12,700.00	5,735.00	12,672.43	5,820.00	104.93	103.88	94.95	-6,931.91	31.77	985.54	777.91	207.64	4.747						
12,800.00	5,735.00	12,772.42	5,820.00	106.36	105.33	94.95	-7,031.91	31.93	985.15	774.63	210.52	4.680						
12,900.00	5,735.00	12,872.42	5,820.00	107.80	106.78	94.95	-7,131.90	32.10	984.75	771.34	213.41	4.614						
13,000.00	5,735.00	12,972.42	5,820.00	109.24	108.23	94.95	-7,231.90	32.26	984.36	768.06	216.30	4.551						
13,100.00	5,735.00	13,072.42	5,820.00	110.68	109.68	94.96	-7,331.90	32.43	983.96	764.77	219.18	4.489						
13,200.00	5,735.00	13,172.42	5,820.00	112.12	111.13	94.96	-7,431.90	32.60	983.56	761.49	222.08	4.429						
13,300.00	5,735.00	13,272.42	5,820.00	113.56	112.58	94.96	-7,531.90	32.76	983.17	758.20	224.97	4.370						
13,400.00	5,735.00	13,372.42	5,820.00	115.00	114.03	94.96	-7,631.90	32.93	982.77	754.91	227.86	4.313						
13,500.00	5,735.00	13,472.42	5,820.00	116.44	115.48	94.96	-7,731.90	33.09	982.38	751.62	230.75	4.257						
13,600.00	5,735.00	13,572.42	5,820.00	117.88	116.93	94.97	-7,831.90	33.26	981.98	748.33	233.65	4.203						
13,700.00	5,735.00	13,672.42	5,820.00	119.33	118.39	94.97	-7,931.90	33.42	981.58	745.04	236.54	4.150						
13,800.00	5,735.00	13,772.42	5,820.00	120.77	119.84	94.97	-8,031.90	33.59	981.19	741.75	239.44	4.098						
13,900.00	5,735.00	13,872.42	5,820.00	122.22	121.29	94.97	-8,131.90	33.76	980.79	738.45	242.34	4.047						
13,949.06	5,735.00	13,921.48	5,820.00	122.92	122.01	94.97	-8,180.96	33.84	980.60	736.84	243.76	4.023 SF						



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	-89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-89.97	89.97	89.03	0.94	95.645		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-89.97	89.97	88.35	1.61	55.709 CC		
400.00	399.98	403.10	403.08	1.13	1.14	-172.45	0.53	-88.19	89.98	87.64	2.33	38.583		
500.00	499.84	506.19	506.01	1.46	1.49	-171.87	2.13	-82.86	90.00	86.91	3.09	29.083		
600.00	599.45	609.19	608.59	1.80	1.84	-170.92	4.78	-74.00	90.07	86.20	3.88	23.235 ES		
700.00	698.70	709.16	707.98	2.15	2.19	-170.01	7.85	-63.77	91.99	87.50	4.49	20.487		
800.00	797.47	809.00	807.26	2.52	2.54	-169.51	10.92	-53.54	97.35	92.22	5.13	18.984		
900.00	895.62	908.61	906.30	2.92	2.89	-169.40	13.97	-43.34	106.14	100.35	5.78	18.354		
1,000.00	993.06	1,007.86	1,004.97	3.34	3.25	-169.61	17.02	-33.18	118.34	111.89	6.45	18.352		
1,100.00	1,089.86	1,106.75	1,103.30	3.79	3.61	-170.01	20.05	-23.06	133.15	126.03	7.12	18.708		
1,200.00	1,186.61	1,205.62	1,201.60	4.26	3.96	-170.35	23.09	-12.93	148.13	140.36	7.78	19.047		
1,300.00	1,283.37	1,304.49	1,299.90	4.73	4.32	-170.63	26.12	-2.81	163.12	154.68	8.44	19.323		
1,400.00	1,380.13	1,403.35	1,398.20	5.20	4.68	-170.86	29.15	7.31	178.11	169.00	9.11	19.551		
1,500.00	1,476.89	1,502.22	1,496.50	5.68	5.04	-171.05	32.19	17.44	193.11	183.33	9.78	19.742		
1,600.00	1,573.64	1,601.09	1,594.81	6.17	5.40	-171.22	35.22	27.56	208.10	197.65	10.46	19.905		
1,700.00	1,670.40	1,699.96	1,693.11	6.65	5.76	-171.37	38.25	37.68	223.10	211.97	11.13	20.044		
1,800.00	1,767.16	1,798.82	1,791.41	7.14	6.12	-171.49	41.29	47.81	238.10	226.29	11.81	20.165		
1,900.00	1,863.92	1,897.69	1,889.71	7.63	6.48	-171.60	44.32	57.93	253.10	240.62	12.49	20.271		
2,000.00	1,960.68	1,996.56	1,988.01	8.12	6.85	-171.70	47.35	68.05	268.10	254.94	13.17	20.364		
2,100.00	2,057.43	2,095.43	2,086.31	8.61	7.21	-171.79	50.39	78.18	283.10	269.26	13.85	20.447		
2,200.00	2,154.19	2,194.29	2,184.61	9.10	7.57	-171.87	53.42	88.30	298.11	283.58	14.53	20.521		
2,300.00	2,250.95	2,293.16	2,282.91	9.59	7.93	-171.94	56.45	98.42	313.11	297.90	15.21	20.587		
2,400.00	2,347.71	2,392.03	2,381.21	10.09	8.29	-172.01	59.49	108.55	328.11	312.22	15.89	20.647		
2,500.00	2,444.46	2,490.90	2,479.52	10.58	8.65	-172.07	62.52	118.67	343.12	326.54	16.57	20.702		
2,600.00	2,541.22	2,589.76	2,577.82	11.08	9.01	-172.12	65.56	128.79	358.12	340.86	17.26	20.751		
2,700.00	2,637.98	2,688.63	2,676.12	11.57	9.38	-172.17	68.59	138.92	373.12	355.18	17.94	20.796		
2,800.00	2,734.74	2,787.50	2,774.42	12.06	9.74	-172.22	71.62	149.04	388.13	369.50	18.63	20.838		
2,900.00	2,831.49	2,886.37	2,872.72	12.56	10.10	-172.26	74.66	159.16	403.13	383.82	19.31	20.876		
3,000.00	2,928.25	2,985.23	2,971.02	13.06	10.46	-172.30	77.69	169.29	418.14	398.14	20.00	20.911		
3,100.00	3,025.01	3,084.10	3,069.32	13.55	10.82	-172.34	80.72	179.41	433.14	412.46	20.68	20.944		
3,200.00	3,121.77	3,182.97	3,167.62	14.05	11.19	-172.37	83.76	189.53	448.15	426.78	21.37	20.974		
3,300.00	3,218.52	3,281.84	3,265.92	14.54	11.55	-172.41	86.79	199.66	463.15	441.10	22.05	21.003		
3,400.00	3,315.28	3,380.70	3,364.22	15.04	11.91	-172.44	89.82	209.78	478.16	455.42	22.74	21.029		
3,500.00	3,412.04	3,479.57	3,462.53	15.54	12.27	-172.47	92.86	219.90	493.16	469.74	23.42	21.054		
3,600.00	3,508.80	3,578.44	3,560.83	16.03	12.64	-172.49	95.89	230.03	508.17	484.06	24.11	21.077		
3,700.00	3,605.56	3,677.31	3,659.13	16.53	13.00	-172.52	98.93	240.15	523.18	498.38	24.80	21.099		
3,800.00	3,702.31	3,776.17	3,757.43	17.03	13.36	-172.54	101.96	250.27	538.18	512.70	25.48	21.119		
3,900.00	3,799.07	3,875.04	3,855.73	17.53	13.72	-172.56	104.99	260.39	553.19	527.02	26.17	21.138		
4,000.00	3,895.83	3,973.91	3,954.03	18.02	14.08	-172.59	108.03	270.52	568.19	541.34	26.86	21.156		
4,100.00	3,992.59	4,072.78	4,052.33	18.52	14.45	-172.61	111.06	280.64	583.20	555.66	27.54	21.173		
4,200.00	4,089.34	4,171.64	4,150.63	19.02	14.81	-172.63	114.09	290.76	598.21	569.97	28.23	21.190		
4,300.00	4,186.10	4,270.51	4,248.93	19.52	15.17	-172.64	117.13	300.89	613.21	584.29	28.92	21.205		
4,399.99	4,282.85	4,369.37	4,347.23	20.01	15.53	-172.66	120.16	311.01	628.22	598.61	29.61	21.220		
4,500.00	4,379.98	4,468.45	4,445.74	20.44	15.90	-172.69	123.20	321.16	641.77	611.51	30.26	21.208		
4,600.00	4,477.86	4,567.93	4,544.65	20.78	16.26	-172.68	126.25	331.34	651.89	621.01	30.88	21.112		
4,700.00	4,576.40	4,667.70	4,643.85	21.09	16.63	-172.62	129.31	341.56	658.56	627.07	31.49	20.911		
4,800.00	4,675.48	4,761.18	4,736.81	21.38	16.96	-172.52	132.14	350.99	661.96	629.90	32.06	20.649		
4,900.00	4,774.96	4,843.02	4,818.36	21.65	17.19	-172.45	134.08	357.46	664.06	631.57	32.49	20.438		
5,000.00	4,874.74	4,924.84	4,900.06	21.89	17.40	-172.41	135.35	361.69	665.44	632.55	32.88	20.237		
5,100.00	4,974.68	5,006.64	4,981.84	22.11	17.61	-172.39	135.95	363.69	666.09	632.84	33.24	20.036		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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	5,074.68	5,099.49	5,074.68	22.33	17.86	-89.74	136.00	363.86	666.14	632.41	33.74	19.746		
5,300.00	5,174.68	5,199.49	5,174.68	22.57	18.16	-89.74	136.00	363.86	666.14	631.81	34.33	19.402		
5,400.00	5,274.55	5,299.84	5,274.89	22.79	18.43	90.12	132.43	363.86	666.14	631.23	34.90	19.085		
5,500.00	5,372.15	5,400.40	5,373.02	22.99	18.69	90.12	111.14	363.86	666.09	630.68	35.41	18.812		
5,600.00	5,463.94	5,500.93	5,465.21	23.19	18.95	90.11	71.44	363.86	665.99	630.13	35.87	18.567		
5,700.00	5,546.55	5,601.41	5,548.03	23.37	19.19	90.10	14.83	363.86	665.86	629.54	36.32	18.333		
5,800.00	5,616.95	5,701.81	5,618.42	23.55	19.43	90.08	-56.55	363.86	665.70	628.89	36.81	18.086		
5,900.00	5,672.56	5,802.13	5,673.80	23.74	19.69	90.06	-140.01	363.86	665.51	628.14	37.37	17.808		
6,000.00	5,711.31	5,902.35	5,712.16	23.95	19.98	90.04	-232.43	363.86	665.29	627.25	38.04	17.489		
6,100.00	5,731.81	6,002.47	5,732.13	24.21	20.33	90.01	-330.38	363.86	665.07	626.24	38.83	17.129		
6,200.00	5,735.00	6,102.48	5,735.00	24.52	20.75	90.00	-430.29	363.86	664.83	625.11	39.73	16.735		
6,300.00	5,735.00	6,202.48	5,735.00	24.91	21.26	90.00	-530.29	363.86	664.60	623.78	40.82	16.281		
6,400.00	5,735.00	6,302.48	5,735.00	25.38	21.85	90.00	-630.29	363.86	664.37	622.28	42.09	15.784		
6,500.00	5,735.00	6,402.48	5,735.00	25.93	22.53	90.00	-730.29	363.86	664.14	620.62	43.52	15.259		
6,600.00	5,735.00	6,502.48	5,735.00	26.55	23.29	90.00	-830.29	363.86	663.91	618.80	45.10	14.719		
6,700.00	5,735.00	6,602.48	5,735.00	27.24	24.11	90.00	-930.29	363.86	663.68	616.86	46.82	14.176		
6,800.00	5,735.00	6,702.48	5,735.00	27.99	24.99	90.00	-1,030.29	363.86	663.45	614.80	48.65	13.638		
6,900.00	5,735.00	6,802.48	5,735.00	28.80	25.92	90.00	-1,130.29	363.86	663.21	612.63	50.58	13.112		
7,000.00	5,735.00	6,902.48	5,735.00	29.67	26.91	90.00	-1,230.29	363.86	662.98	610.37	52.61	12.602		
7,100.00	5,735.00	7,002.48	5,735.00	30.59	27.94	90.00	-1,330.29	363.86	662.75	608.03	54.72	12.111		
7,200.00	5,735.00	7,102.48	5,735.00	31.56	29.00	90.00	-1,430.29	363.86	662.52	605.61	56.91	11.642		
7,300.00	5,735.00	7,202.48	5,735.00	32.56	30.10	90.00	-1,530.29	363.86	662.29	603.13	59.16	11.195		
7,400.00	5,735.00	7,302.48	5,735.00	33.60	31.24	90.00	-1,630.29	363.86	662.06	600.59	61.47	10.771		
7,500.00	5,735.00	7,402.48	5,735.00	34.67	32.40	90.00	-1,730.29	363.86	661.83	598.00	63.83	10.368		
7,600.00	5,735.00	7,502.48	5,735.00	35.77	33.58	90.00	-1,830.29	363.86	661.59	595.36	66.24	9.988		
7,700.00	5,735.00	7,602.48	5,735.00	36.90	34.79	90.00	-1,930.29	363.86	661.36	592.67	68.69	9.628		
7,800.00	5,735.00	7,702.48	5,735.00	38.06	36.01	90.00	-2,030.29	363.86	661.13	589.96	71.18	9.289		
7,900.00	5,735.00	7,802.48	5,735.00	39.23	37.26	90.00	-2,130.29	363.86	660.90	587.20	73.70	8.968		
8,000.00	5,735.00	7,902.48	5,735.00	40.43	38.52	90.00	-2,230.29	363.86	660.67	584.42	76.25	8.665		
8,100.00	5,735.00	8,002.48	5,735.00	41.64	39.79	90.00	-2,330.29	363.86	660.44	581.61	78.83	8.378		
8,200.00	5,735.00	8,102.48	5,735.00	42.87	41.08	90.00	-2,430.29	363.85	660.21	578.78	81.43	8.108		
8,300.00	5,735.00	8,202.48	5,735.00	44.12	42.38	90.00	-2,530.29	363.85	659.98	575.92	84.06	7.852		
8,400.00	5,735.00	8,302.48	5,735.00	45.38	43.69	90.00	-2,630.29	363.85	659.74	573.04	86.70	7.609		
8,500.00	5,735.00	8,402.48	5,735.00	46.65	45.01	90.00	-2,730.29	363.85	659.51	570.15	89.37	7.380		
8,600.00	5,735.00	8,502.48	5,735.00	47.93	46.34	90.00	-2,830.29	363.85	659.28	567.23	92.05	7.162		
8,700.00	5,735.00	8,602.48	5,735.00	49.23	47.68	90.00	-2,930.29	363.85	659.05	564.30	94.75	6.956		
8,800.00	5,735.00	8,702.48	5,735.00	50.53	49.02	90.00	-3,030.29	363.85	658.82	561.36	97.46	6.760		
8,900.00	5,735.00	8,802.48	5,735.00	51.85	50.38	90.00	-3,130.29	363.85	658.59	558.41	100.18	6.574		
9,000.00	5,735.00	8,902.48	5,735.00	53.17	51.74	90.00	-3,230.29	363.85	658.36	555.44	102.92	6.397		
9,100.00	5,735.00	9,002.48	5,735.00	54.50	53.10	90.00	-3,330.29	363.85	658.12	552.46	105.67	6.228		
9,200.00	5,735.00	9,102.48	5,735.00	55.83	54.47	90.00	-3,430.29	363.85	657.89	549.47	108.42	6.068		
9,300.00	5,735.00	9,202.48	5,735.00	57.18	55.85	90.00	-3,530.29	363.85	657.66	546.47	111.19	5.915		
9,400.00	5,735.00	9,302.48	5,735.00	58.53	57.23	90.00	-3,630.29	363.85	657.43	543.46	113.97	5.769		
9,500.00	5,735.00	9,402.48	5,735.00	59.88	58.61	90.00	-3,730.29	363.85	657.20	540.45	116.75	5.629		
9,600.00	5,735.00	9,502.47	5,735.00	61.24	60.00	90.00	-3,830.29	363.85	656.97	537.43	119.54	5.496		
9,700.00	5,735.00	9,602.47	5,735.00	62.61	61.40	90.00	-3,930.28	363.85	656.74	534.40	122.34	5.368		
9,800.00	5,735.00	9,702.47	5,735.00	63.98	62.79	90.00	-4,030.28	363.85	656.51	531.36	125.15	5.246		
9,900.00	5,735.00	9,802.47	5,735.00	65.36	64.19	90.00	-4,130.28	363.85	656.27	528.32	127.96	5.129		
10,000.00	5,735.00	9,902.47	5,735.00	66.74	65.60	90.00	-4,230.28	363.85	656.04	525.27	130.78	5.017		
10,100.00	5,735.00	10,002.47	5,735.00	68.12	67.00	90.00	-4,330.28	363.85	655.81	522.21	133.60	4.909		
10,200.00	5,735.00	10,102.47	5,735.00	69.50	68.41	90.00	-4,430.28	363.85	655.58	519.15	136.43	4.805		
10,300.00	5,735.00	10,202.47	5,735.00	70.90	69.83	90.00	-4,530.28	363.85	655.35	516.09	139.26	4.706		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3136 - 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					
10,400.00	5,735.00	10,302.47	5,735.00	72.29	71.24	90.00	-4,630.28	363.85	655.12	513.02	142.10	4.610					
10,500.00	5,735.00	10,402.47	5,735.00	73.68	72.66	90.00	-4,730.28	363.85	654.89	509.95	144.94	4.518					
10,600.00	5,735.00	10,502.47	5,735.00	75.08	74.07	90.00	-4,830.28	363.85	654.65	506.87	147.78	4.430					
10,700.00	5,735.00	10,602.47	5,735.00	76.49	75.49	90.00	-4,930.28	363.85	654.42	503.79	150.63	4.345					
10,800.00	5,735.00	10,702.47	5,735.00	77.89	76.92	90.00	-5,030.28	363.85	654.19	500.71	153.48	4.262					
10,900.00	5,735.00	10,802.47	5,735.00	79.30	78.34	90.00	-5,130.28	363.85	653.96	497.62	156.34	4.183					
11,000.00	5,735.00	10,902.47	5,735.00	80.71	79.77	90.00	-5,230.28	363.85	653.73	494.53	159.20	4.106					
11,100.00	5,735.00	11,002.47	5,735.00	82.12	81.19	90.00	-5,330.28	363.85	653.50	491.44	162.06	4.032					
11,200.00	5,735.00	11,102.47	5,735.00	83.53	82.62	90.00	-5,430.28	363.85	653.27	488.34	164.93	3.961					
11,300.00	5,735.00	11,202.47	5,735.00	84.95	84.05	90.00	-5,530.28	363.85	653.03	485.24	167.79	3.892					
11,400.00	5,735.00	11,302.47	5,735.00	86.37	85.49	90.00	-5,630.28	363.84	652.80	482.14	170.67	3.825					
11,500.00	5,735.00	11,402.47	5,735.00	87.78	86.92	90.00	-5,730.28	363.84	652.57	479.03	173.54	3.760					
11,600.00	5,735.00	11,502.47	5,735.00	89.21	88.35	90.00	-5,830.28	363.84	652.34	475.93	176.41	3.698					
11,700.00	5,735.00	11,602.47	5,735.00	90.63	89.79	90.00	-5,930.28	363.84	652.11	472.82	179.29	3.637					
11,800.00	5,735.00	11,702.47	5,735.00	92.05	91.23	90.00	-6,030.28	363.84	651.88	469.71	182.17	3.578					
11,900.00	5,735.00	11,802.47	5,735.00	93.48	92.67	90.00	-6,130.28	363.84	651.65	466.60	185.05	3.521					
12,000.00	5,735.00	11,902.47	5,735.00	94.90	94.10	90.00	-6,230.28	363.84	651.42	463.48	187.93	3.466					
12,100.00	5,735.00	12,002.47	5,735.00	96.33	95.54	90.00	-6,330.28	363.84	651.18	460.37	190.82	3.413					
12,200.00	5,735.00	12,102.47	5,735.00	97.76	96.99	90.00	-6,430.28	363.84	650.95	457.25	193.71	3.361					
12,300.00	5,735.00	12,202.47	5,735.00	99.19	98.43	90.00	-6,530.28	363.84	650.72	454.13	196.59	3.310					
12,400.00	5,735.00	12,302.47	5,735.00	100.62	99.87	90.00	-6,630.28	363.84	650.49	451.01	199.48	3.261					
12,500.00	5,735.00	12,402.47	5,735.00	102.06	101.31	90.00	-6,730.28	363.84	650.26	447.88	202.38	3.213					
12,600.00	5,735.00	12,502.47	5,735.00	103.49	102.76	90.00	-6,830.28	363.84	650.03	444.76	205.27	3.167					
12,700.00	5,735.00	12,602.47	5,735.00	104.93	104.20	90.00	-6,930.28	363.84	649.80	441.63	208.16	3.122					
12,800.00	5,735.00	12,702.47	5,735.00	106.36	105.65	90.00	-7,030.28	363.84	649.56	438.51	211.06	3.078					
12,900.00	5,735.00	12,802.47	5,735.00	107.80	107.10	90.00	-7,130.28	363.84	649.33	435.38	213.96	3.035					
13,000.00	5,735.00	12,902.47	5,735.00	109.24	108.54	90.00	-7,230.28	363.84	649.10	432.25	216.85	2.993					
13,100.00	5,735.00	13,002.47	5,735.00	110.68	109.99	90.00	-7,330.28	363.84	648.87	429.12	219.75	2.953					
13,200.00	5,735.00	13,102.47	5,735.00	112.12	111.44	90.00	-7,430.28	363.84	648.64	425.98	222.65	2.913					
13,300.00	5,735.00	13,202.47	5,735.00	113.56	112.89	90.00	-7,530.28	363.84	648.41	422.85	225.56	2.875					
13,400.00	5,735.00	13,302.46	5,735.00	115.00	114.34	90.00	-7,630.28	363.84	648.18	419.72	228.46	2.837					
13,500.00	5,735.00	13,402.46	5,735.00	116.44	115.79	90.00	-7,730.27	363.84	647.94	416.58	231.36	2.801					
13,600.00	5,735.00	13,502.46	5,735.00	117.88	117.24	90.00	-7,830.27	363.84	647.71	413.45	234.27	2.765					
13,700.00	5,735.00	13,602.46	5,735.00	119.33	118.69	90.00	-7,930.27	363.84	647.48	410.31	237.17	2.730					
13,800.00	5,735.00	13,702.46	5,735.00	120.77	120.14	90.00	-8,030.27	363.84	647.25	407.17	240.08	2.696					
13,900.00	5,735.00	13,802.46	5,735.00	122.22	121.60	90.00	-8,130.27	363.84	647.02	404.03	242.99	2.663					
13,949.06	5,735.00	13,851.53	5,735.00	122.92	122.31	90.00	-8,179.34	363.84	646.91	402.49	244.41	2.647 SF					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 138-MWD													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	87.75	42.43	1,080.23	1,081.49					
100.00	100.00	74.41	74.41	0.13	0.12	87.75	42.38	1,080.06	1,080.90	1,080.65	0.25	4,321.271		
200.00	200.00	181.06	181.06	0.47	0.36	87.76	42.14	1,079.26	1,080.14	1,079.31	0.83	1,300.743		
300.00	300.00	285.52	285.51	0.81	0.70	87.78	41.87	1,077.91	1,078.84	1,077.32	1.51	712.244		
400.00	399.98	392.76	392.73	1.13	1.05	5.15	41.82	1,076.04	1,075.36	1,073.16	2.20	488.777		
500.00	499.84	504.56	504.49	1.46	1.43	5.21	41.42	1,073.03	1,067.46	1,064.53	2.93	364.780		
600.00	599.45	628.49	628.28	1.80	1.87	5.37	39.58	1,067.47	1,054.24	1,050.50	3.74	281.538		
700.00	698.70	745.67	745.16	2.15	2.31	5.67	36.08	1,060.07	1,035.79	1,031.25	4.53	228.464		
800.00	797.47	862.13	861.09	2.52	2.78	6.14	30.34	1,050.44	1,011.96	1,006.62	5.33	189.795		
900.00	895.62	980.47	978.40	2.92	3.31	6.93	20.73	1,038.33	982.86	976.69	6.17	159.262		
1,000.00	993.06	1,095.69	1,091.92	3.34	3.91	8.10	7.04	1,024.25	948.71	941.67	7.04	134.696		
1,100.00	1,089.86	1,202.16	1,195.85	3.79	4.55	9.55	-9.84	1,008.48	909.80	901.90	7.91	115.082		
1,200.00	1,186.61	1,289.86	1,281.14	4.26	5.11	10.94	-25.33	995.20	870.93	862.30	8.64	100.825		
1,300.00	1,283.37	1,383.33	1,371.80	4.73	5.75	12.65	-43.18	981.12	832.74	823.25	9.49	87.794		
1,400.00	1,380.13	1,473.23	1,458.58	5.20	6.38	14.56	-61.81	966.82	794.56	784.19	10.36	76.660		
1,500.00	1,476.89	1,554.64	1,537.22	5.68	6.91	16.45	-78.83	954.40	757.86	746.68	11.19	67.747		
1,600.00	1,573.64	1,643.39	1,623.24	6.17	7.42	18.60	-96.42	941.52	722.70	710.66	12.04	60.018		
1,700.00	1,670.40	1,732.49	1,709.79	6.65	7.96	20.88	-113.28	928.66	688.54	675.58	12.96	53.123		
1,800.00	1,767.16	1,817.22	1,791.93	7.14	8.53	23.32	-130.23	916.70	656.08	642.14	13.95	47.039		
1,900.00	1,863.92	1,904.37	1,876.40	7.63	9.12	26.07	-148.07	904.82	625.62	610.61	15.01	41.685		
2,000.00	1,960.68	1,993.14	1,962.49	8.12	9.70	29.10	-166.18	892.93	597.06	580.96	16.10	37.087		
2,100.00	2,057.43	2,078.68	2,045.47	8.61	10.27	32.26	-183.85	881.93	570.99	553.76	17.23	33.137		
2,200.00	2,154.19	2,180.80	2,144.49	9.10	10.98	36.34	-204.58	868.04	546.42	527.91	18.52	29.512		
2,300.00	2,250.95	2,277.23	2,237.95	9.59	11.64	40.52	-223.19	853.30	522.65	502.87	19.79	26.415		
2,400.00	2,347.71	2,366.87	2,324.96	10.09	12.26	44.64	-239.88	839.70	501.54	480.51	21.03	23.845		
2,500.00	2,444.46	2,463.26	2,418.28	10.58	12.96	49.49	-257.86	823.63	482.60	460.24	22.36	21.579		
2,600.00	2,541.22	2,551.96	2,503.95	11.08	13.64	54.33	-274.67	807.94	467.01	443.34	23.67	19.731		
2,700.00	2,637.98	2,639.50	2,588.44	11.57	14.31	59.35	-291.32	792.23	455.59	430.68	24.91	18.293		
2,800.00	2,734.74	2,721.05	2,667.37	12.06	14.91	64.05	-307.00	778.96	449.74	423.79	25.96	17.327		
2,865.33	2,797.95	2,779.43	2,723.96	12.39	15.31	67.39	-318.27	770.15	448.79	422.19	26.60	16.874 CC		
2,900.00	2,831.49	2,810.46	2,754.05	12.56	15.53	69.16	-324.26	765.49	449.06	422.14	26.91	16.686 ES		
3,000.00	2,928.25	2,900.68	2,841.58	13.06	16.15	74.26	-341.53	752.05	452.73	424.99	27.74	16.322		
3,100.00	3,025.01	2,991.00	2,929.32	13.55	16.77	79.22	-358.45	738.88	460.43	432.00	28.43	16.196		
3,200.00	3,121.77	3,078.17	3,013.93	14.05	17.39	83.87	-374.97	725.99	472.31	443.32	28.98	16.297		
3,300.00	3,218.52	3,169.47	3,102.50	14.54	18.04	88.52	-392.53	712.47	488.20	458.72	29.48	16.560		
3,400.00	3,315.28	3,264.48	3,194.85	15.04	18.69	93.03	-410.08	698.72	506.83	476.89	29.93	16.932		
3,500.00	3,412.04	3,340.58	3,268.69	15.54	19.23	96.43	-424.70	687.58	529.14	499.00	30.13	17.559		
3,600.00	3,508.80	3,426.14	3,351.39	16.03	19.87	99.99	-442.74	675.05	555.81	525.38	30.43	18.264		
3,700.00	3,605.56	3,511.36	3,433.67	16.53	20.53	103.27	-460.96	662.37	585.09	554.37	30.73	19.042		
3,800.00	3,702.31	3,598.72	3,517.84	17.03	21.21	106.37	-480.12	648.96	616.95	585.89	31.06	19.861		
3,900.00	3,799.07	3,700.98	3,616.51	17.53	21.97	109.70	-501.74	633.02	649.97	618.37	31.60	20.571		
4,000.00	3,895.83	3,794.50	3,707.24	18.02	22.64	112.41	-519.93	619.49	682.62	650.58	32.04	21.307		
4,100.00	3,992.59	3,892.33	3,802.28	18.52	23.31	114.93	-538.89	606.19	716.19	683.64	32.55	22.001		
4,200.00	4,089.34	3,981.06	3,888.63	19.02	23.92	117.05	-555.25	593.97	750.06	717.06	33.00	22.732		
4,300.00	4,186.10	4,072.19	3,977.14	19.52	24.56	119.20	-571.46	579.53	785.18	751.69	33.48	23.450		
4,399.99	4,282.85	4,155.26	4,057.79	20.01	25.16	121.03	-586.11	566.10	821.25	787.34	33.91	24.218		
4,500.00	4,379.98	4,245.17	4,144.93	20.44	25.80	123.38	-602.60	551.31	858.10	823.72	34.38	24.959		
4,600.00	4,477.86	4,335.33	4,232.42	20.78	26.45	125.37	-619.19	537.14	893.46	858.66	34.81	25.669		
4,700.00	4,576.40	4,440.26	4,334.32	21.09	27.18	127.05	-639.60	522.70	927.21	891.78	35.43	26.173		
4,800.00	4,675.48	4,574.90	4,465.95	21.38	28.03	128.64	-661.91	505.41	956.34	920.03	36.31	26.336		
4,900.00	4,774.96	4,712.57	4,601.65	21.65	28.77	129.87	-679.44	490.23	979.37	942.23	37.14	26.372		
5,000.00	4,874.74	4,855.42	4,743.41	21.89	29.40	130.56	-693.99	480.59	995.76	957.85	37.92	26.261		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 138-MWD													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	4,974.68	6,432.61	5,755.17	22.11	24.88	-174.44	116.34	465.93	987.77	964.38	23.39	42.232		
5,200.00	5,074.68	6,433.22	5,755.17	22.33	24.89	-91.63	116.95	465.92	907.64	882.78	24.86	36.507		
5,300.00	5,174.68	6,433.77	5,755.18	22.57	24.89	-91.57	117.50	465.90	831.65	805.04	26.61	31.258		
5,400.00	5,274.55	6,430.63	5,755.16	22.79	24.87	94.37	114.35	465.97	761.24	732.61	28.63	26.592		
5,500.00	5,372.15	6,409.88	5,754.98	22.99	24.77	101.05	93.61	466.38	698.99	668.18	30.81	22.690		
5,600.00	5,463.94	6,372.05	5,754.38	23.19	24.65	104.07	55.79	466.95	648.05	615.06	32.99	19.641		
5,700.00	5,546.55	6,322.64	5,753.29	23.37	24.55	104.48	6.39	467.34	610.37	575.25	35.12	17.380		
5,800.00	5,616.95	6,260.14	5,752.68	23.55	24.58	102.89	-56.10	467.36	586.23	549.27	36.96	15.860		
5,900.00	5,672.56	6,172.93	5,751.09	23.74	24.86	99.49	-143.28	466.72	573.09	534.68	38.41	14.920		
6,000.00	5,711.31	6,072.50	5,736.07	23.95	25.48	95.01	-242.44	465.80	566.13	526.31	39.82	14.219		
6,100.00	5,731.81	5,966.32	5,703.75	24.21	26.33	90.08	-343.47	466.93	562.15	520.92	41.23	13.636		
6,143.14	5,735.55	5,933.95	5,690.54	24.33	26.62	88.51	-373.00	467.45	561.56	519.80	41.76	13.446		
6,200.00	5,735.00	5,891.57	5,670.59	24.52	27.01	86.53	-410.38	467.62	562.46	520.01	42.45	13.250		
6,300.00	5,735.00	5,816.94	5,628.83	24.91	27.71	82.31	-472.17	467.54	569.00	525.47	43.53	13.071 SF		
6,400.00	5,735.00	5,743.03	5,580.08	25.38	28.38	77.47	-527.67	468.15	582.87	538.61	44.25	13.172		
6,500.00	5,735.00	5,688.00	5,539.97	25.93	28.83	73.58	-565.27	469.87	604.85	560.15	44.70	13.531		
6,600.00	5,735.00	5,657.15	5,515.93	26.55	29.06	71.31	-584.59	470.48	637.61	592.46	45.15	14.122		
6,700.00	5,735.00	5,627.26	5,491.54	27.24	29.29	69.10	-601.87	470.31	681.00	635.56	45.44	14.985		
6,800.00	5,735.00	5,601.00	5,469.52	27.99	29.48	67.17	-616.15	469.86	733.16	687.49	45.67	16.054		
6,900.00	5,735.00	5,556.00	5,430.70	28.80	29.79	63.90	-638.89	469.06	792.38	746.86	45.53	17.405		
7,000.00	5,735.00	5,535.03	5,412.16	29.67	29.91	62.40	-648.70	468.85	857.39	811.72	45.67	18.775		
7,100.00	5,735.00	5,514.00	5,393.28	30.59	30.04	60.90	-657.95	468.81	927.42	881.66	45.76	20.267		
7,200.00	5,735.00	5,489.95	5,371.33	31.56	30.15	59.20	-667.75	469.04	1,001.58	955.83	45.76	21.890		
7,300.00	5,735.00	5,472.00	5,354.69	32.56	30.24	57.94	-674.50	469.47	1,079.22	1,033.41	45.81	23.558		
7,400.00	5,735.00	5,472.00	5,354.69	33.60	30.24	57.94	-674.50	469.47	1,160.00	1,113.96	46.04	25.194		
7,500.00	5,735.00	5,448.62	5,332.74	34.67	30.32	56.32	-682.48	470.15	1,242.90	1,196.93	45.98	27.034		
7,600.00	5,735.00	5,426.00	5,311.18	35.77	30.40	54.78	-689.31	470.73	1,328.29	1,282.37	45.92	28.926		
7,700.00	5,735.00	5,426.00	5,311.18	36.90	30.40	54.78	-689.31	470.73	1,415.02	1,368.94	46.08	30.710		
7,800.00	5,735.00	5,426.00	5,311.18	38.06	30.40	54.78	-689.31	470.73	1,503.40	1,457.20	46.21	32.537		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 138-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	87.81	42.44	1,110.45	1,111.67					
100.00	100.00	74.91	74.91	0.13	0.12	87.81	42.50	1,110.26	1,111.09	1,110.84	0.25	4,415.314		
200.00	200.00	181.20	181.20	0.47	0.36	87.79	42.83	1,109.41	1,110.29	1,109.46	0.83	1,339.754		
300.00	300.00	280.14	280.13	0.81	0.67	87.75	43.51	1,108.28	1,109.18	1,107.71	1.47	752.628		
400.00	399.98	376.97	376.96	1.13	0.96	5.10	43.98	1,107.53	1,106.69	1,104.60	2.09	529.783		
500.00	499.84	476.89	476.87	1.46	1.28	5.09	44.77	1,106.84	1,100.82	1,098.09	2.74	402.241		
600.00	599.45	579.41	579.38	1.80	1.60	5.11	45.48	1,106.02	1,091.37	1,087.97	3.40	320.811		
700.00	698.70	687.46	687.42	2.15	1.93	5.22	44.89	1,104.61	1,077.92	1,073.84	4.08	263.968		
800.00	797.47	796.85	796.75	2.52	2.28	5.48	42.36	1,102.22	1,060.11	1,055.32	4.79	221.541		
900.00	895.62	909.97	909.67	2.92	2.65	5.94	36.89	1,098.46	1,037.72	1,032.21	5.52	188.125		
1,000.00	993.06	1,030.40	1,029.59	3.34	3.06	6.70	27.89	1,092.20	1,010.17	1,003.87	6.30	160.403		
1,100.00	1,089.86	1,169.24	1,166.99	3.79	3.56	7.95	12.07	1,080.30	976.96	969.77	7.19	135.820		
1,200.00	1,186.61	1,289.93	1,285.48	4.26	4.03	9.36	-4.98	1,065.02	939.89	931.91	7.98	117.827		
1,300.00	1,283.37	1,401.94	1,394.65	4.73	4.49	10.98	-23.50	1,048.18	901.11	892.38	8.73	103.244		
1,400.00	1,380.13	1,485.96	1,476.02	5.20	4.83	12.45	-39.23	1,034.35	861.57	852.25	9.32	92.426		
1,500.00	1,476.89	1,562.05	1,549.85	5.68	5.13	13.89	-53.61	1,022.90	823.92	814.03	9.89	83.284		
1,600.00	1,573.64	1,645.00	1,630.22	6.17	5.45	15.69	-70.88	1,011.81	788.65	778.12	10.52	74.954		
1,700.00	1,670.40	1,727.03	1,709.19	6.65	5.81	17.79	-90.36	1,001.20	755.08	743.86	11.22	67.303		
1,800.00	1,767.16	1,812.55	1,791.46	7.14	6.16	20.17	-111.02	990.31	723.06	711.12	11.94	60.554		
1,900.00	1,863.92	1,901.38	1,877.19	7.63	6.50	22.75	-131.59	979.49	692.82	680.14	12.68	54.650		
2,000.00	1,960.68	1,997.28	1,969.58	8.12	6.91	25.80	-154.16	967.11	663.63	650.12	13.51	49.123		
2,100.00	2,057.43	2,086.88	2,055.84	8.61	7.30	28.89	-175.22	955.12	635.92	621.57	14.36	44.291		
2,200.00	2,154.19	2,174.13	2,139.72	9.10	7.69	32.16	-196.15	943.37	610.46	595.22	15.24	40.059		
2,300.00	2,250.95	2,260.35	2,222.49	9.59	8.09	35.65	-217.37	931.85	587.81	571.63	16.17	36.348		
2,400.00	2,347.71	2,343.76	2,302.74	10.09	8.46	39.16	-237.64	921.55	568.62	551.53	17.09	33.264		
2,500.00	2,444.46	2,428.52	2,384.53	10.58	8.82	42.81	-257.84	912.26	553.24	535.21	18.03	30.692		
2,600.00	2,541.22	2,516.59	2,469.38	11.08	9.22	46.79	-279.45	902.80	541.55	522.54	19.01	28.494		
2,700.00	2,637.98	2,602.27	2,551.54	11.57	9.64	50.90	-301.70	893.05	533.77	513.78	19.99	26.696		
2,800.00	2,734.74	2,705.00	2,649.98	12.06	10.12	55.97	-328.28	880.53	529.31	508.24	21.07	25.126		
2,900.00	2,831.49	2,819.79	2,760.23	12.56	10.63	61.82	-354.65	862.58	524.82	502.65	22.17	23.675		
2,989.17	2,917.78	2,895.34	2,833.00	13.00	10.97	65.68	-370.72	850.19	522.94	499.97	22.97	22.765		
3,000.00	2,928.25	2,904.81	2,842.14	13.06	11.01	66.16	-372.72	848.71	522.96	499.90	23.07	22.672		
3,100.00	3,025.01	2,994.21	2,928.73	13.55	11.40	70.51	-390.97	836.04	525.35	501.42	23.93	21.957		
3,200.00	3,121.77	3,081.00	3,013.12	14.05	11.77	74.50	-408.41	825.66	531.87	507.16	24.71	21.523		
3,300.00	3,218.52	3,172.39	3,101.94	14.54	12.16	78.59	-426.92	814.81	541.87	516.38	25.49	21.261		
3,400.00	3,315.28	3,254.25	3,181.25	15.04	12.54	82.25	-444.12	803.98	555.42	529.27	26.15	21.244		
3,500.00	3,412.04	3,336.67	3,260.70	15.54	12.93	85.87	-462.68	792.39	573.34	546.58	26.76	21.425		
3,600.00	3,508.80	3,421.42	3,342.16	16.03	13.35	89.45	-482.61	780.07	595.10	567.75	27.36	21.755		
3,700.00	3,605.56	3,502.52	3,419.91	16.53	13.76	92.69	-502.26	768.08	620.26	592.38	27.88	22.250		
3,800.00	3,702.31	3,588.22	3,501.80	17.03	14.18	95.90	-524.01	755.17	648.90	620.48	28.42	22.835		
3,900.00	3,799.07	3,712.44	3,621.18	17.53	14.74	100.13	-553.17	737.10	678.18	648.84	29.34	23.112		
4,000.00	3,895.83	3,830.68	3,736.53	18.02	15.22	103.64	-574.46	722.46	703.62	673.47	30.15	23.334		
4,100.00	3,992.59	3,911.16	3,815.33	18.52	15.55	105.72	-588.67	714.36	729.89	699.24	30.65	23.817		
4,200.00	4,089.34	4,002.00	3,904.14	19.02	15.94	107.92	-605.45	705.19	758.12	726.89	31.23	24.274		
4,300.00	4,186.10	4,081.02	3,981.20	19.52	16.28	109.78	-620.43	696.23	788.18	756.48	31.70	24.861		
4,399.99	4,282.85	4,191.30	4,088.67	20.01	16.75	112.33	-640.51	681.84	819.18	786.72	32.46	25.238		
4,500.00	4,379.98	4,320.95	4,215.82	20.44	17.24	115.54	-659.37	664.94	847.47	814.20	33.26	25.477		
4,600.00	4,477.86	4,471.18	4,364.57	20.78	17.75	118.42	-673.72	649.89	869.54	835.49	34.05	25.536		
4,700.00	4,576.40	4,615.06	4,507.99	21.09	18.17	120.42	-681.13	641.36	885.15	850.45	34.71	25.502		
4,800.00	4,675.48	4,735.50	4,628.35	21.38	18.49	121.67	-683.07	637.55	894.90	859.65	35.25	25.388		
4,900.00	4,774.96	4,841.15	4,733.95	21.65	18.76	122.55	-683.30	634.28	901.79	866.05	35.74	25.229		
5,000.00	4,874.74	6,271.32	5,618.38	21.89	18.53	-174.83	121.12	638.38	866.04	847.21	18.82	46.006		

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





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 138-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	4,974.68	6,272.11	5,618.39	22.11	18.53	-174.39	121.92	638.37	779.55	759.08	20.47	38.078		
5,200.00	5,074.68	6,272.60	5,618.39	22.33	18.53	-91.55	122.41	638.36	695.05	672.63	22.42	31.006		
5,300.00	5,174.68	6,273.06	5,618.39	22.57	18.53	-91.48	122.86	638.35	615.04	590.26	24.78	24.817		
5,400.00	5,274.55	6,270.16	5,618.38	22.79	18.53	94.84	119.96	638.40	541.74	514.14	27.60	19.626		
5,500.00	5,372.15	6,250.77	5,618.27	22.99	18.50	100.94	100.57	638.75	479.13	448.44	30.69	15.612		
5,600.00	5,463.94	6,213.16	5,618.14	23.19	18.47	101.91	62.97	639.30	432.02	398.43	33.60	12.859		
5,700.00	5,546.55	6,154.15	5,619.40	23.37	18.49	98.52	4.00	640.82	402.48	366.78	35.70	11.275		
5,800.00	5,616.95	6,085.87	5,621.66	23.55	18.60	93.32	-64.22	642.63	388.57	351.90	36.67	10.596		
5,871.88	5,658.54	6,030.85	5,621.65	23.68	18.70	88.88	-119.23	643.35	386.14	349.32	36.82	10.488 CC, ES, SF		
5,900.00	5,672.56	6,008.92	5,620.58	23.74	18.74	87.09	-141.13	643.50	386.47	349.69	36.77	10.509		
6,000.00	5,711.31	5,929.90	5,608.30	23.95	18.91	80.35	-219.14	643.69	392.48	356.21	36.27	10.822		
6,100.00	5,731.81	5,858.16	5,589.55	24.21	19.07	74.54	-288.33	643.62	403.41	367.86	35.55	11.348		
6,200.00	5,735.00	5,795.82	5,564.88	24.52	19.20	70.12	-345.51	642.52	419.34	384.38	34.95	11.998		
6,300.00	5,735.00	5,732.33	5,532.08	24.91	19.32	66.03	-399.81	640.70	444.02	409.80	34.22	12.976		
6,400.00	5,735.00	5,680.00	5,500.67	25.38	19.41	62.37	-441.59	639.01	478.22	444.57	33.64	14.214		
6,500.00	5,735.00	5,627.10	5,464.61	25.93	19.50	58.44	-480.26	637.91	521.81	488.73	33.08	15.775		
6,600.00	5,735.00	5,577.65	5,428.59	26.55	19.56	54.79	-514.12	637.30	573.25	540.53	32.72	17.522		
6,700.00	5,735.00	5,536.50	5,397.26	27.24	19.61	51.87	-540.78	636.85	631.52	598.81	32.71	19.307		
6,800.00	5,735.00	5,504.00	5,371.35	27.99	19.65	49.62	-560.40	636.54	696.10	663.10	32.99	21.097		
6,900.00	5,735.00	5,480.17	5,351.61	28.80	19.66	48.00	-573.74	636.38	766.16	732.67	33.49	22.880		
7,000.00	5,735.00	5,459.00	5,333.50	29.67	19.68	46.57	-584.72	636.30	840.83	806.85	33.98	24.745		
7,100.00	5,735.00	5,439.76	5,316.67	30.59	19.68	45.31	-594.03	636.21	919.23	884.79	34.44	26.691		
7,200.00	5,735.00	5,417.00	5,296.37	31.56	19.69	43.86	-604.31	635.96	1,000.67	965.90	34.77	28.780		
7,300.00	5,735.00	5,402.23	5,283.03	32.56	19.69	42.96	-610.63	635.72	1,084.40	1,049.22	35.18	30.822		
7,400.00	5,735.00	5,372.00	5,255.49	33.60	19.69	41.20	-623.10	635.02	1,170.01	1,134.71	35.31	33.138		
7,500.00	5,735.00	5,372.00	5,255.49	34.67	19.69	41.20	-623.10	635.02	1,257.06	1,221.23	35.83	35.087		
7,600.00	5,735.00	5,344.22	5,229.92	35.77	19.69	39.70	-633.92	634.20	1,345.25	1,309.32	35.93	37.439		
7,700.00	5,735.00	5,329.00	5,215.79	36.90	19.69	38.91	-639.56	633.72	1,434.64	1,398.47	36.17	39.663		
7,800.00	5,735.00	5,311.53	5,199.48	38.06	19.69	38.03	-645.81	633.15	1,524.95	1,488.60	36.36	41.944		





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 #30F-1943 - Hz - Hz		Offset Site Error: 0.00 usft	
Survey Program: 139-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	87.87	42.44	1,140.36	1,141.55							
100.00	100.00	77.62	77.62	0.13	0.14	87.86	42.68	1,140.08	1,140.90	1,140.64	0.26	4,320.429				
200.00	200.00	180.41	180.40	0.47	0.36	87.81	43.64	1,138.98	1,139.87	1,139.05	0.81	1,399.007				
300.00	300.00	277.29	277.27	0.81	0.65	87.75	44.65	1,138.27	1,139.17	1,137.72	1.45	787.901				
400.00	399.98	379.62	379.59	1.13	0.97	5.07	45.75	1,137.42	1,136.65	1,134.56	2.09	542.897				
500.00	499.84	478.07	478.03	1.46	1.27	5.05	46.73	1,136.52	1,130.56	1,127.83	2.73	414.070				
600.00	599.45	575.91	575.86	1.80	1.57	5.05	47.81	1,135.83	1,121.22	1,117.85	3.37	332.407				
700.00	698.70	677.62	677.56	2.15	1.89	5.07	48.86	1,135.09	1,108.40	1,104.37	4.04	274.576				
800.00	797.47	789.85	789.78	2.52	2.24	5.22	48.22	1,133.51	1,091.42	1,086.67	4.74	230.045				
900.00	895.62	892.17	892.03	2.92	2.57	5.50	45.53	1,131.21	1,070.12	1,064.70	5.42	197.396				
1,000.00	993.06	991.58	991.31	3.34	2.90	5.93	40.76	1,128.92	1,045.34	1,039.25	6.09	171.620				
1,100.00	1,089.86	1,110.24	1,109.53	3.79	3.29	6.67	31.64	1,124.72	1,016.82	1,009.98	6.84	148.573				
1,200.00	1,186.61	1,224.06	1,222.53	4.26	3.69	7.59	19.75	1,118.08	985.99	978.43	7.56	130.391				
1,300.00	1,283.37	1,335.84	1,333.12	4.73	4.09	8.71	5.89	1,109.63	953.74	945.46	8.28	115.143				
1,400.00	1,380.13	1,445.80	1,441.32	5.20	4.52	10.09	-10.59	1,099.10	919.89	910.88	9.02	102.040				
1,500.00	1,476.89	1,543.75	1,537.22	5.68	4.91	11.57	-27.49	1,088.50	885.37	875.66	9.71	91.160				
1,600.00	1,573.64	1,631.61	1,622.84	6.17	5.27	13.14	-44.47	1,078.56	851.07	840.68	10.39	81.919				
1,700.00	1,670.40	1,707.00	1,695.91	6.65	5.59	14.74	-61.33	1,070.88	818.74	807.70	11.04	74.155				
1,800.00	1,767.16	1,789.77	1,775.98	7.14	5.91	16.67	-80.98	1,063.51	788.71	776.99	11.72	67.304				
1,900.00	1,863.92	1,906.41	1,888.90	7.63	6.35	19.55	-107.61	1,051.59	758.48	745.96	12.52	60.602				
2,000.00	1,960.68	1,989.80	1,969.46	8.12	6.70	21.82	-126.94	1,042.12	728.62	715.36	13.27	54.927				
2,100.00	2,057.43	2,078.73	2,055.46	8.61	7.06	24.39	-147.51	1,032.58	700.79	686.74	14.04	49.904				
2,200.00	2,154.19	2,186.65	2,159.35	9.10	7.51	27.86	-173.24	1,018.84	673.00	658.08	14.92	45.110				
2,300.00	2,250.95	2,272.58	2,241.94	9.59	7.87	30.88	-193.87	1,007.14	646.59	630.83	15.77	41.011				
2,400.00	2,347.71	2,357.95	2,324.35	10.09	8.21	33.96	-213.42	996.45	622.92	606.31	16.62	37.485				
2,500.00	2,444.46	2,445.51	2,408.85	10.58	8.59	37.33	-233.73	985.78	602.01	584.48	17.54	34.329				
2,600.00	2,541.22	2,533.26	2,493.49	11.08	8.98	40.89	-254.39	975.27	584.07	565.59	18.49	31.596				
2,700.00	2,637.98	2,622.15	2,579.29	11.57	9.36	44.65	-275.16	964.95	569.22	549.78	19.44	29.277				
2,800.00	2,734.74	2,710.85	2,664.93	12.06	9.76	48.53	-295.95	954.79	557.62	537.19	20.43	27.298				
2,900.00	2,831.49	2,800.82	2,751.78	12.56	10.15	52.58	-317.06	944.58	549.39	527.98	21.40	25.667				
3,000.00	2,928.25	2,891.35	2,839.27	13.06	10.54	56.71	-338.04	934.50	544.52	522.16	22.36	24.356				
3,098.56	3,023.61	2,981.13	2,926.23	13.54	10.92	60.76	-358.28	925.07	542.96	519.68	23.28	23.328				
3,100.00	3,025.01	2,982.45	2,927.52	13.55	10.93	60.82	-358.57	924.93	542.96	519.67	23.29	23.314				
3,200.00	3,121.77	3,075.48	3,017.76	14.05	11.32	64.97	-379.02	915.40	544.45	520.25	24.20	22.496				
3,300.00	3,218.52	3,160.78	3,100.40	14.54	11.70	68.79	-398.11	906.36	549.42	524.38	25.03	21.947				
3,400.00	3,315.28	3,248.88	3,185.54	15.04	12.10	72.70	-418.64	896.79	558.34	532.49	25.85	21.599				
3,500.00	3,412.04	3,336.37	3,269.92	15.54	12.51	76.53	-439.51	886.78	570.79	544.17	26.61	21.446				
3,600.00	3,508.80	3,425.86	3,356.19	16.03	12.92	80.28	-461.05	876.77	586.55	559.21	27.35	21.447				
3,700.00	3,605.56	3,512.41	3,439.61	16.53	13.32	83.75	-481.99	867.09	605.27	577.25	28.02	21.605				
3,800.00	3,702.31	3,596.79	3,520.72	17.03	13.72	86.99	-503.09	857.21	627.25	598.63	28.62	21.916				
3,900.00	3,799.07	3,707.62	3,627.29	17.53	14.22	91.02	-530.30	843.71	651.36	621.88	29.48	22.094				
4,000.00	3,895.83	3,809.56	3,726.24	18.02	14.66	94.41	-551.68	831.73	674.13	643.92	30.22	22.311				
4,100.00	3,992.59	3,907.08	3,821.25	18.52	15.07	97.34	-571.21	821.66	697.86	666.96	30.90	22.587				
4,200.00	4,089.34	3,999.94	3,911.91	19.02	15.47	99.87	-589.35	813.09	722.60	691.07	31.53	22.918				
4,300.00	4,186.10	4,099.49	4,009.27	19.52	15.88	102.39	-608.27	804.37	748.13	715.91	32.22	23.220				
4,399.99	4,282.85	4,199.25	4,107.03	20.01	16.27	104.74	-626.18	795.92	773.83	740.93	32.90	23.518				
4,500.00	4,379.98	4,298.54	4,204.46	20.44	16.66	107.30	-643.40	787.50	799.63	766.12	33.51	23.860				
4,600.00	4,477.86	4,420.18	4,324.39	20.78	17.12	109.76	-661.90	779.18	822.80	788.57	34.22	24.043				
4,700.00	4,576.40	4,557.13	4,460.17	21.09	17.60	111.82	-678.25	772.24	841.95	806.97	34.98	24.068				
4,800.00	4,675.48	4,663.28	4,565.78	21.38	17.94	113.16	-687.80	767.31	857.16	821.64	35.53	24.127				
4,900.00	4,774.96	4,731.71	4,632.14	21.65	18.16	-169.85	154.26	802.52	846.33	831.88	14.45	58.567				
5,000.00	4,874.74	4,829.21	4,732.22	21.89	18.15	-169.37	151.76	802.54	752.29	736.83	15.45	48.682				

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 139-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	4,974.68	6,226.38	5,562.30	22.11	18.14	-169.03	148.93	802.57	658.63	641.95	16.68	39.479		
5,200.00	5,074.68	6,223.30	5,562.39	22.33	18.13	-86.77	145.85	802.59	565.96	547.69	18.27	30.984		
5,300.00	5,174.68	6,220.33	5,562.47	22.57	18.13	-87.51	142.89	802.62	476.11	455.63	20.48	23.252		
5,400.00	5,274.55	6,213.87	5,562.64	22.79	18.10	100.81	136.43	802.66	391.37	367.76	23.61	16.578		
5,500.00	5,372.15	6,190.12	5,563.20	22.99	18.03	107.30	112.68	802.75	317.30	289.52	27.78	11.421		
5,600.00	5,463.94	6,150.72	5,563.79	23.19	17.93	106.11	73.29	802.55	262.01	229.49	32.52	8.057		
5,700.00	5,546.55	6,098.62	5,563.65	23.37	17.86	99.00	21.21	801.19	233.56	197.71	35.85	6.516		
5,751.75	5,584.68	6,064.46	5,562.83	23.46	17.87	92.99	-12.91	799.82	230.16	193.87	36.29	6.342 CC, ES, SF		
5,800.00	5,616.95	6,030.58	5,561.18	23.55	17.90	86.79	-46.73	798.44	232.76	196.89	35.87	6.489		
5,900.00	5,672.56	5,956.63	5,554.67	23.74	18.03	73.89	-120.31	795.39	250.63	217.15	33.48	7.486		
6,000.00	5,711.31	5,884.44	5,542.50	23.95	18.17	63.17	-191.37	792.09	277.60	246.84	30.76	9.025		
6,100.00	5,731.81	5,810.00	5,524.20	24.21	18.34	54.90	-263.43	788.94	305.75	276.95	28.80	10.615		
6,200.00	5,735.00	5,744.19	5,501.46	24.52	18.48	50.12	-325.06	785.82	333.66	305.61	28.05	11.896		
6,300.00	5,735.00	5,684.30	5,474.14	24.91	18.61	46.94	-378.19	782.21	369.98	342.17	27.81	13.305		
6,400.00	5,735.00	5,633.00	5,445.54	25.38	18.72	43.92	-420.64	779.26	416.00	387.93	28.07	14.822		
6,500.00	5,735.00	5,588.00	5,416.56	25.93	18.80	41.20	-454.93	776.48	471.23	442.53	28.70	16.422		
6,600.00	5,735.00	5,543.00	5,384.90	26.55	18.87	38.58	-486.77	773.56	533.70	504.40	29.30	18.214		
6,700.00	5,735.00	5,512.19	5,362.07	27.24	18.91	36.89	-507.34	771.39	601.52	571.15	30.37	19.805		
6,800.00	5,735.00	5,457.00	5,319.44	27.99	18.99	34.17	-542.10	766.94	674.15	643.70	30.45	22.141		
6,900.00	5,735.00	5,438.96	5,305.07	28.80	19.02	33.35	-552.89	765.42	749.32	717.70	31.62	23.694		
7,000.00	5,735.00	5,402.77	5,275.68	29.67	19.06	31.78	-573.83	762.67	827.46	795.37	32.10	25.779		
7,100.00	5,735.00	5,367.00	5,245.95	30.59	19.11	30.30	-593.58	760.34	907.75	875.25	32.50	27.928		
7,200.00	5,735.00	5,367.00	5,245.95	31.56	19.11	30.30	-593.58	760.34	990.57	957.00	33.58	29.503		
7,300.00	5,735.00	5,322.39	5,207.72	32.56	19.15	28.53	-616.44	758.14	1,074.17	1,040.55	33.63	31.945		
7,400.00	5,735.00	5,280.00	5,170.11	33.60	19.19	26.91	-635.95	756.94	1,160.49	1,126.78	33.72	34.417		
7,500.00	5,735.00	5,280.00	5,170.11	34.67	19.19	26.91	-635.95	756.94	1,247.19	1,212.74	34.46	36.195		
7,600.00	5,735.00	5,261.43	5,153.34	35.77	19.19	26.22	-643.91	756.66	1,335.53	1,300.71	34.82	38.358		
7,700.00	5,735.00	5,237.91	5,131.96	36.90	19.20	25.38	-653.71	756.51	1,424.71	1,389.64	35.07	40.628		
7,800.00	5,735.00	5,215.87	5,111.79	38.06	19.21	24.62	-662.59	756.55	1,514.62	1,479.31	35.31	42.899		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 139-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	87.92	42.44	1,170.19	1,171.36					
100.00	100.00	71.63	71.63	0.13	0.11	87.92	42.52	1,170.13	1,170.90	1,170.66	0.24	4,876.478		
200.00	200.00	173.88	173.88	0.47	0.33	87.90	42.94	1,169.82	1,170.61	1,169.82	0.79	1,474.860		
300.00	300.00	275.41	275.40	0.81	0.66	87.85	43.96	1,169.36	1,170.20	1,168.73	1.46	800.278		
400.00	399.98	374.23	374.22	1.13	0.96	5.17	44.94	1,168.81	1,167.95	1,165.86	2.09	559.443		
500.00	499.84	469.23	469.21	1.46	1.24	5.17	45.54	1,168.59	1,162.53	1,159.83	2.70	430.913		
600.00	599.45	573.03	573.01	1.80	1.56	5.24	45.25	1,168.60	1,153.85	1,150.50	3.36	343.578		
700.00	698.70	680.75	680.69	2.15	1.91	5.46	42.59	1,167.91	1,140.99	1,136.94	4.05	281.482		
800.00	797.47	787.08	786.87	2.52	2.26	5.86	37.06	1,166.57	1,124.03	1,119.27	4.76	236.310		
900.00	895.62	898.35	897.80	2.92	2.63	6.45	28.86	1,164.11	1,102.70	1,097.20	5.49	200.722		
1,000.00	993.06	1,001.56	1,000.49	3.34	3.00	7.20	19.00	1,160.85	1,077.14	1,070.94	6.20	173.597		
1,100.00	1,089.86	1,108.06	1,106.22	3.79	3.38	8.10	6.91	1,156.86	1,048.65	1,041.72	6.93	151.216		
1,200.00	1,186.61	1,214.97	1,211.94	4.26	3.78	9.20	-7.98	1,151.18	1,018.69	1,011.04	7.65	133.077		
1,300.00	1,283.37	1,318.11	1,313.50	4.73	4.19	10.48	-24.72	1,144.73	988.24	979.87	8.38	117.969		
1,400.00	1,380.13	1,427.00	1,420.05	5.20	4.64	12.13	-45.44	1,136.15	956.82	947.67	9.15	104.586		
1,500.00	1,476.89	1,510.63	1,501.71	5.68	4.95	13.52	-62.06	1,129.12	925.60	915.82	9.78	94.653		
1,600.00	1,573.64	1,589.84	1,579.19	6.17	5.24	14.88	-77.49	1,123.50	896.20	885.79	10.41	86.095		
1,700.00	1,670.40	1,679.08	1,665.91	6.65	5.61	16.69	-97.75	1,117.83	868.62	857.48	11.14	77.958		
1,800.00	1,767.16	1,750.89	1,735.18	7.14	5.92	18.36	-116.14	1,113.40	842.76	830.92	11.84	71.206		
1,900.00	1,863.92	1,839.63	1,821.06	7.63	6.28	20.44	-138.32	1,110.69	820.71	808.13	12.58	65.259		
2,000.00	1,960.68	1,954.84	1,933.50	8.12	6.69	23.02	-162.63	1,104.60	796.92	783.56	13.36	59.628		
2,100.00	2,057.43	2,036.08	2,012.95	8.61	6.99	24.90	-179.03	1,100.23	774.16	760.07	14.09	54.947		
2,200.00	2,154.19	2,116.12	2,090.87	9.10	7.32	26.93	-197.04	1,097.05	754.46	739.61	14.86	50.783		
2,300.00	2,250.95	2,213.83	2,185.90	9.59	7.73	29.54	-219.53	1,093.79	737.00	721.30	15.70	46.944		
2,400.00	2,347.71	2,315.92	2,285.75	10.09	8.11	32.23	-240.33	1,089.54	719.32	702.79	16.53	43.527		
2,500.00	2,444.46	2,411.72	2,379.50	10.58	8.48	34.86	-259.55	1,085.16	702.69	685.33	17.36	40.479		
2,600.00	2,541.22	2,506.23	2,471.62	11.08	8.87	37.70	-279.96	1,079.64	687.36	669.13	18.23	37.708		
2,700.00	2,637.98	2,599.32	2,562.38	11.57	9.24	40.61	-299.86	1,074.06	673.70	654.61	19.09	35.284		
2,800.00	2,734.74	2,690.82	2,651.59	12.06	9.61	43.56	-319.44	1,068.53	662.02	642.04	19.98	33.138		
2,900.00	2,831.49	2,783.66	2,742.09	12.56	10.00	46.65	-339.41	1,062.92	652.51	631.63	20.88	31.250		
3,000.00	2,928.25	2,876.66	2,832.85	13.06	10.36	49.76	-358.92	1,057.52	645.03	623.27	21.77	29.631		
3,100.00	3,025.01	2,971.13	2,925.22	13.55	10.73	52.92	-378.12	1,052.43	639.60	616.95	22.66	28.229		
3,200.00	3,121.77	3,060.80	3,012.92	14.05	11.09	55.94	-396.16	1,047.72	636.31	612.78	23.53	27.040		
3,300.00	3,218.52	3,158.25	3,108.11	14.54	11.50	59.29	-416.27	1,042.20	635.40	610.96	24.45	25.991		
3,322.92	3,240.70	3,180.84	3,130.21	14.66	11.59	60.06	-420.74	1,040.90	635.36	610.70	24.66	25.769		
3,400.00	3,315.28	3,251.88	3,199.77	15.04	11.87	62.46	-434.66	1,036.99	636.04	610.72	25.32	25.121		
3,500.00	3,412.04	3,333.12	3,279.18	15.54	12.20	65.21	-451.22	1,032.61	639.59	613.49	26.11	24.500		
3,600.00	3,508.80	3,423.42	3,367.01	16.03	12.59	68.35	-471.47	1,027.23	646.81	619.87	26.94	24.011		
3,700.00	3,605.56	3,514.99	3,456.08	16.53	12.98	71.49	-491.91	1,021.33	656.06	628.30	27.76	23.634		
3,800.00	3,702.31	3,604.29	3,542.81	17.03	13.38	74.51	-512.29	1,015.19	667.86	639.32	28.55	23.396		
3,900.00	3,799.07	3,699.10	3,634.81	17.53	13.80	77.65	-534.11	1,008.27	681.92	652.57	29.36	23.229		
4,000.00	3,895.83	3,800.09	3,732.97	18.02	14.23	80.89	-556.46	1,000.27	697.15	666.95	30.19	23.089		
4,100.00	3,992.59	3,895.97	3,826.40	18.52	14.62	83.83	-576.60	992.63	713.31	682.35	30.96	23.037		
4,200.00	4,089.34	3,993.00	3,921.18	19.02	15.02	86.58	-596.28	986.03	730.79	699.07	31.73	23.034		
4,300.00	4,186.10	4,098.95	4,025.04	19.52	15.44	89.34	-616.34	980.07	748.70	716.15	32.55	23.001		
4,399.99	4,282.85	4,209.22	4,133.62	20.01	15.86	91.99	-634.92	974.97	766.05	732.66	33.39	22.941		
4,500.00	4,379.98	4,325.05	4,248.13	20.44	16.28	94.72	-651.74	970.66	782.33	748.14	34.19	22.885		
4,600.00	4,477.86	4,450.29	4,372.58	20.78	16.70	96.95	-665.72	969.55	795.83	760.91	34.92	22.791		
4,700.00	4,576.40	4,574.40	4,496.29	21.09	17.09	98.62	-675.52	969.88	806.20	770.61	35.59	22.652		
4,800.00	4,675.48	4,694.09	4,615.86	21.38	17.44	99.96	-680.63	968.81	812.63	776.44	36.20	22.450		
4,900.00	4,774.96	4,793.12	4,714.82	21.65	17.72	100.72	-684.28	969.23	818.13	781.39	36.73	22.272		
5,000.00	4,874.74	6,198.93	5,633.41	21.89	17.95	-175.02	133.83	976.95	790.64	779.87	10.76	73.478		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 139-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	4,974.68	6,199.47	5,633.41	22.11	17.96	-172.46	134.37	976.96	691.14	680.16	10.99	62.898		
5,200.00	5,074.68	6,199.45	5,633.41	22.33	17.96	-88.54	134.35	976.96	591.51	580.28	11.23	52.677		
5,300.00	5,174.68	6,199.39	5,633.41	22.57	17.96	-88.61	134.29	976.96	491.99	480.42	11.57	42.524		
5,400.00	5,274.55	6,195.29	5,633.41	22.79	17.94	130.79	130.19	976.88	392.87	380.78	12.09	32.490		
5,500.00	5,372.15	6,171.25	5,633.27	22.99	17.89	148.16	106.16	976.40	296.41	283.48	12.93	22.932		
5,600.00	5,463.94	6,128.76	5,632.31	23.19	17.81	148.98	63.69	975.45	206.15	191.35	14.80	13.933		
5,700.00	5,546.55	6,066.67	5,628.58	23.37	17.74	138.55	1.74	974.10	125.94	105.95	19.99	6.302		
5,800.00	5,616.95	5,998.58	5,617.88	23.55	17.73	109.20	-65.47	974.27	64.01	30.74	33.27	1.924		
5,842.68	5,642.63	5,970.67	5,611.04	23.62	17.73	88.49	-92.52	974.75	54.75	18.47	36.28	1.509 CC, ES, SF		
5,900.00	5,672.56	5,934.77	5,600.11	23.74	17.75	60.61	-126.71	975.38	69.83	42.29	27.55	2.535		
6,000.00	5,711.31	5,872.13	5,576.17	23.95	17.78	31.72	-184.56	976.30	126.82	106.91	19.91	6.369		
6,100.00	5,731.81	5,799.38	5,543.65	24.21	17.86	19.09	-249.60	977.93	184.44	165.45	19.00	9.709		
6,200.00	5,735.00	5,734.61	5,511.25	24.52	17.93	14.27	-305.63	979.79	235.20	213.80	21.39	10.993		
6,300.00	5,735.00	5,677.19	5,477.55	24.91	17.99	11.87	-352.08	981.16	292.49	268.43	24.06	12.157		
6,400.00	5,735.00	5,623.92	5,443.23	25.38	18.05	10.20	-392.79	981.76	356.20	330.05	26.15	13.622		
6,500.00	5,735.00	5,574.00	5,408.30	25.93	18.10	9.05	-428.44	981.52	425.52	397.76	27.76	15.328		
6,600.00	5,735.00	5,528.89	5,375.03	26.55	18.15	8.26	-458.90	980.79	498.76	469.63	29.13	17.121		
6,700.00	5,735.00	5,460.02	5,323.64	27.24	18.25	7.35	-504.71	979.37	573.22	544.22	29.00	19.767		
6,800.00	5,735.00	5,402.21	5,280.51	27.99	18.34	6.76	-543.20	978.18	647.71	618.35	29.36	22.059		
6,900.00	5,735.00	5,355.05	5,244.64	28.80	18.42	6.31	-573.79	977.49	723.68	693.64	30.04	24.088		
7,000.00	5,735.00	5,310.00	5,209.47	29.67	18.49	5.88	-601.95	977.32	801.51	770.85	30.65	26.146		
7,100.00	5,735.00	5,280.00	5,185.79	30.59	18.54	5.63	-620.37	977.15	880.68	849.11	31.57	27.898		
7,200.00	5,735.00	5,280.00	5,185.79	31.56	18.54	5.63	-620.37	977.15	963.10	930.07	33.02	29.164		
7,300.00	5,735.00	5,242.55	5,155.07	32.56	18.58	5.37	-641.75	976.51	1,045.93	1,012.55	33.38	31.332		
7,400.00	5,735.00	5,230.01	5,144.30	33.60	18.59	5.31	-648.16	976.14	1,131.81	1,097.65	34.16	33.137		
7,500.00	5,735.00	5,196.00	5,114.05	34.67	18.63	5.17	-663.61	974.73	1,220.31	1,185.89	34.42	35.455		
7,600.00	5,735.00	5,196.00	5,114.05	35.77	18.63	5.17	-663.61	974.73	1,308.62	1,273.44	35.18	37.200		
7,700.00	5,735.00	5,196.00	5,114.05	36.90	18.63	5.17	-663.61	974.73	1,398.49	1,362.68	35.81	39.052		
7,800.00	5,735.00	5,196.00	5,114.05	38.06	18.63	5.17	-663.61	974.73	1,489.66	1,453.32	36.35	40.985		



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## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 25-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	87.98	42.44	1,200.41	1,201.55					
100.00	100.00	81.79	81.79	0.13	0.21	87.97	42.53	1,199.92	1,200.74	1,200.36	0.37	3,243.460		
200.00	200.00	185.17	185.16	0.47	0.55	87.94	43.07	1,198.70	1,199.58	1,198.55	1.03	1,163.909		
300.00	300.00	288.28	288.26	0.81	0.88	87.90	43.93	1,197.23	1,198.18	1,196.47	1.70	703.786		
400.00	399.98	385.30	385.26	1.13	1.17	5.22	44.86	1,195.74	1,194.94	1,192.63	2.31	516.817		
500.00	499.84	476.33	476.28	1.46	1.45	5.21	45.73	1,194.86	1,188.80	1,185.89	2.91	409.037		
600.00	599.45	572.37	572.31	1.80	1.74	5.22	46.61	1,194.42	1,179.71	1,176.16	3.54	333.040		
700.00	698.70	670.70	670.64	2.15	2.05	5.26	47.40	1,194.10	1,167.27	1,163.08	4.19	278.395		
800.00	797.47	765.59	765.53	2.52	2.35	5.33	48.00	1,194.01	1,151.63	1,146.80	4.83	238.199		
900.00	895.62	859.41	859.34	2.92	2.64	5.43	48.34	1,194.27	1,132.91	1,127.43	5.48	206.827		
1,000.00	993.06	957.64	957.58	3.34	2.95	5.57	48.58	1,194.74	1,110.99	1,104.86	6.14	181.043		
1,100.00	1,089.86	1,058.04	1,057.97	3.79	3.26	5.75	48.12	1,195.20	1,086.46	1,079.66	6.80	159.858		
1,200.00	1,186.61	1,163.63	1,163.52	4.26	3.60	6.06	45.19	1,195.08	1,061.14	1,053.69	7.45	142.389		
1,300.00	1,283.37	1,269.63	1,269.35	4.73	3.94	6.55	39.48	1,193.98	1,034.90	1,026.78	8.12	127.512		
1,400.00	1,380.13	1,372.61	1,372.04	5.20	4.27	7.16	31.96	1,192.12	1,007.97	999.20	8.78	114.830		
1,500.00	1,476.89	1,471.74	1,470.73	5.68	4.60	7.90	22.95	1,189.72	980.55	971.11	9.44	103.912		
1,600.00	1,573.64	1,562.35	1,560.77	6.17	4.90	8.72	12.91	1,187.85	953.64	943.56	10.08	94.628		
1,700.00	1,670.40	1,657.09	1,654.51	6.65	5.23	9.82	-0.57	1,185.74	926.90	916.16	10.75	86.237		
1,800.00	1,767.16	1,736.02	1,732.25	7.14	5.52	10.93	-14.19	1,184.81	901.64	890.25	11.39	79.160		
1,900.00	1,863.92	1,831.16	1,825.55	7.63	5.87	12.48	-32.76	1,184.32	877.70	865.60	12.09	72.574		
2,000.00	1,960.68	1,932.02	1,924.03	8.12	6.24	14.35	-54.47	1,182.94	853.84	841.02	12.82	66.601		
2,100.00	2,057.43	2,018.96	2,008.61	8.61	6.57	16.14	-74.59	1,181.59	830.89	817.35	13.54	61.378		
2,200.00	2,154.19	2,113.95	2,100.47	9.10	6.96	18.35	-98.67	1,179.95	809.19	794.87	14.32	56.524		
2,300.00	2,250.95	2,197.68	2,181.18	9.59	7.29	20.46	-120.89	1,178.57	789.08	774.03	15.05	52.423		
2,400.00	2,347.71	2,287.21	2,267.56	10.09	7.63	22.77	-144.43	1,177.89	771.17	755.36	15.81	48.776		
2,500.00	2,444.46	2,383.79	2,360.54	10.58	8.04	25.42	-170.51	1,176.59	754.49	737.84	16.65	45.317		
2,600.00	2,541.22	2,474.74	2,448.05	11.08	8.41	28.03	-195.26	1,175.43	739.67	722.20	17.47	42.347		
2,700.00	2,637.98	2,563.35	2,533.22	11.57	8.80	30.67	-219.68	1,174.43	726.93	708.62	18.31	39.709		
2,800.00	2,734.74	2,651.12	2,617.44	12.06	9.20	33.39	-244.39	1,173.52	716.50	697.33	19.17	37.373		
2,900.00	2,831.49	2,740.65	2,703.10	12.56	9.61	36.28	-270.39	1,172.59	708.60	688.54	20.06	35.330		
3,000.00	2,928.25	2,846.03	2,804.40	13.06	10.05	39.66	-299.37	1,170.73	701.52	680.53	20.99	33.427		
3,100.00	3,025.01	2,938.67	2,893.61	13.55	10.45	42.65	-324.26	1,168.93	696.24	674.37	21.88	31.826		
3,200.00	3,121.77	3,038.33	2,990.17	14.05	10.83	45.73	-348.85	1,167.63	692.28	669.51	22.77	30.403		
3,300.00	3,218.52	3,142.87	3,092.31	14.54	11.23	48.70	-371.12	1,168.04	689.35	665.68	23.68	29.117		
3,400.00	3,315.28	3,251.11	3,198.36	15.04	11.66	51.80	-392.70	1,166.71	686.07	661.45	24.62	27.867		
3,500.00	3,412.04	3,336.09	3,281.32	15.54	12.02	54.44	-410.83	1,163.48	683.99	658.52	25.47	26.852		
3,500.42	3,412.45	3,336.38	3,281.61	15.54	12.02	54.45	-410.90	1,163.46	683.99	658.52	25.48	26.848		
3,600.00	3,508.80	3,415.62	3,358.29	16.03	12.37	57.10	-430.51	1,159.80	685.98	659.69	26.29	26.092		
3,700.00	3,605.56	3,498.63	3,438.17	16.53	12.76	59.92	-452.75	1,155.99	691.87	664.75	27.12	25.514		
3,800.00	3,702.31	3,582.47	3,518.51	17.03	13.17	62.82	-476.31	1,151.59	700.90	672.98	27.93	25.096		
3,900.00	3,799.07	3,672.32	3,604.74	17.53	13.57	65.74	-501.34	1,148.35	712.86	684.11	28.75	24.796		
4,000.00	3,895.83	3,787.38	3,716.10	18.02	14.06	69.13	-530.13	1,146.04	725.05	695.28	29.77	24.358		
4,100.00	3,992.59	3,900.00	3,825.90	18.52	14.51	72.24	-555.05	1,143.52	736.44	705.70	30.73	23.961		
4,200.00	4,089.34	4,000.00	3,923.71	19.02	14.92	74.87	-575.74	1,141.46	748.27	716.68	31.59	23.685		
4,300.00	4,186.10	4,118.94	4,040.58	19.52	15.37	77.82	-597.63	1,139.11	759.56	726.99	32.57	23.322		
4,399.99	4,282.85	4,231.83	4,152.00	20.01	15.79	80.55	-615.43	1,135.71	769.49	736.01	33.48	22.983		
4,500.00	4,379.98	4,375.59	4,294.84	20.44	16.26	83.64	-631.28	1,133.47	776.89	742.46	34.42	22.568		
4,600.00	4,477.86	4,487.67	4,406.61	20.78	16.61	85.73	-639.04	1,130.42	781.30	746.19	35.11	22.255		
4,700.00	4,576.40	4,571.59	4,490.31	21.09	16.87	87.12	-644.68	1,128.05	786.43	750.75	35.68	22.039		
4,800.00	4,675.48	4,715.68	4,634.21	21.38	17.28	88.62	-651.18	1,129.10	790.69	754.33	36.36	21.745		
4,900.00	4,774.96	4,816.05	4,734.56	21.65	17.56	89.31	-652.48	1,130.17	791.95	755.03	36.92	21.449		
5,000.00	4,874.74	6,176.47	5,551.20	21.89	18.40	-12.19	163.56	1,135.67	715.90	706.19	9.71	73.733		

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 @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 25-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	4,974.68	6,172.55	5,551.35	22.11	18.39	-7.31	159.64	1,135.83	616.84	607.05	9.79	62.989	
5,200.00	5,074.68	6,168.63	5,551.49	22.33	18.38	77.90	155.73	1,135.99	518.66	508.61	10.05	51.583	
5,300.00	5,174.68	6,164.75	5,551.64	22.57	18.37	79.93	151.85	1,136.14	421.37	410.66	10.72	39.314	
5,400.00	5,274.55	6,157.21	5,551.91	22.79	18.35	-115.50	144.32	1,136.42	325.98	313.75	12.23	26.650	
5,500.00	5,372.15	6,131.07	5,552.77	22.99	18.28	-124.45	118.21	1,137.30	236.97	221.37	15.60	15.193	
5,600.00	5,463.94	6,088.08	5,553.90	23.19	18.22	-120.21	75.25	1,138.65	162.36	139.57	22.79	7.125	
5,700.00	5,546.55	6,028.61	5,555.05	23.37	18.12	-103.82	15.81	1,140.04	117.01	83.66	33.34	3.509	
5,748.32	5,582.27	5,996.13	5,554.93	23.45	18.08	-92.23	-16.66	1,140.83	111.26	74.87	36.39	3.058	CC, ES, SF
5,800.00	5,616.95	5,960.18	5,553.76	23.55	18.05	-78.95	-52.57	1,141.83	117.07	80.93	36.15	3.239	
5,900.00	5,672.56	5,892.50	5,544.88	23.74	18.00	-56.46	-119.59	1,143.27	151.27	120.39	30.87	4.899	
6,000.00	5,711.31	5,825.00	5,527.75	23.95	17.99	-41.05	-184.84	1,144.07	197.38	170.53	26.85	7.352	
6,100.00	5,731.81	5,758.37	5,504.37	24.21	18.01	-31.61	-247.21	1,143.99	242.87	217.36	25.51	9.520	
6,200.00	5,735.00	5,689.60	5,474.65	24.52	18.05	-26.41	-309.19	1,143.18	283.99	258.27	25.72	11.042	
6,300.00	5,735.00	5,625.00	5,442.02	24.91	18.11	-23.31	-364.92	1,141.98	330.43	303.92	26.52	12.462	
6,400.00	5,735.00	5,565.24	5,408.27	25.38	18.18	-20.67	-414.19	1,140.55	383.57	356.04	27.53	13.931	
6,500.00	5,735.00	5,518.13	5,378.96	25.93	18.24	-18.78	-451.05	1,139.39	443.20	414.08	29.11	15.223	
6,600.00	5,735.00	5,482.50	5,354.56	26.55	18.28	-17.47	-476.99	1,138.77	509.58	478.68	30.90	16.490	
6,700.00	5,735.00	5,450.00	5,330.81	27.24	18.31	-16.38	-499.17	1,138.41	581.28	548.92	32.36	17.965	
6,800.00	5,735.00	5,415.05	5,304.05	27.99	18.34	-15.33	-521.64	1,138.25	656.87	623.53	33.34	19.700	
6,900.00	5,735.00	5,389.09	5,283.27	28.80	18.36	-14.62	-537.20	1,138.35	735.98	701.60	34.38	21.409	
7,000.00	5,735.00	5,365.89	5,264.09	29.67	18.37	-14.04	-550.24	1,138.56	817.92	782.68	35.24	23.210	
7,100.00	5,735.00	5,350.00	5,250.64	30.59	18.38	-13.65	-558.71	1,138.68	902.21	866.13	36.08	25.007	
7,200.00	5,735.00	5,325.00	5,229.04	31.56	18.39	-13.06	-571.29	1,138.71	988.26	951.72	36.54	27.042	
7,300.00	5,735.00	5,300.00	5,206.95	32.56	18.39	-12.48	-582.99	1,138.45	1,075.94	1,039.02	36.91	29.146	
7,400.00	5,735.00	5,288.79	5,196.91	33.60	18.39	-12.22	-587.96	1,138.24	1,164.83	1,127.38	37.45	31.105	
7,500.00	5,735.00	5,275.00	5,184.44	34.67	18.39	-11.90	-593.86	1,137.94	1,254.85	1,217.01	37.84	33.158	
7,600.00	5,735.00	5,258.86	5,169.71	35.77	18.39	-11.54	-600.43	1,137.53	1,345.82	1,307.67	38.14	35.284	
7,700.00	5,735.00	5,250.00	5,161.56	36.90	18.39	-11.35	-603.89	1,137.28	1,437.63	1,399.15	38.49	37.354	
7,800.00	5,735.00	5,234.61	5,147.29	38.06	18.38	-11.02	-609.64	1,136.76	1,530.14	1,491.44	38.70	39.536	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 #30F-3105 - Hz - Hz		Offset Site Error: 0.00 usft	
Survey Program: 141-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	90.34	-7.14	1,200.41	1,200.82							
100.00	100.00	73.76	73.76	0.13	0.12	90.35	-7.35	1,200.29	1,200.32	1,200.07	0.25	4,853.992				
200.00	200.00	174.84	174.84	0.47	0.33	90.39	-8.21	1,199.76	1,199.80	1,199.01	0.79	1,525.288				
300.00	300.00	270.40	270.40	0.81	0.61	90.41	-8.50	1,199.59	1,199.62	1,198.20	1.42	846.827				
400.00	399.98	370.63	370.62	1.13	0.92	7.79	-8.78	1,199.50	1,197.81	1,195.76	2.05	583.658				
500.00	499.84	477.27	477.27	1.46	1.26	7.85	-8.97	1,199.24	1,192.39	1,189.67	2.72	438.932				
600.00	599.45	573.69	573.68	1.80	1.56	7.94	-9.00	1,198.54	1,183.04	1,179.68	3.36	352.476				
700.00	698.70	664.91	664.90	2.15	1.84	8.04	-8.96	1,198.52	1,170.94	1,166.96	3.98	293.948				
800.00	797.47	761.59	761.58	2.52	2.15	8.21	-9.26	1,198.95	1,155.89	1,151.26	4.64	249.369				
900.00	895.62	857.43	857.42	2.92	2.45	8.42	-9.61	1,199.48	1,137.55	1,132.27	5.29	215.152				
1,000.00	993.06	965.84	965.83	3.34	2.79	8.65	-9.28	1,199.82	1,115.61	1,109.63	5.98	186.654				
1,100.00	1,089.86	1,095.14	1,095.09	3.79	3.19	8.92	-8.77	1,197.48	1,089.02	1,082.28	6.74	161.580				
1,200.00	1,186.61	1,237.22	1,236.97	4.26	3.65	9.19	-7.73	1,190.16	1,059.21	1,051.67	7.54	140.420				
1,300.00	1,283.37	1,379.59	1,378.43	4.73	4.12	9.30	-3.47	1,174.87	1,023.49	1,015.14	8.35	122.514				
1,400.00	1,380.13	1,470.16	1,468.32	5.20	4.41	9.41	-1.19	1,164.04	987.08	978.14	8.94	110.470				
1,500.00	1,476.89	1,565.80	1,563.24	5.68	4.73	9.59	0.22	1,152.45	950.55	941.00	9.54	99.599				
1,600.00	1,573.64	1,659.27	1,656.01	6.17	5.05	9.87	0.41	1,140.94	913.89	903.73	10.15	90.025				
1,700.00	1,670.40	1,755.01	1,751.00	6.65	5.37	10.21	0.07	1,128.98	877.10	866.33	10.77	81.469				
1,800.00	1,767.16	1,868.43	1,863.32	7.14	5.76	10.55	1.31	1,113.36	839.09	827.66	11.43	73.434				
1,900.00	1,863.92	1,956.63	1,950.53	7.63	6.07	10.78	2.97	1,100.32	800.11	788.09	12.02	66.567				
2,000.00	1,960.68	2,046.00	2,038.95	8.12	6.38	11.10	3.95	1,087.36	761.45	748.83	12.62	60.325				
2,100.00	2,057.43	2,137.00	2,129.02	8.61	6.70	11.41	5.45	1,074.47	723.10	709.87	13.23	54.654				
2,200.00	2,154.19	2,223.98	2,215.17	9.10	6.99	11.67	7.67	1,062.69	685.29	671.45	13.84	49.531				
2,300.00	2,250.95	2,312.74	2,303.17	9.59	7.30	11.97	9.74	1,051.23	648.10	633.65	14.45	44.850				
2,400.00	2,347.71	2,400.41	2,390.16	10.09	7.60	12.35	11.35	1,040.50	611.58	596.51	15.07	40.573				
2,500.00	2,444.46	2,499.40	2,488.40	10.58	7.95	12.90	12.53	1,028.39	575.16	559.46	15.70	36.631				
2,600.00	2,541.22	2,600.12	2,588.16	11.08	8.30	13.47	14.47	1,014.73	537.49	521.17	16.32	32.934				
2,700.00	2,637.98	2,690.00	2,677.14	11.57	8.62	14.04	16.35	1,002.13	499.41	482.46	16.95	29.456				
2,800.00	2,734.74	2,782.34	2,768.58	12.06	8.96	14.78	17.76	989.36	461.62	444.03	17.59	26.237				
2,900.00	2,831.49	2,874.69	2,860.03	12.56	9.28	15.67	19.16	976.58	423.91	405.67	18.24	23.246				
3,000.00	2,928.25	2,965.00	2,949.50	13.06	9.60	16.75	20.13	964.36	386.63	367.73	18.90	20.461				
3,100.00	3,025.01	3,057.36	3,041.03	13.55	9.94	18.22	20.38	952.01	349.79	330.22	19.57	17.871				
3,200.00	3,121.77	3,149.94	3,132.78	14.05	10.26	20.03	20.62	939.58	313.14	292.88	20.26	15.453				
3,300.00	3,218.52	3,241.31	3,223.36	14.54	10.58	22.09	21.68	927.69	277.03	256.04	20.99	13.201				
3,400.00	3,315.28	3,334.25	3,315.53	15.04	10.90	24.71	23.01	915.83	241.49	219.74	21.74	11.106				
3,500.00	3,412.04	3,428.44	3,408.91	15.54	11.24	28.15	24.88	903.63	206.22	183.66	22.56	9.142				
3,600.00	3,508.80	3,521.72	3,501.34	16.03	11.57	32.71	27.45	891.31	171.33	147.84	23.49	7.294				
3,700.00	3,605.56	3,614.53	3,593.24	16.53	11.90	39.51	30.04	878.69	137.58	112.89	24.68	5.574				
3,800.00	3,702.31	3,702.00	3,680.10	17.03	12.21	49.16	31.79	868.57	108.62	82.20	26.41	4.112				
3,900.00	3,799.07	3,794.00	3,771.76	17.53	12.51	63.89	32.49	860.64	87.85	59.30	28.55	3.077				
4,000.00	3,895.83	3,887.46	3,865.06	18.02	12.81	83.14	31.86	855.22	78.52	47.95	30.57	2.568				
4,031.11	3,925.93	3,917.82	3,895.39	18.18	12.90	89.58	31.53	854.06	78.11	47.10	31.01	2,519 CC				
4,100.00	3,992.59	3,985.12	3,962.65	18.52	13.11	103.38	31.68	851.89	79.97	48.43	31.53	2,536				
4,200.00	4,089.34	4,081.68	4,059.20	19.02	13.39	119.21	31.94	851.46	89.31	57.75	31.56	2,830				
4,300.00	4,186.10	4,178.67	4,156.18	19.52	13.67	130.52	31.64	852.79	103.76	72.36	31.39	3,305				
4,399.99	4,282.85	4,275.22	4,252.73	20.01	13.95	139.20	31.62	853.41	121.53	90.27	31.26	3,887				
4,500.00	4,379.98	4,371.83	4,349.34	20.44	14.24	145.68	31.68	853.44	140.58	109.33	31.25	4,498				
4,600.00	4,477.86	4,468.53	4,446.03	20.78	14.53	150.02	31.48	852.97	158.49	127.13	31.37	5,053				
4,700.00	4,576.40	4,566.53	4,544.03	21.09	14.83	153.12	31.20	851.70	174.71	143.09	31.62	5,525				
4,800.00	4,675.48	4,666.45	4,643.94	21.38	15.13	155.07	30.67	851.16	187.65	155.64	32.01	5,862				
4,900.00	4,774.96	4,765.98	4,743.48	21.65	15.43	156.32	30.16	850.76	197.45	165.00	32.46	6,084				
5,000.00	4,874.74	4,866.03	4,843.53	21.89	15.73	156.95	29.41	850.66	203.99	171.03	32.95	6,190				

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





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 141-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	4,974.68	4,962.88	4,940.36	22.11	16.02	156.96	27.90	850.56	207.75	174.30	33.45	6.210		
5,200.00	5,074.68	5,047.60	5,024.68	22.33	16.27	-121.98	20.78	850.26	212.80	178.99	33.81	6.294		
5,300.00	5,174.68	5,120.89	5,095.50	22.57	16.50	-126.02	2.19	850.11	227.71	193.94	33.78	6.742		
5,400.00	5,274.55	5,189.52	5,158.46	22.79	16.72	48.00	-24.88	847.84	253.66	220.47	33.19	7.643		
5,500.00	5,372.15	5,265.00	5,223.87	22.99	16.96	42.70	-62.41	845.94	277.37	244.89	32.49	8.538		
5,600.00	5,463.94	5,345.22	5,288.86	23.19	17.20	39.13	-109.39	845.25	294.75	262.96	31.79	9.271		
5,700.00	5,546.55	5,426.06	5,349.87	23.37	17.46	37.33	-162.37	845.14	304.13	273.15	30.98	9.816		
5,800.00	5,616.95	5,487.33	5,390.00	23.55	17.67	36.40	-208.55	846.45	308.07	279.51	28.56	10.786		
5,900.00	5,672.56	5,571.00	5,437.77	23.74	17.97	36.46	-277.21	848.10	305.41	277.45	27.96	10.924		
6,000.00	5,711.31	5,637.79	5,471.05	23.95	18.26	38.19	-335.08	847.22	296.02	269.50	26.52	11.164		
6,100.00	5,731.81	5,718.04	5,505.92	24.21	18.67	42.27	-407.29	844.35	279.64	252.52	27.11	10.314		
6,200.00	5,735.00	5,796.65	5,533.16	24.52	19.14	47.43	-480.96	841.97	258.51	229.83	28.68	9.013		
6,300.00	5,735.00	5,883.53	5,556.23	24.91	19.71	51.54	-564.66	841.57	241.09	210.18	30.90	7.801		
6,400.00	5,735.00	5,959.24	5,566.90	25.38	20.24	53.54	-639.52	841.87	231.90	199.87	32.03	7.240		
6,500.00	5,735.00	6,050.49	5,567.85	25.93	20.90	53.67	-730.74	842.07	230.81	197.77	33.04	6.987		
6,600.00	5,735.00	6,153.97	5,568.13	26.55	21.62	53.45	-834.20	843.67	229.20	194.84	34.36	6.671		
6,700.00	5,735.00	6,251.23	5,567.86	27.24	22.38	53.10	-931.45	845.41	227.75	192.23	35.52	6.412		
6,800.00	5,735.00	6,354.02	5,568.41	27.99	23.18	53.12	-1,034.23	845.80	226.95	189.84	37.11	6.116		
6,900.00	5,735.00	6,451.78	5,570.54	28.80	24.00	53.46	-1,131.96	846.14	225.19	186.44	38.75	5.811		
6,937.02	5,735.00	6,486.71	5,570.50	29.12	24.33	53.42	-1,166.90	846.31	225.00	185.73	39.27	5.729		
7,000.00	5,735.00	6,545.65	5,569.24	29.67	24.93	53.12	-1,225.82	846.46	225.57	185.52	40.05	5.633		
7,100.00	5,735.00	6,653.99	5,567.20	30.59	25.95	52.42	-1,334.12	848.05	225.34	183.58	41.76	5.396		
7,166.61	5,735.00	6,716.37	5,568.85	31.23	26.52	52.19	-1,396.49	848.92	224.71	182.11	42.60	5.275		
7,200.00	5,735.00	6,748.84	5,568.58	31.56	26.83	52.13	-1,428.96	848.91	224.82	181.72	43.11	5.216		
7,300.00	5,735.00	6,851.52	5,566.56	32.56	27.79	52.14	-1,531.64	848.54	224.94	179.95	44.99	5.000		
7,400.00	5,735.00	6,955.57	5,569.96	33.60	28.79	52.82	-1,635.63	848.42	222.85	175.48	47.37	4.705		
7,500.00	5,735.00	7,052.75	5,573.05	34.67	29.86	53.39	-1,732.76	848.58	220.63	171.11	49.51	4.456		
7,563.32	5,735.00	7,113.21	5,573.71	35.37	30.56	53.54	-1,793.21	848.41	220.25	169.51	50.74	4.341		
7,600.00	5,735.00	7,148.53	5,573.50	35.77	30.97	53.49	-1,828.53	848.35	220.36	168.97	51.39	4.288		
7,700.00	5,735.00	7,254.68	5,572.63	36.90	32.16	53.19	-1,934.66	848.89	220.29	166.79	53.50	4.118		
7,800.00	5,735.00	7,353.20	5,574.02	38.06	33.26	53.22	-2,033.16	850.32	218.10	162.64	55.45	3.933		
7,900.00	5,735.00	7,458.11	5,573.91	39.23	34.49	52.62	-2,138.01	853.68	215.42	158.07	57.35	3.756		
8,000.00	5,735.00	7,554.97	5,574.66	40.43	35.56	52.16	-2,234.80	857.23	211.88	152.97	58.91	3.597		
8,045.60	5,735.00	7,595.67	5,575.00	40.98	36.02	52.18	-2,275.50	857.46	211.35	151.75	59.61	3.546		
8,100.00	5,735.00	7,648.47	5,575.28	41.64	36.61	52.37	-2,328.29	856.55	211.81	151.04	60.77	3.486		
8,200.00	5,735.00	7,749.87	5,576.64	42.87	37.78	52.86	-2,429.67	855.10	211.95	148.69	63.26	3.350		
8,300.00	5,735.00	7,848.04	5,577.63	44.12	38.98	53.30	-2,527.82	853.52	212.45	146.83	65.62	3.238		
8,400.00	5,735.00	7,953.10	5,577.89	45.38	40.28	53.46	-2,632.87	852.60	212.84	144.67	68.17	3.122		
8,500.00	5,735.00	8,050.88	5,578.03	46.65	41.47	53.23	-2,730.64	854.00	211.43	141.41	70.03	3.019		
8,514.46	5,735.00	8,064.61	5,578.03	46.84	41.63	53.22	-2,744.37	854.00	211.41	141.11	70.30	3.007		
8,600.00	5,735.00	8,148.30	5,577.26	47.93	42.68	53.04	-2,828.06	853.91	211.80	139.88	71.92	2.945		
8,700.00	5,735.00	8,244.67	5,574.35	49.23	43.93	52.39	-2,924.38	853.87	213.48	140.09	73.38	2.909		
8,800.00	5,735.00	8,349.89	5,571.31	50.53	45.22	51.71	-3,029.55	853.86	215.10	139.86	75.24	2.859		
8,900.00	5,735.00	8,458.38	5,572.27	51.85	46.49	51.52	-3,138.00	855.91	212.84	135.26	77.58	2.744		
9,000.00	5,735.00	8,558.13	5,574.21	53.17	47.72	51.37	-3,237.69	859.02	209.01	129.43	79.58	2.626		
9,100.00	5,735.00	8,655.67	5,577.39	54.50	48.92	51.78	-3,335.16	860.43	205.68	123.67	82.00	2.508		
9,200.00	5,735.00	8,750.69	5,581.61	55.83	50.09	52.99	-3,430.06	858.60	204.31	119.26	85.06	2.402		
9,202.76	5,735.00	8,753.30	5,581.70	55.87	50.12	53.02	-3,432.67	858.52	204.31	119.17	85.14	2.400		
9,300.00	5,735.00	8,845.48	5,583.69	57.18	51.31	53.95	-3,524.78	855.38	205.55	117.64	87.91	2.338		
9,400.00	5,735.00	8,943.90	5,583.26	58.53	52.58	54.46	-3,623.11	851.45	208.85	118.30	90.55	2.306		
9,500.00	5,735.00	9,046.19	5,582.55	59.88	53.86	54.76	-3,725.34	848.31	211.57	118.34	93.23	2.269		
9,600.00	5,735.00	9,148.69	5,579.79	61.24	55.16	54.15	-3,827.81	848.08	213.13	118.10	95.04	2.243		

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





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 #30F-3105 - Hz - Hz		Offset Site Error:		0.00 usft
Survey Program: 141-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis		Distance											
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning					
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
9,700.00	5,735.00	9,249.71	5,577.25	62.61	56.43	53.44	-3,928.80	848.85	213.80	117.20	96.61	2.213					
9,800.00	5,735.00	9,358.26	5,575.97	63.98	57.80	52.70	-4,037.29	851.49	212.39	113.95	98.44	2.157					
9,900.00	5,735.00	9,456.43	5,576.90	65.36	59.02	52.41	-4,135.42	854.21	209.43	109.16	100.27	2.089					
10,000.00	5,735.00	9,556.23	5,577.78	66.74	60.29	52.07	-4,235.18	857.13	206.40	104.29	102.11	2.021					
10,056.99	5,735.00	9,607.97	5,577.95	67.52	60.96	51.99	-4,286.90	857.71	205.67	102.64	103.03	1.996					
10,100.00	5,735.00	9,649.61	5,578.04	68.12	61.50	52.09	-4,328.55	857.18	205.96	101.94	104.02	1.980					
10,200.00	5,735.00	9,751.09	5,578.98	69.50	62.79	52.37	-4,430.01	856.50	205.73	99.07	106.66	1.929					
10,201.85	5,735.00	9,752.83	5,578.99	69.53	62.82	52.37	-4,431.75	856.49	205.73	99.03	106.70	1.928					
10,300.00	5,735.00	9,847.42	5,578.79	70.90	64.04	52.54	-4,526.33	855.00	206.90	97.99	108.91	1.900					
10,400.00	5,735.00	9,948.22	5,580.25	72.29	65.31	53.39	-4,627.06	851.61	208.52	96.31	112.21	1.858					
10,500.00	5,735.00	10,050.06	5,582.75	73.68	66.60	54.43	-4,728.82	848.34	209.48	93.67	115.82	1.809					
10,600.00	5,735.00	10,149.18	5,584.54	75.08	67.90	55.12	-4,827.90	846.29	209.94	91.03	118.91	1.766					
10,700.00	5,735.00	10,245.49	5,584.91	76.49	69.18	55.56	-4,924.17	843.77	211.69	90.13	121.56	1.741					
10,800.00	5,735.00	10,344.81	5,583.96	77.89	70.51	55.81	-5,023.43	840.48	214.78	90.59	124.18	1.729					
10,900.00	5,735.00	10,445.12	5,583.07	79.30	71.79	56.04	-5,123.69	837.34	217.67	90.85	126.82	1.716					
11,000.00	5,735.00	10,547.91	5,582.84	80.71	73.10	56.38	-5,226.44	834.45	219.94	90.21	129.74	1.695					
11,100.00	5,735.00	10,648.48	5,581.59	82.12	74.43	56.25	-5,326.99	833.29	221.40	89.43	131.97	1.678					
11,200.00	5,735.00	10,749.69	5,579.81	83.53	75.76	55.82	-5,428.19	833.37	222.12	88.28	133.84	1.660					
11,300.00	5,735.00	10,844.86	5,576.96	84.95	77.02	55.29	-5,523.31	832.66	224.23	89.04	135.19	1.659					
11,400.00	5,735.00	10,946.88	5,573.27	86.37	78.36	54.60	-5,625.26	831.87	226.75	90.04	136.71	1.659					
11,500.00	5,735.00	11,048.82	5,570.74	87.78	79.69	54.09	-5,727.16	831.60	228.23	89.81	138.41	1.649					
11,600.00	5,735.00	11,146.99	5,567.99	89.21	80.99	53.47	-5,825.29	831.78	229.55	89.82	139.73	1.643					
11,700.00	5,735.00	11,249.33	5,564.94	90.63	82.34	52.93	-5,927.58	831.08	231.72	90.36	141.36	1.639					
11,800.00	5,735.00	11,352.99	5,565.58	92.05	83.69	53.11	-6,031.24	830.52	231.58	87.49	144.09	1.607					
11,887.07	5,735.00	11,438.68	5,566.26	93.29	84.82	53.24	-6,116.92	830.30	231.18	84.94	146.24	1.581					
11,900.00	5,735.00	11,451.26	5,566.32	93.48	84.99	53.26	-6,129.50	830.21	231.19	84.64	146.55	1.578					
12,000.00	5,735.00	11,548.92	5,566.41	94.90	86.30	53.41	-6,227.15	829.10	231.87	82.88	148.99	1.556					
12,100.00	5,735.00	11,653.72	5,566.19	96.33	87.71	53.41	-6,331.95	828.60	232.20	80.66	151.54	1.532					
12,200.00	5,735.00	11,755.00	5,566.32	97.76	89.05	53.24	-6,433.22	829.71	231.05	77.42	153.63	1.504					
12,300.00	5,735.00	11,858.29	5,567.23	99.19	90.42	53.10	-6,536.49	831.57	228.90	73.06	155.84	1.469 Level 3					
12,400.00	5,735.00	11,959.16	5,569.34	100.62	91.76	53.09	-6,637.30	834.20	225.37	67.21	158.16	1.425 Level 3					
12,500.00	5,735.00	12,057.24	5,569.63	102.06	93.07	52.73	-6,735.35	836.75	222.92	63.13	159.79	1.395 Level 3					
12,600.00	5,735.00	12,157.38	5,570.02	103.49	94.42	52.28	-6,835.44	839.86	220.04	58.70	161.34	1.364 Level 3					
12,700.00	5,735.00	12,253.39	5,569.36	104.93	95.71	51.73	-6,931.42	842.19	218.37	55.87	162.50	1.344 Level 3					
12,735.28	5,735.00	12,287.14	5,569.05	105.43	96.16	51.60	-6,965.16	842.51	218.25	55.25	163.00	1.339 Level 3					
12,800.00	5,735.00	12,352.30	5,568.44	106.36	97.02	51.40	-7,030.32	842.83	218.25	54.13	164.12	1.330 Level 3					
12,900.00	5,735.00	12,453.24	5,567.60	107.80	98.35	51.02	-7,131.25	843.87	217.79	52.07	165.72	1.314 Level 3					
13,000.00	5,735.00	12,552.30	5,566.94	109.24	99.65	50.69	-7,230.30	844.82	217.29	49.99	167.30	1.299 Level 3					
13,100.00	5,735.00	12,656.10	5,566.33	110.68	101.05	50.29	-7,334.09	846.21	216.47	47.50	168.96	1.281 Level 3					
13,200.00	5,735.00	12,759.80	5,567.53	112.12	102.43	50.05	-7,437.76	848.83	213.60	42.75	170.85	1.250 Level 3					
13,300.00	5,735.00	12,860.55	5,570.35	113.56	103.74	50.17	-7,538.44	851.28	209.76	36.43	173.33	1.210 Level 2					
13,400.00	5,735.00	12,962.60	5,574.34	115.00	105.07	50.55	-7,640.38	853.70	205.26	28.91	176.36	1.164 Level 2					
13,460.79	5,735.00	13,013.00	5,576.64	115.88	105.75	50.79	-7,690.71	855.02	202.43	24.56	177.87	1.138 Level 2, ES, SF					
13,500.00	5,735.00	13,013.00	5,576.64	116.44	105.75	50.79	-7,690.71	855.02	206.19	32.57	173.62	1.188 Level 2					
13,600.00	5,735.00	13,013.00	5,576.64	117.88	105.75	50.79	-7,690.71	855.02	245.67	100.07	145.61	1.687					
13,700.00	5,735.00	13,013.00	5,576.64	119.33	105.75	50.79	-7,690.71	855.02	313.36	196.95	116.42	2.692					
13,800.00	5,735.00	13,013.00	5,576.64	120.77	105.75	50.79	-7,690.71	855.02	395.02	299.04	95.98	4.116					
13,900.00	5,735.00	13,013.00	5,576.64	122.22	105.75	50.79	-7,690.71	855.02	483.61	400.86	82.76	5.844					
13,949.06	5,735.00	13,013.00	5,576.64	122.92	105.75	50.79	-7,690.71	855.02	528.57	450.47	78.10	6.768					

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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 #30F-3106 - Hz - Hz		Offset Site Error:		0.00 usft
Survey Program: 141-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	90.38	-8.05	1,230.33	1,230.73								
100.00	100.00	74.57	74.57	0.13	0.11	90.37	-8.04	1,230.18	1,230.21	1,229.96	0.25	4,932.272					
200.00	200.00	180.90	180.89	0.47	0.35	90.37	-7.91	1,229.45	1,229.53	1,228.71	0.82	1,501.119					
300.00	300.00	282.50	282.49	0.81	0.67	90.34	-7.38	1,228.39	1,228.48	1,227.00	1.48	831.672					
400.00	399.98	386.94	386.92	1.13	0.99	7.71	-7.13	1,227.22	1,225.63	1,223.50	2.13	575.673					
500.00	499.84	475.13	475.11	1.46	1.26	7.74	-6.86	1,226.14	1,219.26	1,216.54	2.72	447.535					
600.00	599.45	569.75	569.73	1.80	1.56	7.83	-7.09	1,226.16	1,210.63	1,207.28	3.35	360.934					
700.00	698.70	661.06	661.04	2.15	1.84	7.95	-7.45	1,226.23	1,198.65	1,194.67	3.98	301.071					
800.00	797.47	756.68	756.65	2.52	2.14	8.07	-6.98	1,227.11	1,184.06	1,179.44	4.63	255.942					
900.00	895.62	849.88	849.85	2.92	2.43	8.22	-6.32	1,228.05	1,166.15	1,160.89	5.27	221.417					
1,000.00	993.06	949.63	949.58	3.34	2.74	8.43	-5.98	1,229.41	1,145.21	1,139.28	5.93	193.149					
1,100.00	1,089.86	1,039.48	1,039.42	3.79	3.03	8.58	-5.15	1,230.64	1,121.71	1,115.14	6.56	170.961					
1,200.00	1,186.61	1,127.20	1,127.09	4.26	3.30	8.66	-3.43	1,232.62	1,098.87	1,091.70	7.17	153.245					
1,300.00	1,283.37	1,216.89	1,216.70	4.73	3.59	8.69	-0.70	1,235.39	1,076.83	1,069.04	7.79	138.164					
1,400.00	1,380.13	1,301.87	1,301.56	5.20	3.86	8.70	2.46	1,238.75	1,055.63	1,047.22	8.41	125.511					
1,500.00	1,476.89	1,401.34	1,400.84	5.68	4.18	8.69	6.28	1,243.59	1,035.33	1,026.26	9.06	114.235					
1,600.00	1,573.64	1,518.00	1,517.33	6.17	4.55	8.69	10.72	1,247.79	1,013.78	1,004.03	9.75	103.955					
1,700.00	1,670.40	1,611.96	1,611.20	6.65	4.85	8.71	13.77	1,250.52	991.56	981.16	10.39	95.419					
1,800.00	1,767.16	1,715.20	1,714.36	7.14	5.17	8.76	16.92	1,253.46	969.29	958.24	11.05	87.718					
1,900.00	1,863.92	1,821.30	1,820.39	7.63	5.50	8.84	19.72	1,255.32	945.95	934.24	11.71	80.758					
2,000.00	1,960.68	1,908.24	1,907.29	8.12	5.78	8.91	21.87	1,256.77	922.58	910.23	12.34	74.749					
2,100.00	2,057.43	2,000.35	1,999.33	8.61	6.07	8.99	24.29	1,259.81	900.73	887.75	12.98	69.375					
2,200.00	2,154.19	2,102.48	2,101.38	9.10	6.40	9.06	27.12	1,262.58	878.33	864.68	13.65	64.366					
2,300.00	2,250.95	2,198.25	2,197.05	9.59	6.70	9.08	30.61	1,265.19	855.93	841.63	14.30	59.865					
2,400.00	2,347.71	2,298.58	2,297.27	10.09	7.02	9.10	34.31	1,267.96	833.56	818.61	14.96	55.736					
2,500.00	2,444.46	2,393.83	2,392.41	10.58	7.33	9.10	38.04	1,270.38	810.97	795.36	15.61	51.957					
2,600.00	2,541.22	2,491.24	2,489.70	11.08	7.64	9.07	42.21	1,273.14	788.66	772.39	16.27	48.482					
2,700.00	2,637.98	2,592.84	2,591.16	11.57	7.97	9.02	46.88	1,275.73	766.07	749.13	16.93	45.243					
2,800.00	2,734.74	2,692.60	2,690.77	12.06	8.30	8.93	51.93	1,277.81	743.00	725.41	17.60	42.226					
2,900.00	2,831.49	2,785.51	2,783.57	12.56	8.59	8.89	55.93	1,279.89	720.12	701.87	18.25	39.464					
3,000.00	2,928.25	2,884.17	2,882.14	13.06	8.90	8.92	59.37	1,282.28	697.42	678.52	18.90	36.901					
3,100.00	3,025.01	2,983.58	2,981.46	13.55	9.22	8.95	62.93	1,284.53	674.57	655.01	19.56	34.488					
3,200.00	3,121.77	3,083.04	3,080.83	14.05	9.54	8.94	66.89	1,286.15	651.08	630.86	20.22	32.200					
3,300.00	3,218.52	3,173.92	3,171.60	14.54	9.83	8.89	70.89	1,288.26	628.27	607.39	20.88	30.093					
3,400.00	3,315.28	3,270.21	3,267.74	15.04	10.14	8.82	75.34	1,291.04	606.00	584.46	21.53	28.141					
3,500.00	3,412.04	3,366.55	3,363.93	15.54	10.45	8.73	79.94	1,293.85	583.77	561.57	22.19	26.302					
3,600.00	3,508.80	3,461.71	3,458.93	16.03	10.76	8.64	84.37	1,297.13	562.04	539.19	22.85	24.592					
3,700.00	3,605.56	3,561.59	3,558.63	16.53	11.08	8.50	89.34	1,300.55	540.30	516.79	23.52	22.977					
3,800.00	3,702.31	3,661.00	3,657.85	17.03	11.40	8.30	94.78	1,303.40	518.01	493.84	24.17	21.428					
3,900.00	3,799.07	3,765.09	3,761.79	17.53	11.74	8.17	99.69	1,305.85	495.25	470.43	24.82	19.956					
4,000.00	3,895.83	3,861.87	3,858.47	18.02	12.04	8.07	103.92	1,307.00	471.34	445.87	25.47	18.505					
4,100.00	3,992.59	3,953.51	3,950.01	18.52	12.33	7.97	107.91	1,308.90	448.31	422.17	26.14	17.150					
4,200.00	4,089.34	4,046.74	4,043.09	19.02	12.63	7.85	112.03	1,311.97	426.45	399.65	26.81	15.909					
4,300.00	4,186.10	4,144.91	4,141.15	19.52	12.94	7.91	115.01	1,315.69	405.09	377.63	27.46	14.753					
4,399.99	4,282.85	4,248.43	4,244.61	20.01	13.26	8.29	116.08	1,318.70	382.89	354.80	28.09	13.631					
4,500.00	4,379.98	4,354.53	4,350.71	20.44	13.59	8.90	115.60	1,319.57	360.12	331.45	28.67	12.562					
4,600.00	4,477.86	4,456.62	4,452.78	20.78	13.91	9.54	114.76	1,318.55	338.99	309.76	29.23	11.598					
4,700.00	4,576.40	4,555.53	4,551.67	21.09	14.22	10.09	114.21	1,316.63	320.35	290.53	29.82	10.743					
4,800.00	4,675.48	4,651.41	4,647.54	21.38	14.52	10.35	114.89	1,315.60	305.91	275.47	30.44	10.050					
4,900.00	4,774.96	4,750.55	4,746.68	21.65	14.82	10.49	115.82	1,314.82	295.16	264.14	31.03	9.513					
5,000.00	4,874.74	4,848.29	4,844.42	21.89	15.12	10.70	115.82	1,314.40	288.24	256.62	31.63	9.114					
5,100.00	4,974.68	4,946.16	4,942.28	22.11	15.42	11.00	114.80	1,314.72	285.57	253.35	32.22	8.863					

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 141-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		
5,134.97	5,009.65	4,980.63	4,976.75	22.19	15.53	11.06	114.56	1,314.98	285.46	253.03	32.43	8.801		
5,200.00	5,074.68	5,041.05	5,037.15	22.33	15.72	93.93	113.34	1,315.87	286.63	253.78	32.85	8.724		
5,300.00	5,174.68	5,132.28	5,127.97	22.57	15.99	95.39	105.77	1,318.86	290.59	257.06	33.53	8.666		
5,400.00	5,274.55	5,223.86	5,217.22	22.79	16.26	-81.17	86.05	1,323.16	297.58	263.37	34.21	8.698		
5,500.00	5,372.15	5,318.81	5,306.32	22.99	16.52	-78.17	53.66	1,327.20	304.33	269.56	34.77	8.753		
5,600.00	5,463.94	5,412.79	5,390.33	23.19	16.78	-76.81	11.82	1,330.20	308.81	273.63	35.18	8.777		
5,700.00	5,546.55	5,502.18	5,462.30	23.37	17.04	-75.97	-40.97	1,331.57	311.34	275.84	35.49	8.772		
5,800.00	5,616.95	5,594.33	5,525.65	23.55	17.29	-75.51	-107.65	1,332.45	312.96	277.12	35.84	8.732		
5,900.00	5,672.56	5,686.25	5,576.49	23.74	17.60	-75.47	-184.12	1,330.45	311.21	274.93	36.28	8.578		
5,976.26	5,703.72	5,744.77	5,601.59	23.89	17.82	-75.77	-236.94	1,330.08	310.46	273.78	36.68	8.465		
6,000.00	5,711.31	5,763.77	5,608.39	23.95	17.90	-75.91	-254.68	1,330.28	310.52	273.68	36.84	8.430		
6,100.00	5,731.81	5,867.10	5,634.89	24.21	18.37	-77.11	-354.41	1,329.07	308.36	270.67	37.69	8.182		
6,200.00	5,735.00	5,954.98	5,642.76	24.52	18.82	-78.26	-441.77	1,326.25	304.13	265.41	38.72	7.854		
6,300.00	5,735.00	6,050.17	5,641.51	24.91	19.32	-77.93	-536.91	1,323.39	301.67	261.88	39.80	7.581		
6,400.00	5,735.00	6,148.48	5,640.42	25.38	19.83	-77.65	-635.18	1,321.25	300.00	259.09	40.92	7.332		
6,500.00	5,735.00	6,245.34	5,639.83	25.93	20.43	-77.49	-732.04	1,319.97	299.08	256.82	42.26	7.077		
6,530.10	5,735.00	6,274.38	5,639.36	26.10	20.63	-77.40	-761.07	1,319.75	299.02	256.31	42.71	7.001		
6,600.00	5,735.00	6,341.81	5,638.21	26.55	21.14	-77.19	-828.49	1,319.62	299.31	255.52	43.79	6.835		
6,700.00	5,735.00	6,436.08	5,636.69	27.24	21.88	-76.96	-922.74	1,320.78	301.10	255.61	45.48	6.620		
6,800.00	5,735.00	6,538.73	5,634.05	27.99	22.77	-76.55	-1,025.34	1,322.35	303.40	256.26	47.14	6.436		
6,900.00	5,735.00	6,643.42	5,629.95	28.80	23.71	-75.82	-1,129.94	1,322.48	304.70	255.90	48.79	6.245		
7,000.00	5,735.00	6,754.21	5,627.68	29.67	24.64	-75.31	-1,240.68	1,320.16	303.42	253.14	50.28	6.035		
7,100.00	5,735.00	6,851.44	5,628.05	30.59	25.48	-75.20	-1,337.83	1,316.36	299.79	247.60	52.19	5.745		
7,200.00	5,735.00	6,961.34	5,629.32	31.56	26.54	-75.30	-1,447.67	1,313.21	297.06	243.15	53.91	5.511		
7,300.00	5,735.00	7,067.80	5,630.45	32.56	27.57	-75.13	-1,553.84	1,305.46	289.95	234.26	55.68	5.207		
7,400.00	5,735.00	7,160.02	5,632.78	33.60	28.49	-75.29	-1,645.82	1,299.45	283.23	225.22	58.02	4.882		
7,495.87	5,735.00	7,241.00	5,634.82	34.63	29.35	-75.61	-1,726.75	1,297.59	280.71	220.12	60.59	4.633		
7,500.00	5,735.00	7,244.95	5,634.89	34.67	29.39	-75.62	-1,730.70	1,297.60	280.71	220.02	60.69	4.625		
7,600.00	5,735.00	7,339.76	5,636.59	35.77	30.44	-76.03	-1,825.48	1,298.86	281.78	218.63	63.15	4.462		
7,700.00	5,735.00	7,438.97	5,637.31	36.90	31.59	-76.29	-1,924.66	1,300.98	283.91	218.39	65.52	4.333		
7,800.00	5,735.00	7,538.78	5,636.60	38.06	32.76	-76.24	-2,024.47	1,302.64	285.92	218.05	67.87	4.213		
7,900.00	5,735.00	7,633.56	5,636.68	39.23	33.87	-76.40	-2,119.20	1,305.57	289.13	218.74	70.39	4.108		
8,000.00	5,735.00	7,731.10	5,636.57	40.43	35.01	-76.60	-2,216.63	1,310.03	293.82	220.96	72.86	4.033		
8,100.00	5,735.00	7,832.02	5,637.55	41.64	36.18	-77.00	-2,317.43	1,314.80	298.42	223.11	75.31	3.962		
8,200.00	5,735.00	7,932.62	5,638.78	42.87	37.38	-77.44	-2,417.92	1,319.51	302.95	225.13	77.81	3.893		
8,300.00	5,735.00	8,038.37	5,642.30	44.12	38.62	-78.27	-2,523.51	1,323.95	306.59	226.30	80.29	3.819		
8,400.00	5,735.00	8,138.16	5,645.03	45.38	39.84	-78.87	-2,623.23	1,326.40	308.68	225.79	82.89	3.724		
8,500.00	5,735.00	8,242.03	5,645.92	46.65	41.14	-79.12	-2,727.06	1,328.57	310.81	225.43	85.39	3.640		
8,600.00	5,735.00	8,342.00	5,645.06	47.93	42.37	-79.00	-2,827.03	1,329.40	312.02	224.13	87.89	3.550		
8,700.00	5,735.00	8,450.99	5,643.74	49.23	43.69	-78.73	-2,936.00	1,328.36	311.51	221.43	90.09	3.458		
8,800.00	5,735.00	8,548.21	5,642.37	50.53	44.90	-78.44	-3,033.20	1,326.77	310.42	217.76	92.66	3.350		
8,889.65	5,735.00	8,635.68	5,640.22	51.71	46.01	-78.01	-3,120.64	1,325.69	309.99	215.04	94.94	3.265		
8,900.00	5,735.00	8,645.42	5,639.89	51.85	46.13	-77.95	-3,130.37	1,325.61	310.00	214.78	95.21	3.256		
9,000.00	5,735.00	8,742.12	5,635.78	53.17	47.36	-77.22	-3,226.98	1,325.50	311.02	213.32	97.70	3.183		
9,100.00	5,735.00	8,841.29	5,632.52	54.50	48.59	-76.65	-3,326.10	1,325.74	312.23	212.10	100.12	3.118		
9,200.00	5,735.00	8,941.77	5,628.15	55.83	49.85	-75.91	-3,426.47	1,326.38	314.10	211.66	102.45	3.066		
9,300.00	5,735.00	9,047.90	5,624.44	57.18	51.15	-75.24	-3,532.54	1,325.74	314.62	210.04	104.58	3.008		
9,400.00	5,735.00	9,157.43	5,622.03	58.53	52.47	-74.68	-3,641.99	1,322.70	312.74	208.18	106.56	2.935		
9,500.00	5,735.00	9,266.03	5,620.46	59.88	53.81	-74.10	-3,750.40	1,316.38	307.74	199.25	108.49	2.837		
9,600.00	5,735.00	9,368.53	5,621.17	61.24	55.08	-73.86	-3,852.63	1,309.16	301.00	190.21	110.79	2.717		
9,700.00	5,735.00	9,470.82	5,622.05	62.61	56.37	-73.60	-3,954.59	1,300.98	293.30	180.21	113.09	2.593		
9,800.00	5,735.00	9,568.42	5,621.29	63.98	57.63	-72.97	-4,051.79	1,292.31	285.24	169.72	115.53	2.469		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-3138
<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-3138	<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: 141-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		
9,900.00	5,735.00	9,664.41	5,619.62	65.36	58.85	-72.24	-4,147.52	1,285.37	279.06	161.10	117.96	2.366		
10,000.00	5,735.00	9,775.76	5,619.16	66.74	60.23	-71.58	-4,258.49	1,276.38	271.81	152.41	119.40	2.277		
10,100.00	5,735.00	9,879.91	5,618.89	68.12	61.52	-70.60	-4,361.78	1,263.02	259.93	138.93	121.00	2.148		
10,200.00	5,735.00	9,975.57	5,619.68	69.50	62.71	-69.92	-4,456.75	1,251.65	248.67	125.24	123.43	2.015		
10,300.00	5,735.00	10,067.95	5,621.36	70.90	63.87	-69.61	-4,548.72	1,243.10	239.58	113.24	126.34	1.896		
10,400.00	5,735.00	10,168.02	5,621.88	72.29	65.17	-69.08	-4,648.49	1,235.39	232.41	103.87	128.53	1.808		
10,500.00	5,735.00	10,263.89	5,621.09	73.68	66.41	-68.22	-4,744.05	1,227.74	225.49	94.70	130.79	1.724		
10,600.00	5,735.00	10,364.00	5,621.36	75.08	67.68	-67.65	-4,843.92	1,220.95	219.32	86.44	132.88	1.651		
10,700.00	5,735.00	10,460.66	5,622.35	76.49	68.91	-67.36	-4,940.42	1,215.41	213.85	78.44	135.41	1.579		
10,800.00	5,735.00	10,566.79	5,623.19	77.89	70.27	-66.82	-5,046.28	1,208.11	207.39	70.38	137.01	1.514		
10,900.00	5,735.00	10,664.42	5,624.48	79.30	71.53	-66.40	-5,143.66	1,201.14	200.53	61.14	139.38	1.439 Level 3		
11,000.00	5,735.00	10,763.65	5,624.42	80.71	72.83	-65.56	-5,242.63	1,193.99	194.17	52.92	141.25	1.375 Level 3		
11,100.00	5,735.00	10,862.01	5,626.24	82.12	74.11	-65.38	-5,340.80	1,188.29	188.34	44.60	143.74	1.310 Level 3		
11,200.00	5,735.00	10,960.61	5,627.48	83.53	75.40	-65.11	-5,439.27	1,183.31	183.44	37.31	146.13	1.255 Level 3		
11,300.00	5,735.00	11,065.03	5,629.03	84.95	76.75	-64.82	-5,543.52	1,177.62	178.11	30.18	147.93	1.204 Level 2		
11,400.00	5,735.00	11,162.49	5,630.64	86.37	78.01	-64.25	-5,640.66	1,169.95	170.53	20.41	150.12	1.136 Level 2		
11,500.00	5,735.00	11,259.76	5,632.42	87.78	79.30	-64.18	-5,737.81	1,165.60	165.90	13.08	152.82	1.086 Level 2		
11,600.00	5,735.00	11,355.97	5,633.36	89.21	80.57	-63.99	-5,833.95	1,162.15	162.46	6.99	155.47	1.045 Level 2		
11,700.00	5,735.00	11,455.09	5,634.60	90.63	81.88	-64.21	-5,933.05	1,160.82	160.92	2.63	158.29	1.017 Level 2		
11,800.00	5,735.00	11,552.69	5,635.90	92.05	83.17	-64.58	-6,030.64	1,160.30	160.07	-1.30	161.37	0.992 Level 1		
11,900.00	5,735.00	11,653.20	5,637.37	93.48	84.49	-65.14	-6,131.14	1,160.60	159.93	-4.52	164.45	0.973 Level 1		
11,915.73	5,735.00	11,668.42	5,637.72	93.70	84.69	-65.28	-6,146.35	1,160.70	159.91	-5.12	165.03	0.969 Level 1, CC		
12,000.00	5,735.00	11,749.77	5,639.36	94.90	85.76	-66.03	-6,227.68	1,162.04	160.64	-7.47	168.11	0.956 Level 1		
12,100.00	5,735.00	11,845.42	5,639.75	96.33	87.04	-66.69	-6,323.26	1,165.53	164.03	-7.45	171.48	0.957 Level 1		
12,200.00	5,735.00	11,948.18	5,640.39	97.76	88.39	-67.48	-6,425.93	1,169.65	167.70	-7.08	174.78	0.960 Level 1		
12,300.00	5,735.00	12,050.86	5,641.87	99.19	89.71	-68.29	-6,528.57	1,172.12	169.59	-8.45	178.04	0.953 Level 1		
12,400.00	5,735.00	12,153.37	5,644.28	100.62	91.04	-69.25	-6,631.04	1,173.57	170.29	-11.13	181.42	0.939 Level 1		
12,500.00	5,735.00	12,255.99	5,646.81	102.06	92.38	-70.01	-6,733.62	1,172.98	169.09	-15.46	184.56	0.916 Level 1		
12,600.00	5,735.00	12,354.67	5,647.11	103.49	93.69	-69.92	-6,832.29	1,171.11	167.44	-19.75	187.19	0.894 Level 1		
12,700.00	5,735.00	12,453.61	5,648.89	104.93	95.01	-70.51	-6,931.20	1,171.01	166.94	-23.51	190.46	0.877 Level 1		
12,737.98	5,735.00	12,491.04	5,649.51	105.47	95.51	-70.72	-6,968.63	1,171.04	166.85	-24.85	191.70	0.870 Level 1		
12,800.00	5,735.00	12,550.82	5,650.20	106.36	96.31	-71.02	-7,028.40	1,171.56	167.26	-26.47	193.73	0.863 Level 1		
12,900.00	5,735.00	12,654.50	5,650.88	107.80	97.69	-71.35	-7,132.07	1,172.28	167.94	-28.53	196.48	0.855 Level 1		
12,948.91	5,735.00	12,701.98	5,651.10	108.50	98.32	-71.39	-7,179.56	1,171.95	167.66	-30.25	197.90	0.847 Level 1		
13,000.00	5,735.00	12,750.96	5,650.95	109.24	98.97	-71.37	-7,228.54	1,172.12	167.98	-31.37	199.35	0.843 Level 1		
13,100.00	5,735.00	12,854.16	5,649.58	110.68	100.34	-70.92	-7,331.72	1,171.76	168.30	-33.10	201.40	0.836 Level 1		
13,200.00	5,735.00	12,954.97	5,649.70	112.12	101.67	-70.84	-7,432.52	1,170.48	167.28	-36.62	203.91	0.820 Level 1		
13,290.08	5,735.00	13,043.18	5,650.22	113.41	102.84	-70.97	-7,520.72	1,169.90	166.75	-39.79	206.54	0.807 Level 1		
13,300.00	5,735.00	13,052.81	5,650.24	113.56	102.97	-70.97	-7,530.36	1,169.89	166.76	-40.07	206.83	0.806 Level 1		
13,400.00	5,735.00	13,150.06	5,650.43	115.00	104.28	-71.16	-7,627.59	1,170.79	167.78	-42.03	209.81	0.800 Level 1, ES, SF		
13,500.00	5,735.00	13,210.00	5,650.81	116.44	105.09	-71.43	-7,687.52	1,172.02	174.34	-34.44	208.79	0.835 Level 1		
13,600.00	5,735.00	13,210.00	5,650.81	117.88	105.09	-71.43	-7,687.52	1,172.02	221.41	47.75	173.65	1.275 Level 3		
13,700.00	5,735.00	13,210.00	5,650.81	119.33	105.09	-71.43	-7,687.52	1,172.02	296.05	157.29	138.76	2.133		
13,800.00	5,735.00	13,210.00	5,650.81	120.77	105.09	-71.43	-7,687.52	1,172.02	382.45	266.84	115.61	3.308		
13,900.00	5,735.00	13,210.00	5,650.81	122.22	105.09	-71.43	-7,687.52	1,172.02	474.23	373.50	100.73	4.708		
13,949.06	5,735.00	13,210.00	5,650.81	122.92	105.09	-71.43	-7,687.52	1,172.02	520.37	424.97	95.40	5.455		

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



# WOG

## Anticollision Report

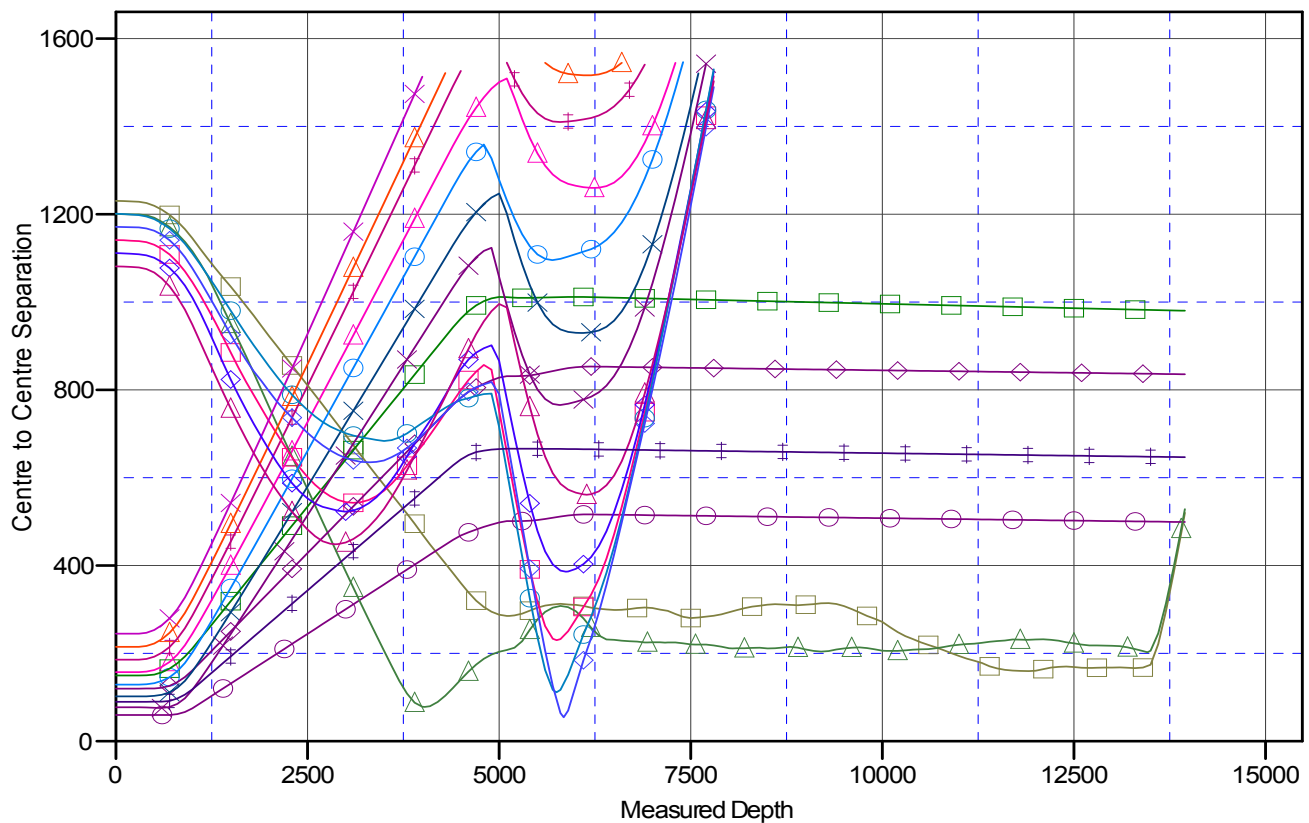
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-3138  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-3138  
**TVD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**MD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 3.00 sigma  
**Database:** LandmarkEDM  
**Offset TVD Reference:** Offset Datum

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

Coordinates are relative to: Horsetail #30E-3138  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Ladder Plot



### LEGEND

- |                                |                                |                                |
|--------------------------------|--------------------------------|--------------------------------|
| Horsetail #30E-1935, Hz, APDV0 | Horsetail #30F-1943, Hz, HzV0  | Horsetail #30F-1942, Hz, HzV0  |
| Horsetail #30E-1902, Hz, APDV0 | Horsetail #30E-1901, Hz, APDV0 | Horsetail #30F-1945, Hz, HzV0  |
| Horsetail #30F-3106, Hz, HzV0  | Horsetail #30E-1903, Hz, APDV0 | Horsetail #30E-1904, Hz, APDV0 |
| Horsetail #30E-3104, Hz, APDV0 | Horsetail #30E-1934, Hz, APDV0 | Horsetail #30F-1944, Hz, HzV0  |
| Horsetail #30E-3135, Hz, APDV0 | Horsetail #30E-3103, Hz, APDV0 | Horsetail #30F-1941, Hz, HzV0  |
| Horsetail #30F-3105, Hz, HzV0  | Horsetail #30E-1936, Hz, APDV0 | Horsetail #30E-3136, Hz, APDV0 |



# WOG

## Anticollision Report

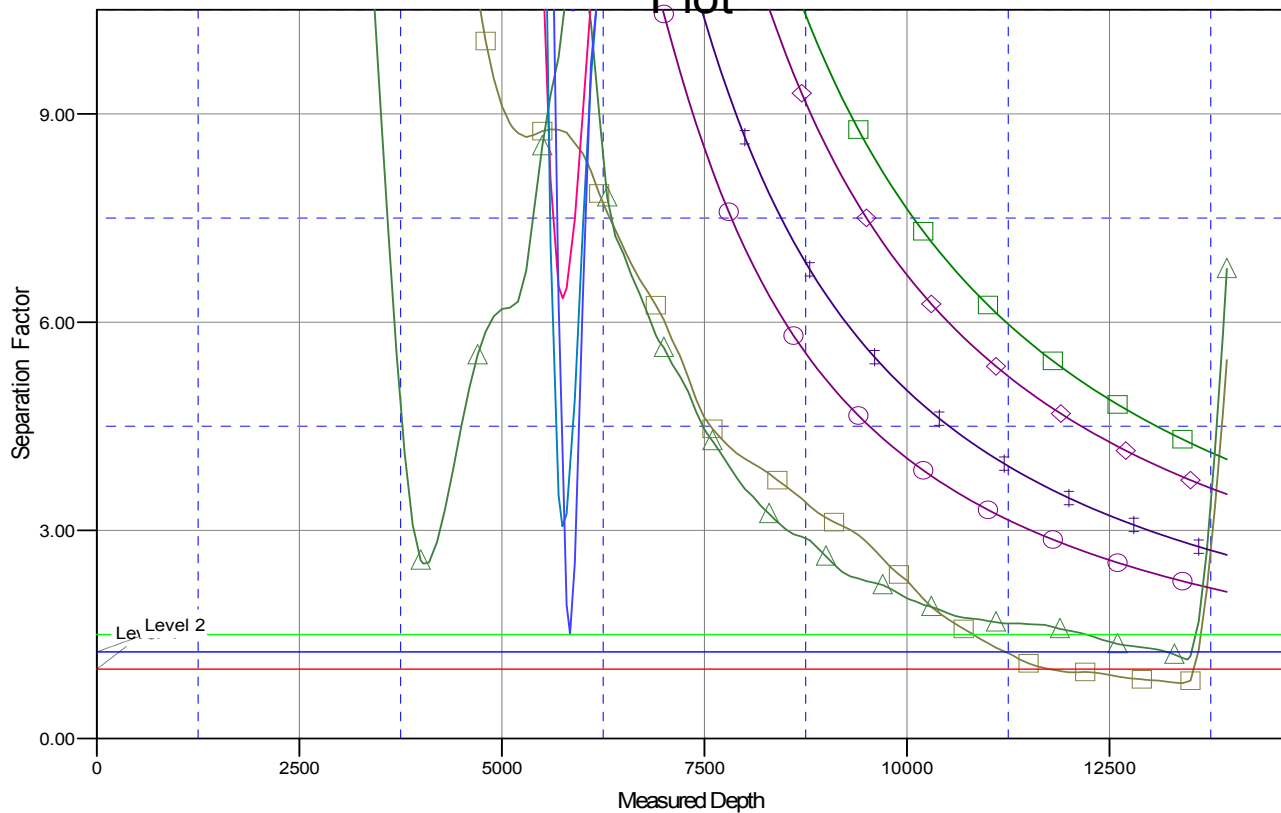
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-3138  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-3138  
**TVD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**MD Reference:** KBE @ 4827.40usft (Original Well Elev)  
**North Reference:** True  
**Survey Calculation Method:** Minimum Curvature  
**Output errors are at** 3.00 sigma  
**Database:** LandmarkEDM  
**Offset TVD Reference:** Offset Datum

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

Coordinates are relative to: Horsetail #30E-3138  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Separation Factor Plot



### LEGEND

- |                                  |                                  |                                  |
|----------------------------------|----------------------------------|----------------------------------|
| ▲ Horsetail #30E-1935, Hz, APDV0 | ◻ Horsetail #30F-1943, Hz, HzV0  | ◆ Horsetail #30F-1942, Hz, HzV0  |
| ✱ Horsetail #30E-1902, Hz, APDV0 | ✱ Horsetail #30E-1901, Hz, APDV0 | ◻ Horsetail #30F-1945, Hz, HzV0  |
| ◻ Horsetail #30F-3106, Hz, HzV0  | ◻ Horsetail #30E-1903, Hz, APDV0 | ✱ Horsetail #30E-1904, Hz, APDV0 |
| ◻ Horsetail #30E-3104, Hz, APDV0 | ▲ Horsetail #30E-1934, Hz, APDV0 | ◆ Horsetail #30F-1944, Hz, HzV0  |
| ◻ Horsetail #30E-3135, Hz, APDV0 | ◆ Horsetail #30E-3103, Hz, APDV0 | ▲ Horsetail #30F-1941, Hz, HzV0  |
| ▲ Horsetail #30F-3105, Hz, HzV0  | ✱ Horsetail #30E-1936, Hz, APDV0 | ✱ Horsetail #30E-3136, Hz, APDV0 |