



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 30-T10N-R57W**

**Horsetail #30E-1904**

**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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

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

Survey Tool Program		Date	10/13/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,731.34	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	180.70	179.09	111.895	CC, ES
Horsetail #30E-1901 - Hz - APD	13,732.32	13,646.92	991.56	759.15	4.266	SF
Horsetail #30E-1902 - Hz - APD	300.00	300.00	119.96	118.34	74.279	CC, ES
Horsetail #30E-1902 - Hz - APD	13,732.32	13,718.41	659.56	426.47	2.830	SF
Horsetail #30E-1903 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-1903 - Hz - APD	400.00	400.14	60.54	58.33	27.356	ES
Horsetail #30E-1903 - Hz - APD	13,732.32	13,650.75	336.72	107.97	1.472	Level 3, SF
Horsetail #30E-1934 - Hz - APD	300.00	300.00	149.95	148.33	92.849	CC, ES
Horsetail #30E-1934 - Hz - APD	13,732.32	13,843.36	834.82	603.95	3.616	SF
Horsetail #30E-1935 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC, ES
Horsetail #30E-1935 - Hz - APD	13,732.32	13,926.28	539.33	321.72	2.478	SF
Horsetail #30E-1936 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-1936 - Hz - APD	13,732.32	13,849.49	209.05	16.24	1.084	Level 2, ES, SF
Horsetail #30E-3103 - Hz - APD	793.07	795.36	49.42	44.48	10.004	CC
Horsetail #30E-3103 - Hz - APD	5,713.59	5,907.94	65.16	25.94	1.662	ES, SF
Horsetail #30E-3104 - Hz - APD	755.03	752.48	21.42	16.60	4.447	CC, ES
Horsetail #30E-3104 - Hz - APD	800.00	796.56	22.96	17.73	4.388	SF
Horsetail #30E-3135 - Hz - APD	715.49	718.01	90.60	86.26	20.857	CC, ES
Horsetail #30E-3135 - Hz - APD	6,205.91	5,632.78	243.44	204.80	6.301	SF
Horsetail #30E-3136 - Hz - APD	805.16	805.46	12.39	7.31	2.439	CC, ES, SF
Horsetail #30E-3137 Dropped - Hz - APD	675.72	670.71	48.84	44.61	11.535	CC
Horsetail #30E-3137 Dropped - Hz - APD	700.00	694.33	49.01	44.56	11.021	ES
Horsetail #30E-3137 Dropped - Hz - APD	800.00	790.96	54.10	48.74	10.108	SF
Horsetail #30E-3138 - Hz - APD	567.45	561.84	75.81	72.37	22.076	CC
Horsetail #30E-3138 - Hz - APD	600.00	593.48	75.90	72.22	20.622	ES
Horsetail #30E-3138 - Hz - APD	900.00	880.31	95.95	89.76	15.513	SF
Horsetail #30F-1941 - Hz - Hz	5,177.62	5,180.82	207.81	161.17	4.456	CC
Horsetail #30F-1941 - Hz - Hz	13,732.32	13,895.20	266.39	19.46	1.079	Level 2, ES, SF

<b>Offset Design</b>	Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD										<b>Offset Site Error:</b>	0.00 usft
<b>Survey Program:</b>	0-MWD+IFR1+MS+sag										<b>Offset Well Error:</b>	0.00 usft
<b>Reference</b>	<b>Offset</b>	<b>Semi Major Axis</b>		<b>Distance</b>				<b>Minimum Separation</b>	<b>Separation Factor</b>	<b>Warning</b>		
<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Measured Depth (usft)</b>	<b>Vertical Depth (usft)</b>	<b>Reference (usft)</b>	<b>Offset (usft)</b>	<b>Highside Toolface (°)</b>	<b>Offset Wellbore Centre +N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Between Centres (usft)</b>	<b>Between Ellipses (usft)</b>	<b>Minimum Separation (usft)</b>	

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



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## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.99	0.02	-180.70	180.70					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.02	-180.70	180.70	180.44	0.27	678.450		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.02	-180.70	180.70	179.76	0.94	192.106		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.02	-180.70	180.70	179.09	1.61	111.895 CC, ES		
400.00	399.98	397.38	397.36	1.11	1.10	113.15	-1.48	-181.40	182.11	179.89	2.22	82.053		
500.00	499.84	494.65	494.51	1.41	1.40	113.13	-5.97	-183.50	186.32	183.50	2.82	66.066		
600.00	599.45	591.70	591.20	1.74	1.71	113.10	-13.43	-186.98	193.33	189.85	3.48	55.632		
700.00	698.70	688.42	687.23	2.07	2.03	113.05	-23.81	-191.82	203.12	198.94	4.17	48.674		
800.00	797.47	784.69	782.38	2.44	2.38	112.98	-37.05	-198.00	215.66	210.75	4.91	43.916		
900.00	895.64	880.43	876.47	2.84	2.76	112.93	-53.09	-205.49	230.91	225.22	5.69	40.577		
1,000.00	993.60	978.52	972.45	3.26	3.17	112.86	-71.42	-214.04	247.47	241.00	6.47	38.228		
1,100.00	1,091.56	1,077.14	1,068.94	3.69	3.59	112.79	-89.88	-222.66	264.05	256.78	7.28	36.286		
1,200.00	1,189.52	1,175.75	1,165.42	4.12	4.02	112.73	-108.35	-231.28	280.64	272.54	8.10	34.667		
1,300.00	1,287.48	1,274.37	1,261.91	4.56	4.46	112.68	-126.82	-239.89	297.22	288.29	8.93	33.292		
1,400.00	1,385.44	1,372.98	1,358.40	5.00	4.90	112.63	-145.28	-248.51	313.80	304.03	9.77	32.124		
1,500.00	1,483.40	1,471.60	1,454.88	5.45	5.34	112.59	-163.75	-257.13	330.38	319.77	10.62	31.121		
1,600.00	1,581.36	1,570.21	1,551.37	5.90	5.79	112.55	-182.22	-265.75	346.97	335.50	11.47	30.253		
1,700.00	1,679.32	1,668.83	1,647.86	6.34	6.24	112.52	-200.69	-274.37	363.55	351.22	12.33	29.495		
1,800.00	1,777.28	1,767.44	1,744.34	6.79	6.68	112.49	-219.15	-282.99	380.13	366.94	13.19	28.828		
1,900.00	1,875.24	1,866.06	1,840.83	7.25	7.13	112.46	-237.62	-291.60	396.71	382.66	14.05	28.237		
2,000.00	1,973.21	1,964.67	1,937.32	7.70	7.58	112.43	-256.09	-300.22	413.30	398.38	14.91	27.711		
2,100.00	2,071.17	2,063.29	2,033.80	8.15	8.04	112.41	-274.56	-308.84	429.88	414.10	15.78	27.239		
2,200.00	2,169.13	2,161.91	2,130.29	8.60	8.49	112.39	-293.02	-317.46	446.46	429.81	16.65	26.813		
2,300.00	2,267.09	2,260.52	2,226.78	9.06	8.94	112.36	-311.49	-326.08	463.05	445.52	17.52	26.428		
2,400.00	2,365.05	2,359.14	2,323.26	9.51	9.39	112.34	-329.96	-334.70	479.63	461.24	18.39	26.077		
2,500.00	2,463.01	2,457.75	2,419.75	9.97	9.84	112.33	-348.43	-343.31	496.21	476.95	19.27	25.757		
2,600.00	2,560.97	2,556.37	2,516.24	10.42	10.30	112.31	-366.89	-351.93	512.80	492.66	20.14	25.463		
2,700.00	2,658.93	2,654.98	2,612.72	10.88	10.75	112.29	-385.36	-360.55	529.38	508.37	21.01	25.193		
2,800.00	2,756.89	2,753.60	2,709.21	11.33	11.20	112.28	-403.83	-369.17	545.96	524.07	21.89	24.944		
2,900.00	2,854.85	2,852.21	2,805.69	11.79	11.66	112.26	-422.29	-377.79	562.55	539.78	22.76	24.713		
3,000.00	2,952.81	2,950.83	2,902.18	12.24	12.11	112.25	-440.76	-386.40	579.13	555.49	23.64	24.499		
3,100.00	3,050.77	3,049.44	2,998.67	12.70	12.57	112.24	-459.23	-395.02	595.71	571.20	24.52	24.299		
3,200.00	3,148.73	3,148.06	3,095.15	13.15	13.02	112.23	-477.70	-403.64	612.30	586.90	25.39	24.113		
3,300.00	3,246.69	3,246.67	3,191.64	13.61	13.48	112.21	-496.16	-412.26	628.88	602.61	26.27	23.939		
3,400.00	3,344.66	3,345.29	3,288.13	14.07	13.93	112.20	-514.63	-420.88	645.46	618.32	27.15	23.776		
3,500.00	3,442.62	3,443.90	3,384.61	14.52	14.39	112.19	-533.10	-429.50	662.05	634.02	28.03	23.623		
3,600.00	3,540.58	3,542.52	3,481.10	14.98	14.84	112.18	-551.57	-438.11	678.63	649.73	28.90	23.479		
3,700.00	3,638.54	3,641.13	3,577.59	15.44	15.30	112.17	-570.03	-446.73	695.21	665.43	29.78	23.343		
3,800.00	3,736.50	3,739.75	3,674.07	15.89	15.75	112.17	-588.50	-455.35	711.80	681.14	30.66	23.215		
3,900.00	3,834.46	3,838.36	3,770.56	16.35	16.21	112.16	-606.97	-463.97	728.38	696.84	31.54	23.094		
4,000.00	3,932.42	3,936.98	3,867.05	16.81	16.66	112.15	-625.44	-472.59	744.96	712.55	32.42	22.979		
4,100.00	4,030.38	4,035.60	3,963.53	17.26	17.12	112.14	-643.90	-481.21	761.55	728.25	33.30	22.871		
4,200.00	4,128.34	4,134.21	4,060.02	17.72	17.57	112.13	-662.37	-489.82	778.13	743.95	34.18	22.767		
4,300.00	4,226.30	4,232.83	4,156.51	18.18	18.03	112.13	-680.84	-498.44	794.72	759.66	35.06	22.669		
4,400.00	4,324.27	4,335.36	4,256.87	18.62	18.47	112.17	-699.88	-507.33	811.21	775.29	35.93	22.579		
4,500.00	4,422.66	4,447.98	4,367.71	18.90	18.84	112.49	-717.86	-515.72	825.65	789.05	36.60	22.560		
4,600.00	4,521.61	4,561.25	4,479.91	19.17	19.13	112.77	-731.95	-522.29	837.10	799.91	37.18	22.512		
4,700.00	4,621.00	4,675.01	4,593.11	19.42	19.41	113.02	-742.04	-527.00	845.53	807.80	37.74	22.407		
4,800.00	4,720.72	4,789.08	4,706.98	19.66	19.67	113.24	-748.07	-529.82	850.94	812.69	38.25	22.248		
4,900.00	4,820.63	4,902.76	4,820.63	19.88	19.94	113.44	-749.98	-530.71	853.30	814.54	38.75	22.018		
5,000.00	4,920.63	5,002.75	4,920.63	20.12	20.18	-89.66	-749.98	-530.71	853.58	814.34	39.24	21.752		
5,015.41	4,936.04	5,018.17	4,936.04	20.16	20.21	-89.66	-749.98	-530.71	853.58	814.28	39.31	21.716		

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



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## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,020.63	5,102.63	5,020.50	20.33	20.38	-89.66	-749.97	-530.71	853.58	813.92	39.67	21.519		
5,200.00	5,120.60	5,198.09	5,115.37	20.54	20.54	-89.09	-740.61	-530.86	853.84	813.81	40.03	21.328		
5,300.00	5,219.10	5,291.42	5,204.95	20.68	20.61	-88.29	-714.90	-531.29	854.56	814.33	40.23	21.240		
5,400.00	5,312.68	5,383.10	5,287.12	20.73	20.62	-87.56	-674.50	-531.95	855.65	815.39	40.26	21.251		
5,500.00	5,397.89	5,473.44	5,359.93	20.70	20.57	-86.90	-621.22	-532.82	857.03	816.86	40.17	21.337		
5,600.00	5,471.61	5,562.76	5,421.82	20.63	20.48	-86.36	-556.97	-533.88	858.59	818.60	39.99	21.469		
5,700.00	5,531.14	5,650.00	5,470.82	20.52	20.37	-85.93	-484.93	-535.06	860.23	820.44	39.80	21.615		
5,800.00	5,574.27	5,739.55	5,507.90	20.42	20.26	-85.63	-403.55	-536.40	861.87	822.23	39.65	21.740		
5,900.00	5,599.44	5,827.61	5,530.26	20.33	20.16	-85.48	-318.49	-537.80	863.44	823.86	39.58	21.815		
6,000.00	5,606.00	5,915.86	5,538.00	20.29	20.10	-85.49	-230.70	-539.24	864.89	825.26	39.63	21.826		
6,100.00	5,606.00	6,015.63	5,538.00	20.34	20.10	-85.50	-130.95	-540.88	866.53	826.66	39.87	21.735		
6,200.00	5,606.00	6,115.62	5,538.00	20.50	20.21	-85.51	-30.97	-542.52	868.17	827.85	40.32	21.533		
6,300.00	5,606.00	6,215.60	5,538.00	20.79	20.45	-85.52	69.00	-544.16	869.80	828.83	40.97	21.229		
6,400.00	5,606.00	6,315.59	5,538.00	21.19	20.81	-85.52	168.97	-545.81	871.44	829.61	41.83	20.835		
6,500.00	5,606.00	6,415.57	5,538.00	21.70	21.30	-85.53	268.94	-547.45	873.08	830.21	42.86	20.369		
6,600.00	5,606.00	6,515.56	5,538.00	22.30	21.89	-85.54	368.92	-549.09	874.72	830.64	44.07	19.847		
6,700.00	5,606.00	6,615.55	5,538.00	22.99	22.57	-85.55	468.89	-550.73	876.35	830.91	45.44	19.286		
6,800.00	5,606.00	6,715.53	5,538.00	23.75	23.33	-85.56	568.86	-552.38	877.99	831.04	46.95	18.700		
6,900.00	5,606.00	6,815.52	5,538.00	24.58	24.16	-85.57	668.84	-554.02	879.63	831.03	48.59	18.101		
7,000.00	5,606.00	6,915.51	5,538.00	25.47	25.06	-85.57	768.81	-555.66	881.27	830.91	50.36	17.501		
7,100.00	5,606.00	7,015.49	5,538.00	26.41	26.00	-85.58	868.78	-557.30	882.90	830.68	52.22	16.907		
7,200.00	5,606.00	7,115.48	5,538.00	27.39	27.00	-85.59	968.76	-558.94	884.54	830.36	54.18	16.325		
7,300.00	5,606.00	7,215.47	5,538.00	28.42	28.03	-85.60	1,068.73	-560.59	886.18	829.95	56.23	15.759		
7,400.00	5,606.00	7,315.45	5,538.00	29.49	29.10	-85.61	1,168.70	-562.23	887.82	829.46	58.36	15.214		
7,500.00	5,606.00	7,415.44	5,538.00	30.59	30.21	-85.61	1,268.67	-563.87	889.45	828.91	60.55	14.690		
7,600.00	5,606.00	7,515.43	5,538.00	31.72	31.35	-85.62	1,368.65	-565.51	891.09	828.29	62.80	14.189		
7,700.00	5,606.00	7,615.41	5,538.00	32.88	32.51	-85.63	1,468.62	-567.16	892.73	827.62	65.11	13.711		
7,800.00	5,606.00	7,715.40	5,538.00	34.06	33.70	-85.64	1,568.59	-568.80	894.37	826.90	67.47	13.257		
7,900.00	5,606.00	7,815.39	5,538.00	35.26	34.91	-85.65	1,668.57	-570.44	896.01	826.14	69.87	12.825		
8,000.00	5,606.00	7,915.37	5,538.00	36.48	36.14	-85.65	1,768.54	-572.08	897.64	825.34	72.31	12.414		
8,100.00	5,606.00	8,015.36	5,538.00	37.72	37.39	-85.66	1,868.51	-573.73	899.28	824.50	74.78	12.025		
8,200.00	5,606.00	8,115.35	5,538.00	38.98	38.65	-85.67	1,968.49	-575.37	900.92	823.63	77.29	11.656		
8,300.00	5,606.00	8,215.33	5,538.00	40.25	39.92	-85.68	2,068.46	-577.01	902.56	822.73	79.83	11.306		
8,400.00	5,606.00	8,315.32	5,538.00	41.53	41.21	-85.69	2,168.43	-578.65	904.20	821.80	82.40	10.974		
8,500.00	5,606.00	8,415.31	5,538.00	42.82	42.52	-85.69	2,268.41	-580.30	905.83	820.85	84.99	10.658		
8,600.00	5,606.00	8,515.29	5,538.00	44.13	43.83	-85.70	2,368.38	-581.94	907.47	819.87	87.60	10.359		
8,700.00	5,606.00	8,615.28	5,538.00	45.45	45.15	-85.71	2,468.35	-583.58	909.11	818.88	90.23	10.075		
8,800.00	5,606.00	8,715.26	5,538.00	46.77	46.48	-85.72	2,568.32	-585.22	910.75	817.87	92.88	9.805		
8,900.00	5,606.00	8,815.25	5,538.00	48.11	47.82	-85.73	2,668.30	-586.86	912.39	816.84	95.55	9.549		
9,000.00	5,606.00	8,915.24	5,538.00	49.45	49.17	-85.73	2,768.27	-588.51	914.02	815.79	98.23	9.305		
9,100.00	5,606.00	9,015.22	5,538.00	50.80	50.53	-85.74	2,868.24	-590.15	915.66	814.73	100.93	9.072		
9,200.00	5,606.00	9,115.21	5,538.00	52.15	51.89	-85.75	2,968.22	-591.79	917.30	813.66	103.64	8.851		
9,300.00	5,606.00	9,215.20	5,538.00	53.51	53.26	-85.76	3,068.19	-593.43	918.94	812.57	106.36	8.640		
9,400.00	5,606.00	9,315.18	5,538.00	54.88	54.63	-85.76	3,168.16	-595.08	920.58	811.48	109.10	8.438		
9,500.00	5,606.00	9,415.17	5,538.00	56.25	56.01	-85.77	3,268.14	-596.72	922.21	810.37	111.84	8.246		
9,600.00	5,606.00	9,515.16	5,538.00	57.63	57.39	-85.78	3,368.11	-598.36	923.85	809.26	114.60	8.062		
9,700.00	5,606.00	9,615.14	5,538.00	59.01	58.78	-85.79	3,468.08	-600.00	925.49	808.13	117.36	7.886		
9,800.00	5,606.00	9,715.13	5,538.00	60.40	60.17	-85.79	3,568.05	-601.65	927.13	807.00	120.13	7.718		
9,900.00	5,606.00	9,815.12	5,538.00	61.79	61.56	-85.80	3,668.03	-603.29	928.77	805.85	122.91	7.556		
10,000.00	5,606.00	9,915.10	5,538.00	63.18	62.96	-85.81	3,768.00	-604.93	930.40	804.71	125.70	7.402		
10,100.00	5,606.00	10,015.09	5,538.00	64.58	64.36	-85.82	3,867.97	-606.57	932.04	803.55	128.49	7.254		
10,200.00	5,606.00	10,115.08	5,538.00	65.98	65.77	-85.82	3,967.95	-608.21	933.68	802.39	131.29	7.111		

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-1904
<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-1904	<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	5,606.00	10,215.06	5,538.00	67.38	67.18	-85.83	4,067.92	-609.86	935.32	801.22	134.10	6.975		
10,400.00	5,606.00	10,315.05	5,538.00	68.79	68.59	-85.84	4,167.89	-611.50	936.96	800.05	136.91	6.844		
10,500.00	5,606.00	10,415.04	5,538.00	70.20	70.00	-85.84	4,267.87	-613.14	938.60	798.87	139.73	6.717		
10,600.00	5,606.00	10,515.02	5,538.00	71.61	71.42	-85.85	4,367.84	-614.78	940.23	797.68	142.55	6.596		
10,700.00	5,606.00	10,615.01	5,538.00	73.02	72.84	-85.86	4,467.81	-616.43	941.87	796.49	145.38	6.479		
10,800.00	5,606.00	10,714.99	5,538.00	74.44	74.26	-85.87	4,567.78	-618.07	943.51	795.30	148.21	6.366		
10,900.00	5,606.00	10,814.98	5,538.00	75.86	75.68	-85.87	4,667.76	-619.71	945.15	794.10	151.05	6.257		
11,000.00	5,606.00	10,914.97	5,538.00	77.28	77.11	-85.88	4,767.73	-621.35	946.79	792.90	153.89	6.153		
11,100.00	5,606.00	11,014.95	5,538.00	78.70	78.53	-85.89	4,867.70	-623.00	948.43	791.70	156.73	6.051		
11,200.00	5,606.00	11,114.94	5,538.00	80.12	79.96	-85.90	4,967.68	-624.64	950.06	790.49	159.58	5.954		
11,300.00	5,606.00	11,214.93	5,538.00	81.55	81.39	-85.90	5,067.65	-626.28	951.70	789.28	162.43	5.859		
11,400.00	5,606.00	11,314.91	5,538.00	82.97	82.82	-85.91	5,167.62	-627.92	953.34	788.06	165.28	5.768		
11,500.00	5,606.00	11,414.90	5,538.00	84.40	84.26	-85.92	5,267.60	-629.57	954.98	786.84	168.14	5.680		
11,600.00	5,606.00	11,514.89	5,538.00	85.83	85.69	-85.92	5,367.57	-631.21	956.62	785.62	171.00	5.594		
11,700.00	5,606.00	11,614.87	5,538.00	87.26	87.13	-85.93	5,467.54	-632.85	958.26	784.40	173.86	5.512		
11,800.00	5,606.00	11,714.86	5,538.00	88.70	88.56	-85.94	5,567.51	-634.49	959.89	783.17	176.72	5.432		
11,900.00	5,606.00	11,814.85	5,538.00	90.13	90.00	-85.94	5,667.49	-636.13	961.53	781.94	179.59	5.354		
12,000.00	5,606.00	11,914.83	5,538.00	91.57	91.44	-85.95	5,767.46	-637.78	963.17	780.71	182.46	5.279		
12,100.00	5,606.00	12,014.82	5,538.00	93.00	92.88	-85.96	5,867.43	-639.42	964.81	779.48	185.33	5.206		
12,200.00	5,606.00	12,114.81	5,538.00	94.44	94.32	-85.96	5,967.41	-641.06	966.45	778.24	188.21	5.135		
12,300.00	5,606.00	12,214.79	5,538.00	95.88	95.77	-85.97	6,067.38	-642.70	968.09	777.00	191.08	5.066		
12,400.00	5,606.00	12,314.78	5,538.00	97.32	97.21	-85.98	6,167.35	-644.35	969.73	775.76	193.96	5.000		
12,500.00	5,606.00	12,414.77	5,538.00	98.76	98.65	-85.99	6,267.33	-645.99	971.36	774.52	196.84	4.935		
12,600.00	5,606.00	12,514.75	5,538.00	100.20	100.10	-85.99	6,367.30	-647.63	973.00	773.28	199.72	4.872		
12,700.00	5,606.00	12,614.74	5,538.00	101.64	101.55	-86.00	6,467.27	-649.27	974.64	772.03	202.61	4.810		
12,800.00	5,606.00	12,714.73	5,538.00	103.08	102.99	-86.01	6,567.25	-650.92	976.28	770.79	205.49	4.751		
12,900.00	5,606.00	12,814.71	5,538.00	104.53	104.44	-86.01	6,667.22	-652.56	977.92	769.54	208.38	4.693		
13,000.00	5,606.00	12,914.70	5,538.00	105.97	105.89	-86.02	6,767.19	-654.20	979.56	768.29	211.27	4.637		
13,100.00	5,606.00	13,014.68	5,538.00	107.42	107.34	-86.03	6,867.16	-655.84	981.20	767.04	214.16	4.582		
13,200.00	5,606.00	13,114.67	5,538.00	108.86	108.79	-86.03	6,967.14	-657.49	982.83	765.78	217.05	4.528		
13,300.00	5,606.00	13,214.66	5,538.00	110.31	110.24	-86.04	7,067.11	-659.13	984.47	764.53	219.94	4.476		
13,400.00	5,606.00	13,314.64	5,538.00	111.76	111.69	-86.05	7,167.08	-660.77	986.11	763.27	222.84	4.425		
13,500.00	5,606.00	13,414.63	5,538.00	113.21	113.14	-86.05	7,267.06	-662.41	987.75	762.02	225.73	4.376		
13,600.00	5,606.00	13,514.62	5,538.00	114.65	114.60	-86.06	7,367.03	-664.05	989.39	760.76	228.63	4.327		
13,700.00	5,606.00	13,614.60	5,538.00	116.10	116.05	-86.06	7,467.00	-665.70	991.03	759.50	231.53	4.280		
13,732.32	5,606.00	13,646.92	5,538.00	116.52	116.52	-86.07	7,499.31	-666.23	991.56	759.15	232.41	4.266 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.99	0.02	-119.96	119.96					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.02	-119.96	119.96	119.69	0.27	450.375		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.02	-119.96	119.96	119.02	0.94	127.526		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.02	-119.96	119.96	118.34	1.61	74.279 CC, ES		
400.00	399.98	398.92	398.90	1.11	1.11	113.11	-1.63	-120.40	121.09	118.87	2.22	54.666		
500.00	499.84	497.77	497.61	1.41	1.40	112.96	-6.57	-121.71	124.48	121.67	2.80	44.404		
600.00	599.45	596.47	595.94	1.74	1.72	112.73	-14.79	-123.90	130.12	126.67	3.45	37.738		
700.00	698.70	694.95	693.70	2.07	2.05	112.43	-26.25	-126.95	138.01	133.87	4.14	33.331		
800.00	797.47	793.13	790.70	2.44	2.40	112.08	-40.89	-130.85	148.12	143.24	4.88	30.354		
900.00	895.64	891.65	887.53	2.84	2.79	111.85	-58.44	-135.53	160.32	154.66	5.66	28.331		
1,000.00	993.60	990.84	984.93	3.26	3.20	112.00	-76.55	-140.35	173.05	166.60	6.46	26.803		
1,100.00	1,091.56	1,090.02	1,082.33	3.69	3.61	112.13	-94.66	-145.17	185.79	178.52	7.27	25.543		
1,200.00	1,189.52	1,189.21	1,179.73	4.12	4.04	112.24	-112.78	-150.00	198.52	190.42	8.10	24.498		
1,300.00	1,287.48	1,288.39	1,277.13	4.56	4.46	112.34	-130.89	-154.82	211.26	202.32	8.94	23.620		
1,400.00	1,385.44	1,387.58	1,374.52	5.00	4.89	112.43	-149.00	-159.64	224.00	214.21	9.79	22.877		
1,500.00	1,483.40	1,486.76	1,471.92	5.45	5.32	112.50	-167.11	-164.47	236.73	226.09	10.64	22.241		
1,600.00	1,581.36	1,585.95	1,569.32	5.90	5.75	112.57	-185.22	-169.29	249.47	237.97	11.50	21.691		
1,700.00	1,679.32	1,685.13	1,666.72	6.34	6.19	112.64	-203.33	-174.11	262.21	249.85	12.36	21.212		
1,800.00	1,777.28	1,784.32	1,764.12	6.79	6.62	112.70	-221.44	-178.94	274.95	261.72	13.22	20.791		
1,900.00	1,875.24	1,883.50	1,861.51	7.25	7.06	112.75	-239.55	-183.76	287.69	273.60	14.09	20.419		
2,000.00	1,973.21	1,982.69	1,958.91	7.70	7.49	112.80	-257.66	-188.58	300.43	285.47	14.96	20.087		
2,100.00	2,071.17	2,081.87	2,056.31	8.15	7.93	112.84	-275.78	-193.41	313.16	297.34	15.82	19.790		
2,200.00	2,169.13	2,181.06	2,153.71	8.60	8.37	112.88	-293.89	-198.23	325.90	309.21	16.69	19.522		
2,300.00	2,267.09	2,280.25	2,251.11	9.06	8.81	112.92	-312.00	-203.05	338.64	321.08	17.57	19.279		
2,400.00	2,365.05	2,379.43	2,348.50	9.51	9.25	112.95	-330.11	-207.88	351.38	332.94	18.44	19.059		
2,500.00	2,463.01	2,478.62	2,445.90	9.97	9.68	112.98	-348.22	-212.70	364.12	344.81	19.31	18.857		
2,600.00	2,560.97	2,577.80	2,543.30	10.42	10.12	113.01	-366.33	-217.52	376.86	356.68	20.18	18.673		
2,700.00	2,658.93	2,676.99	2,640.70	10.88	10.56	113.04	-384.44	-222.35	389.60	368.54	21.06	18.503		
2,800.00	2,756.89	2,776.17	2,738.10	11.33	11.00	113.07	-402.55	-227.17	402.34	380.41	21.93	18.346		
2,900.00	2,854.85	2,875.36	2,835.50	11.79	11.44	113.09	-420.66	-231.99	415.08	392.27	22.80	18.201		
3,000.00	2,952.81	2,974.54	2,932.89	12.24	11.88	113.12	-438.78	-236.82	427.82	404.14	23.68	18.067		
3,100.00	3,050.77	3,073.73	3,030.29	12.70	12.32	113.14	-456.89	-241.64	440.56	416.00	24.56	17.941		
3,200.00	3,148.73	3,172.91	3,127.69	13.15	12.76	113.16	-475.00	-246.46	453.30	427.87	25.43	17.824		
3,300.00	3,246.69	3,272.10	3,225.09	13.61	13.20	113.18	-493.11	-251.29	466.04	439.73	26.31	17.715		
3,400.00	3,344.66	3,371.28	3,322.49	14.07	13.64	113.20	-511.22	-256.11	478.78	451.59	27.18	17.612		
3,500.00	3,442.62	3,470.47	3,419.88	14.52	14.09	113.21	-529.33	-260.93	491.52	463.46	28.06	17.516		
3,600.00	3,540.58	3,569.65	3,517.28	14.98	14.53	113.23	-547.44	-265.75	504.26	475.32	28.94	17.426		
3,700.00	3,638.54	3,668.84	3,614.68	15.44	14.97	113.25	-565.55	-270.58	517.00	487.18	29.81	17.340		
3,800.00	3,736.50	3,768.02	3,712.08	15.89	15.41	113.26	-583.66	-275.40	529.74	499.05	30.69	17.260		
3,900.00	3,834.46	3,867.21	3,809.48	16.35	15.85	113.28	-601.77	-280.22	542.48	510.91	31.57	17.184		
4,000.00	3,932.42	3,966.39	3,906.87	16.81	16.29	113.29	-619.89	-285.05	555.22	522.77	32.45	17.112		
4,100.00	4,030.38	4,065.58	4,004.27	17.26	16.73	113.30	-638.00	-289.87	567.96	534.64	33.32	17.043		
4,200.00	4,128.34	4,164.76	4,101.67	17.72	17.17	113.32	-656.11	-294.69	580.70	546.50	34.20	16.978		
4,300.00	4,226.30	4,263.95	4,199.07	18.18	17.61	113.33	-674.22	-299.52	593.44	558.36	35.08	16.916		
4,400.00	4,324.27	4,363.13	4,296.47	18.62	18.06	113.37	-692.33	-304.34	606.17	570.22	35.95	16.863		
4,500.00	4,422.66	4,465.27	4,396.86	18.90	18.46	113.44	-710.49	-309.18	617.89	581.26	36.63	16.867		
4,600.00	4,521.61	4,570.43	4,500.78	19.17	18.77	113.47	-725.97	-313.30	627.45	590.24	37.22	16.859		
4,700.00	4,621.00	4,675.93	4,605.57	19.42	19.03	113.49	-737.78	-316.44	634.73	596.98	37.75	16.815		
4,800.00	4,720.72	4,781.68	4,710.98	19.66	19.28	113.50	-745.87	-318.60	639.70	601.45	38.25	16.724		
4,900.00	4,820.63	4,887.59	4,816.79	19.88	19.52	113.51	-750.19	-319.75	642.35	603.63	38.72	16.591		
5,000.00	4,920.63	4,991.43	4,920.63	20.12	19.77	-89.64	-750.98	-319.96	642.83	603.61	39.22	16.391		
5,100.00	5,020.63	5,091.43	5,020.63	20.33	19.98	-89.64	-750.98	-319.96	642.83	603.19	39.65	16.215		

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-1904
<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-1904	<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		
5,182.33	5,102.92	5,173.61	5,102.81	20.51	20.15	-89.82	-750.67	-319.96	642.82	602.83	39.99	16.074		
5,200.00	5,120.60	5,191.07	5,120.24	20.54	20.18	-89.64	-749.79	-319.96	642.84	602.78	40.06	16.047		
5,300.00	5,219.10	5,290.07	5,217.79	20.68	20.32	-89.65	-733.77	-320.00	642.87	602.54	40.33	15.941		
5,400.00	5,312.68	5,389.13	5,310.60	20.73	20.37	-89.68	-699.60	-320.06	642.93	602.51	40.42	15.905		
5,500.00	5,397.89	5,488.26	5,395.35	20.70	20.35	-89.71	-648.46	-320.17	643.04	602.66	40.38	15.925		
5,600.00	5,471.61	5,587.51	5,468.97	20.63	20.28	-89.76	-582.13	-320.30	643.17	602.92	40.25	15.981		
5,700.00	5,531.14	5,686.90	5,528.78	20.52	20.19	-89.81	-502.93	-320.46	643.33	603.24	40.08	16.049		
5,800.00	5,574.27	5,786.45	5,572.54	20.42	20.11	-89.87	-413.68	-320.64	643.51	603.55	39.96	16.105		
5,900.00	5,599.44	5,886.18	5,598.58	20.33	20.06	-89.94	-317.57	-320.84	643.70	603.79	39.91	16.129		
6,000.00	5,606.00	5,986.11	5,606.00	20.29	20.06	-90.00	-218.06	-321.04	643.90	603.93	39.97	16.108		
6,100.00	5,606.00	6,086.11	5,606.00	20.34	20.16	-90.00	-118.06	-321.24	644.10	603.86	40.24	16.007		
6,200.00	5,606.00	6,186.11	5,606.00	20.50	20.37	-90.00	-18.06	-321.44	644.31	603.59	40.71	15.825		
6,300.00	5,606.00	6,286.11	5,606.00	20.79	20.69	-90.00	81.94	-321.65	644.51	603.12	41.39	15.571		
6,400.00	5,606.00	6,386.11	5,606.00	21.19	21.12	-90.00	181.94	-321.85	644.71	602.45	42.27	15.254		
6,500.00	5,606.00	6,486.11	5,606.00	21.70	21.64	-90.00	281.94	-322.05	644.91	601.59	43.32	14.887		
6,600.00	5,606.00	6,586.11	5,606.00	22.30	22.25	-90.00	381.94	-322.25	645.12	600.57	44.55	14.482		
6,700.00	5,606.00	6,686.11	5,606.00	22.99	22.94	-90.00	481.94	-322.46	645.32	599.39	45.93	14.050		
6,800.00	5,606.00	6,786.11	5,606.00	23.75	23.71	-90.00	581.93	-322.66	645.52	598.07	47.45	13.603		
6,900.00	5,606.00	6,886.11	5,606.00	24.58	24.54	-90.00	681.93	-322.86	645.72	596.62	49.11	13.149		
7,000.00	5,606.00	6,986.11	5,606.00	25.47	25.43	-90.00	781.93	-323.06	645.93	595.05	50.88	12.696		
7,100.00	5,606.00	7,086.10	5,606.00	26.41	26.37	-90.00	881.93	-323.27	646.13	593.37	52.75	12.248		
7,200.00	5,606.00	7,186.10	5,606.00	27.39	27.36	-90.00	981.93	-323.47	646.33	591.61	54.72	11.811		
7,300.00	5,606.00	7,286.10	5,606.00	28.42	28.39	-90.00	1,081.93	-323.67	646.53	589.76	56.78	11.387		
7,400.00	5,606.00	7,386.10	5,606.00	29.49	29.46	-90.00	1,181.93	-323.87	646.74	587.83	58.91	10.979		
7,500.00	5,606.00	7,486.10	5,606.00	30.59	30.56	-90.00	1,281.93	-324.08	646.94	585.83	61.10	10.588		
7,600.00	5,606.00	7,586.10	5,606.00	31.72	31.69	-90.00	1,381.93	-324.28	647.14	583.78	63.36	10.213		
7,700.00	5,606.00	7,686.10	5,606.00	32.88	32.85	-90.00	1,481.93	-324.48	647.34	581.67	65.67	9.857		
7,800.00	5,606.00	7,786.10	5,606.00	34.06	34.04	-90.00	1,581.93	-324.68	647.55	579.51	68.03	9.518		
7,900.00	5,606.00	7,886.10	5,606.00	35.26	35.24	-90.00	1,681.93	-324.89	647.75	577.31	70.44	9.196		
8,000.00	5,606.00	7,986.10	5,606.00	36.48	36.47	-90.00	1,781.93	-325.09	647.95	575.07	72.88	8.890		
8,100.00	5,606.00	8,086.10	5,606.00	37.72	37.71	-90.00	1,881.93	-325.29	648.15	572.79	75.36	8.600		
8,200.00	5,606.00	8,186.10	5,606.00	38.98	38.97	-90.00	1,981.93	-325.49	648.36	570.48	77.88	8.325		
8,300.00	5,606.00	8,286.10	5,606.00	40.25	40.24	-90.00	2,081.93	-325.70	648.56	568.14	80.42	8.065		
8,400.00	5,606.00	8,386.10	5,606.00	41.53	41.53	-90.00	2,181.93	-325.90	648.76	565.77	82.99	7.818		
8,500.00	5,606.00	8,486.10	5,606.00	42.82	42.82	-90.00	2,281.93	-326.10	648.96	563.38	85.58	7.583		
8,600.00	5,606.00	8,586.10	5,606.00	44.13	44.13	-90.00	2,381.93	-326.30	649.17	560.97	88.19	7.361		
8,700.00	5,606.00	8,686.10	5,606.00	45.45	45.45	-90.00	2,481.93	-326.51	649.37	558.54	90.83	7.149		
8,800.00	5,606.00	8,786.10	5,606.00	46.77	46.78	-90.00	2,581.93	-326.71	649.57	556.09	93.48	6.949		
8,900.00	5,606.00	8,886.10	5,606.00	48.11	48.11	-90.00	2,681.93	-326.91	649.77	553.62	96.15	6.758		
9,000.00	5,606.00	8,986.10	5,606.00	49.45	49.46	-90.00	2,781.93	-327.11	649.98	551.14	98.84	6.576		
9,100.00	5,606.00	9,086.10	5,606.00	50.80	50.81	-90.00	2,881.93	-327.32	650.18	548.64	101.54	6.403		
9,200.00	5,606.00	9,186.10	5,606.00	52.15	52.17	-90.00	2,981.93	-327.52	650.38	546.13	104.25	6.239		
9,300.00	5,606.00	9,286.10	5,606.00	53.51	53.53	-90.00	3,081.92	-327.72	650.58	543.61	106.98	6.082		
9,400.00	5,606.00	9,386.10	5,606.00	54.88	54.90	-90.00	3,181.92	-327.92	650.79	541.07	109.71	5.932		
9,500.00	5,606.00	9,486.10	5,606.00	56.25	56.27	-90.00	3,281.92	-328.13	650.99	538.53	112.46	5.789		
9,600.00	5,606.00	9,586.10	5,606.00	57.63	57.65	-90.00	3,381.92	-328.33	651.19	535.97	115.22	5.652		
9,700.00	5,606.00	9,686.10	5,606.00	59.01	59.04	-90.00	3,481.92	-328.53	651.39	533.41	117.98	5.521		
9,800.00	5,606.00	9,786.10	5,606.00	60.40	60.42	-90.00	3,581.92	-328.73	651.60	530.84	120.76	5.396		
9,900.00	5,606.00	9,886.10	5,606.00	61.79	61.82	-90.00	3,681.92	-328.94	651.80	528.26	123.54	5.276		
10,000.00	5,606.00	9,986.10	5,606.00	63.18	63.21	-90.00	3,781.92	-329.14	652.00	525.67	126.33	5.161		
10,100.00	5,606.00	10,086.10	5,606.00	64.58	64.61	-90.00	3,881.92	-329.34	652.20	523.08	129.13	5.051		
10,200.00	5,606.00	10,186.10	5,606.00	65.98	66.01	-90.00	3,981.92	-329.54	652.41	520.48	131.93	4.945		

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-1904
<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-1904	<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	5,606.00	10,286.10	5,606.00	67.38	67.42	-90.00	4,081.92	-329.75	652.61	517.87	134.74	4.844	
10,400.00	5,606.00	10,386.10	5,606.00	68.79	68.82	-90.00	4,181.92	-329.95	652.81	515.26	137.55	4.746	
10,500.00	5,606.00	10,486.10	5,606.00	70.20	70.23	-90.00	4,281.92	-330.15	653.01	512.64	140.37	4.652	
10,600.00	5,606.00	10,586.10	5,606.00	71.61	71.65	-90.00	4,381.92	-330.35	653.22	510.02	143.20	4.562	
10,700.00	5,606.00	10,686.10	5,606.00	73.02	73.06	-90.00	4,481.92	-330.56	653.42	507.39	146.02	4.475	
10,800.00	5,606.00	10,786.10	5,606.00	74.44	74.48	-90.00	4,581.92	-330.76	653.62	504.76	148.86	4.391	
10,900.00	5,606.00	10,886.10	5,606.00	75.86	75.90	-90.00	4,681.92	-330.96	653.82	502.13	151.70	4.310	
11,000.00	5,606.00	10,986.10	5,606.00	77.28	77.32	-90.00	4,781.92	-331.16	654.03	499.49	154.54	4.232	
11,100.00	5,606.00	11,086.10	5,606.00	78.70	78.74	-90.00	4,881.92	-331.37	654.23	496.84	157.38	4.157	
11,200.00	5,606.00	11,186.10	5,606.00	80.12	80.17	-90.00	4,981.92	-331.57	654.43	494.20	160.23	4.084	
11,300.00	5,606.00	11,286.10	5,606.00	81.55	81.60	-90.00	5,081.92	-331.77	654.63	491.55	163.09	4.014	
11,400.00	5,606.00	11,386.10	5,606.00	82.97	83.02	-90.00	5,181.92	-331.97	654.84	488.89	165.94	3.946	
11,500.00	5,606.00	11,486.10	5,606.00	84.40	84.45	-90.00	5,281.92	-332.18	655.04	486.24	168.80	3.881	
11,600.00	5,606.00	11,586.10	5,606.00	85.83	85.88	-90.00	5,381.92	-332.38	655.24	483.58	171.66	3.817	
11,700.00	5,606.00	11,686.10	5,606.00	87.26	87.32	-90.00	5,481.91	-332.58	655.44	480.92	174.53	3.756	
11,800.00	5,606.00	11,786.10	5,606.00	88.70	88.75	-90.00	5,581.91	-332.78	655.65	478.25	177.39	3.696	
11,900.00	5,606.00	11,886.10	5,606.00	90.13	90.19	-90.00	5,681.91	-332.99	655.85	475.58	180.26	3.638	
12,000.00	5,606.00	11,986.10	5,606.00	91.57	91.62	-90.00	5,781.91	-333.19	656.05	472.91	183.14	3.582	
12,100.00	5,606.00	12,086.09	5,606.00	93.00	93.06	-90.00	5,881.91	-333.39	656.25	470.24	186.01	3.528	
12,200.00	5,606.00	12,186.09	5,606.00	94.44	94.50	-90.00	5,981.91	-333.59	656.46	467.57	188.89	3.475	
12,300.00	5,606.00	12,286.09	5,606.00	95.88	95.94	-90.00	6,081.91	-333.80	656.66	464.89	191.76	3.424	
12,400.00	5,606.00	12,386.09	5,606.00	97.32	97.38	-90.00	6,181.91	-334.00	656.86	462.22	194.64	3.375	
12,500.00	5,606.00	12,486.09	5,606.00	98.76	98.82	-90.00	6,281.91	-334.20	657.06	459.54	197.53	3.326	
12,600.00	5,606.00	12,586.09	5,606.00	100.20	100.26	-90.00	6,381.91	-334.40	657.27	456.85	200.41	3.280	
12,700.00	5,606.00	12,686.09	5,606.00	101.64	101.70	-90.00	6,481.91	-334.61	657.47	454.17	203.30	3.234	
12,800.00	5,606.00	12,786.09	5,606.00	103.08	103.15	-90.00	6,581.91	-334.81	657.67	451.49	206.18	3.190	
12,900.00	5,606.00	12,886.09	5,606.00	104.53	104.59	-90.00	6,681.91	-335.01	657.87	448.80	209.07	3.147	
13,000.00	5,606.00	12,986.09	5,606.00	105.97	106.04	-90.00	6,781.91	-335.21	658.08	446.11	211.96	3.105	
13,100.00	5,606.00	13,086.09	5,606.00	107.42	107.48	-90.00	6,881.91	-335.42	658.28	443.42	214.85	3.064	
13,200.00	5,606.00	13,186.09	5,606.00	108.86	108.93	-90.00	6,981.91	-335.62	658.48	440.73	217.75	3.024	
13,300.00	5,606.00	13,286.09	5,606.00	110.31	110.38	-90.00	7,081.91	-335.82	658.68	438.04	220.64	2.985	
13,400.00	5,606.00	13,386.09	5,606.00	111.76	111.83	-90.00	7,181.91	-336.02	658.89	435.35	223.54	2.948	
13,500.00	5,606.00	13,486.09	5,606.00	113.21	113.28	-90.00	7,281.91	-336.23	659.09	432.65	226.44	2.911	
13,600.00	5,606.00	13,586.09	5,606.00	114.65	114.73	-90.00	7,381.91	-336.43	659.29	429.96	229.33	2.875	
13,700.00	5,606.00	13,686.09	5,606.00	116.10	116.18	-90.00	7,481.91	-336.63	659.49	427.26	232.23	2.840	
13,732.32	5,606.00	13,718.41	5,606.00	116.52	116.61	-90.00	7,514.23	-336.70	659.56	426.47	233.09	2.830 SF	





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.98	0.02	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-89.98	0.02	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-89.98	0.02	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-89.98	0.02	-59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	400.14	400.12	1.11	1.11	113.03	-1.73	-59.86	60.54	58.33	2.21	27.356 ES		
500.00	499.84	500.27	500.11	1.41	1.41	112.62	-6.96	-59.49	62.23	59.44	2.79	22.282		
600.00	599.45	600.35	599.80	1.74	1.73	111.98	-15.67	-58.87	65.06	61.63	3.43	18.966		
700.00	698.70	700.38	699.07	2.07	2.07	111.17	-27.84	-58.02	69.01	64.90	4.12	16.758		
800.00	797.47	800.32	797.78	2.44	2.43	110.25	-43.45	-56.92	74.11	69.25	4.86	15.253		
900.00	895.64	900.14	895.90	2.84	2.82	109.75	-61.78	-55.63	80.33	74.68	5.65	14.217		
1,000.00	993.60	999.92	993.93	3.26	3.23	109.93	-80.34	-54.32	86.92	80.45	6.47	13.435		
1,100.00	1,091.56	1,099.71	1,091.96	3.69	3.65	110.09	-98.89	-53.01	93.50	86.20	7.31	12.800		
1,200.00	1,189.52	1,199.49	1,190.00	4.12	4.07	110.22	-117.45	-51.70	100.09	91.94	8.15	12.278		
1,300.00	1,287.48	1,299.27	1,288.03	4.56	4.50	110.34	-136.00	-50.40	106.69	97.68	9.01	11.843		
1,400.00	1,385.44	1,399.05	1,386.06	5.00	4.93	110.45	-154.56	-49.09	113.28	103.41	9.87	11.477		
1,500.00	1,483.40	1,498.84	1,484.09	5.45	5.36	110.54	-173.12	-47.78	119.87	109.13	10.74	11.165		
1,600.00	1,581.36	1,598.62	1,582.13	5.90	5.79	110.63	-191.67	-46.48	126.46	114.85	11.61	10.896		
1,700.00	1,679.32	1,698.40	1,680.16	6.34	6.22	110.70	-210.23	-45.17	133.05	120.57	12.48	10.663		
1,800.00	1,777.28	1,798.18	1,778.19	6.79	6.66	110.77	-228.78	-43.86	139.64	126.29	13.35	10.458		
1,900.00	1,875.24	1,897.97	1,876.23	7.25	7.10	110.83	-247.34	-42.56	146.23	132.01	14.23	10.277		
2,000.00	1,973.21	1,997.75	1,974.26	7.70	7.53	110.89	-265.89	-41.25	152.83	137.72	15.11	10.116		
2,100.00	2,071.17	2,097.53	2,072.29	8.15	7.97	110.94	-284.45	-39.94	159.42	143.43	15.99	9.972		
2,200.00	2,169.13	2,197.31	2,170.33	8.60	8.41	110.99	-303.01	-38.63	166.01	149.15	16.87	9.842		
2,300.00	2,267.09	2,297.10	2,268.36	9.06	8.85	111.03	-321.56	-37.33	172.60	154.86	17.75	9.725		
2,400.00	2,365.05	2,396.88	2,366.39	9.51	9.29	111.07	-340.12	-36.02	179.20	160.57	18.63	9.619		
2,500.00	2,463.01	2,496.66	2,464.43	9.97	9.73	111.11	-358.67	-34.71	185.79	166.28	19.51	9.521		
2,600.00	2,560.97	2,596.44	2,562.46	10.42	10.17	111.15	-377.23	-33.41	192.38	171.99	20.40	9.432		
2,700.00	2,658.93	2,696.22	2,660.49	10.88	10.61	111.18	-395.79	-32.10	198.98	177.70	21.28	9.351		
2,800.00	2,756.89	2,796.01	2,758.53	11.33	11.05	111.21	-414.34	-30.79	205.57	183.41	22.16	9.275		
2,900.00	2,854.85	2,895.79	2,856.56	11.79	11.49	111.24	-432.90	-29.49	212.16	189.11	23.05	9.205		
3,000.00	2,952.81	2,995.57	2,954.59	12.24	11.93	111.27	-451.45	-28.18	218.76	194.82	23.93	9.140		
3,100.00	3,050.77	3,095.35	3,052.62	12.70	12.37	111.29	-470.01	-26.87	225.35	200.53	24.82	9.080		
3,200.00	3,148.73	3,195.14	3,150.66	13.15	12.81	111.32	-488.56	-25.56	231.94	206.24	25.70	9.024		
3,300.00	3,246.69	3,294.92	3,248.69	13.61	13.25	111.34	-507.12	-24.26	238.54	211.95	26.59	8.971		
3,400.00	3,344.66	3,394.70	3,346.72	14.07	13.69	111.36	-525.68	-22.95	245.13	217.65	27.48	8.922		
3,500.00	3,442.62	3,494.48	3,444.76	14.52	14.13	111.38	-544.23	-21.64	251.72	223.36	28.36	8.875		
3,600.00	3,540.58	3,594.27	3,542.79	14.98	14.57	111.40	-562.79	-20.34	258.32	229.07	29.25	8.832		
3,700.00	3,638.54	3,694.05	3,640.82	15.44	15.02	111.42	-581.34	-19.03	264.91	234.77	30.13	8.791		
3,800.00	3,736.50	3,793.83	3,738.86	15.89	15.46	111.44	-599.90	-17.72	271.50	240.48	31.02	8.752		
3,900.00	3,834.46	3,893.61	3,836.89	16.35	15.90	111.45	-618.46	-16.42	278.10	246.19	31.91	8.716		
4,000.00	3,932.42	3,993.40	3,934.92	16.81	16.34	111.47	-637.01	-15.11	284.69	251.89	32.79	8.681		
4,100.00	4,030.38	4,093.18	4,032.96	17.26	16.78	111.49	-655.57	-13.80	291.28	257.60	33.68	8.648		
4,200.00	4,128.34	4,192.96	4,130.99	17.72	17.22	111.50	-674.12	-12.49	297.88	263.31	34.57	8.617		
4,300.00	4,226.30	4,292.74	4,229.02	18.18	17.66	111.51	-692.68	-11.19	304.47	269.01	35.46	8.587		
4,400.00	4,324.27	4,392.29	4,326.89	18.62	18.07	111.60	-710.85	-9.91	311.07	274.78	36.29	8.572		
4,500.00	4,422.66	4,491.55	4,424.96	18.90	18.34	111.94	-726.10	-8.83	316.99	280.17	36.82	8.609		
4,600.00	4,521.61	4,590.81	4,523.50	19.17	18.59	112.28	-737.94	-8.00	321.79	284.47	37.32	8.622		
4,700.00	4,621.00	4,690.06	4,622.38	19.42	18.83	112.63	-746.38	-7.41	325.49	287.69	37.80	8.611		
4,800.00	4,720.72	4,789.27	4,721.46	19.66	19.05	113.00	-751.39	-7.05	328.06	289.82	38.24	8.578		
4,900.00	4,820.63	4,888.46	4,820.63	19.88	19.30	113.38	-752.98	-6.94	329.52	290.83	38.69	8.517		
5,000.00	4,920.63	4,988.45	4,920.63	20.12	19.51	-89.65	-752.98	-6.94	329.81	290.66	39.14	8.426		
5,015.42	4,936.04	5,003.87	4,936.04	20.16	19.54	-89.65	-752.98	-6.94	329.81	290.60	39.21	8.412		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,020.63	5,088.44	5,020.61	20.33	19.72	-89.65	-752.97	-6.94	329.81	290.24	39.57	8.335		
5,200.00	5,120.60	5,186.94	5,118.46	20.54	19.88	-88.11	-743.01	-6.94	329.98	290.13	39.85	8.281		
5,300.00	5,219.10	5,282.99	5,210.42	20.68	19.95	-85.98	-715.75	-6.94	330.63	290.72	39.91	8.284		
5,400.00	5,312.68	5,377.07	5,294.16	20.73	19.96	-84.01	-673.14	-6.94	331.63	291.84	39.79	8.334		
5,500.00	5,397.89	5,469.46	5,367.64	20.70	19.91	-82.27	-617.33	-6.94	332.85	293.31	39.54	8.419		
5,600.00	5,471.61	5,560.47	5,429.27	20.63	19.84	-80.81	-550.53	-6.94	334.11	294.90	39.21	8.522		
5,700.00	5,531.14	5,650.00	5,477.67	20.52	19.77	-79.67	-475.34	-6.94	335.25	296.37	38.89	8.621		
5,800.00	5,574.27	5,739.55	5,512.51	20.42	19.73	-78.87	-392.96	-6.94	336.13	297.48	38.66	8.695		
5,900.00	5,599.44	5,828.21	5,532.61	20.33	19.72	-78.43	-306.72	-6.94	336.64	298.05	38.59	8.724		
6,000.00	5,606.00	5,918.43	5,538.00	20.29	19.77	-78.35	-216.76	-6.94	336.74	298.04	38.70	8.701		
6,100.00	5,606.00	6,018.43	5,538.00	20.34	19.91	-78.35	-116.76	-6.94	336.74	297.77	38.96	8.642		
6,200.00	5,606.00	6,118.43	5,538.00	20.50	20.16	-78.35	-16.76	-6.94	336.74	297.30	39.44	8.538		
6,300.00	5,606.00	6,218.43	5,538.00	20.79	20.51	-78.35	83.24	-6.94	336.74	296.62	40.11	8.395		
6,400.00	5,606.00	6,318.43	5,538.00	21.19	20.96	-78.35	183.24	-6.94	336.74	295.75	40.98	8.217		
6,500.00	5,606.00	6,418.43	5,538.00	21.70	21.50	-78.35	283.24	-6.94	336.74	294.70	42.03	8.011		
6,600.00	5,606.00	6,518.43	5,538.00	22.30	22.13	-78.35	383.24	-6.94	336.73	293.48	43.25	7.786		
6,700.00	5,606.00	6,618.43	5,538.00	22.99	22.83	-78.35	483.24	-6.94	336.73	292.11	44.62	7.546		
6,800.00	5,606.00	6,718.43	5,538.00	23.75	23.61	-78.35	583.24	-6.94	336.73	290.60	46.13	7.299		
6,900.00	5,606.00	6,818.43	5,538.00	24.58	24.44	-78.35	683.24	-6.94	336.73	288.96	47.77	7.048		
7,000.00	5,606.00	6,918.43	5,538.00	25.47	25.34	-78.35	783.24	-6.94	336.73	287.21	49.53	6.799		
7,100.00	5,606.00	7,018.43	5,538.00	26.41	26.29	-78.35	883.24	-6.94	336.73	285.35	51.38	6.553		
7,200.00	5,606.00	7,118.43	5,538.00	27.39	27.29	-78.35	983.24	-6.94	336.73	283.40	53.33	6.314		
7,300.00	5,606.00	7,218.43	5,538.00	28.42	28.32	-78.35	1,083.24	-6.94	336.73	281.37	55.36	6.082		
7,400.00	5,606.00	7,318.43	5,538.00	29.49	29.40	-78.35	1,183.24	-6.94	336.73	279.26	57.47	5.859		
7,500.00	5,606.00	7,418.43	5,538.00	30.59	30.50	-78.35	1,283.24	-6.93	336.73	277.09	59.64	5.646		
7,600.00	5,606.00	7,518.43	5,538.00	31.72	31.64	-78.35	1,383.24	-6.93	336.73	274.86	61.87	5.443		
7,700.00	5,606.00	7,618.43	5,538.00	32.88	32.80	-78.35	1,483.24	-6.93	336.73	272.58	64.15	5.249		
7,800.00	5,606.00	7,718.43	5,538.00	34.06	33.99	-78.35	1,583.24	-6.93	336.73	270.25	66.48	5.065		
7,900.00	5,606.00	7,818.43	5,538.00	35.26	35.20	-78.35	1,683.24	-6.93	336.73	267.88	68.85	4.891		
8,000.00	5,606.00	7,918.43	5,538.00	36.48	36.43	-78.35	1,783.24	-6.93	336.73	265.47	71.26	4.725		
8,100.00	5,606.00	8,018.43	5,538.00	37.72	37.67	-78.35	1,883.24	-6.93	336.73	263.03	73.71	4.569		
8,200.00	5,606.00	8,118.43	5,538.00	38.98	38.93	-78.35	1,983.24	-6.93	336.73	260.55	76.18	4.420		
8,300.00	5,606.00	8,218.43	5,538.00	40.25	40.21	-78.35	2,083.24	-6.93	336.73	258.05	78.68	4.279		
8,400.00	5,606.00	8,318.43	5,538.00	41.53	41.50	-78.35	2,183.24	-6.93	336.73	255.52	81.21	4.146		
8,500.00	5,606.00	8,418.43	5,538.00	42.82	42.80	-78.35	2,283.24	-6.93	336.73	252.96	83.77	4.020		
8,600.00	5,606.00	8,518.43	5,538.00	44.13	44.11	-78.35	2,383.24	-6.93	336.73	250.39	86.34	3.900		
8,700.00	5,606.00	8,618.43	5,538.00	45.45	45.43	-78.35	2,483.24	-6.93	336.73	247.79	88.93	3.786		
8,800.00	5,606.00	8,718.43	5,538.00	46.77	46.76	-78.35	2,583.24	-6.93	336.73	245.18	91.55	3.678		
8,900.00	5,606.00	8,818.43	5,538.00	48.11	48.10	-78.35	2,683.24	-6.93	336.73	242.56	94.17	3.576		
9,000.00	5,606.00	8,918.43	5,538.00	49.45	49.45	-78.35	2,783.24	-6.93	336.73	239.91	96.82	3.478		
9,100.00	5,606.00	9,018.43	5,538.00	50.80	50.80	-78.35	2,883.24	-6.93	336.73	237.26	99.47	3.385		
9,200.00	5,606.00	9,118.43	5,538.00	52.15	52.16	-78.35	2,983.24	-6.93	336.73	234.59	102.14	3.297		
9,300.00	5,606.00	9,218.43	5,538.00	53.51	53.52	-78.35	3,083.24	-6.93	336.73	231.91	104.82	3.212		
9,400.00	5,606.00	9,318.43	5,538.00	54.88	54.89	-78.35	3,183.24	-6.93	336.73	229.22	107.51	3.132		
9,500.00	5,606.00	9,418.43	5,538.00	56.25	56.27	-78.35	3,283.24	-6.93	336.73	226.51	110.21	3.055		
9,600.00	5,606.00	9,518.43	5,538.00	57.63	57.65	-78.35	3,383.24	-6.93	336.73	223.80	112.92	2.982		
9,700.00	5,606.00	9,618.43	5,538.00	59.01	59.04	-78.35	3,483.24	-6.93	336.73	221.08	115.64	2.912		
9,800.00	5,606.00	9,718.43	5,538.00	60.40	60.42	-78.35	3,583.24	-6.93	336.73	218.36	118.37	2.845		
9,900.00	5,606.00	9,818.43	5,538.00	61.79	61.82	-78.35	3,683.24	-6.93	336.73	215.62	121.11	2.780		
10,000.00	5,606.00	9,918.43	5,538.00	63.18	63.21	-78.35	3,783.24	-6.93	336.73	212.88	123.85	2.719		
10,100.00	5,606.00	10,018.43	5,538.00	64.58	64.61	-78.35	3,883.24	-6.93	336.73	210.13	126.60	2.660		
10,200.00	5,606.00	10,118.43	5,538.00	65.98	66.02	-78.35	3,983.24	-6.93	336.73	207.37	129.35	2.603		

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-1904
<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-1904	<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	5,606.00	10,218.43	5,538.00	67.38	67.42	-78.35	4,083.24	-6.93	336.73	204.61	132.11	2.549		
10,400.00	5,606.00	10,318.43	5,538.00	68.79	68.83	-78.35	4,183.24	-6.93	336.73	201.85	134.88	2.497		
10,500.00	5,606.00	10,418.43	5,538.00	70.20	70.24	-78.35	4,283.24	-6.93	336.73	199.08	137.65	2.446		
10,600.00	5,606.00	10,518.43	5,538.00	71.61	71.66	-78.35	4,383.24	-6.93	336.73	196.30	140.42	2.398		
10,700.00	5,606.00	10,618.43	5,538.00	73.02	73.07	-78.35	4,483.24	-6.93	336.72	193.52	143.20	2.351		
10,800.00	5,606.00	10,718.43	5,538.00	74.44	74.49	-78.35	4,583.24	-6.93	336.72	190.74	145.99	2.307		
10,900.00	5,606.00	10,818.43	5,538.00	75.86	75.91	-78.35	4,683.24	-6.93	336.72	187.95	148.78	2.263		
11,000.00	5,606.00	10,918.43	5,538.00	77.28	77.33	-78.35	4,783.24	-6.93	336.72	185.15	151.57	2.222		
11,100.00	5,606.00	11,018.43	5,538.00	78.70	78.76	-78.35	4,883.24	-6.93	336.72	182.36	154.37	2.181		
11,200.00	5,606.00	11,118.43	5,538.00	80.12	80.18	-78.35	4,983.24	-6.93	336.72	179.56	157.16	2.142		
11,300.00	5,606.00	11,218.43	5,538.00	81.55	81.61	-78.35	5,083.24	-6.92	336.72	176.76	159.97	2.105		
11,400.00	5,606.00	11,318.43	5,538.00	82.97	83.04	-78.35	5,183.24	-6.92	336.72	173.95	162.77	2.069		
11,500.00	5,606.00	11,418.43	5,538.00	84.40	84.47	-78.35	5,283.24	-6.92	336.72	171.14	165.58	2.034		
11,600.00	5,606.00	11,518.43	5,538.00	85.83	85.90	-78.35	5,383.24	-6.92	336.72	168.33	168.39	2.000		
11,700.00	5,606.00	11,618.43	5,538.00	87.26	87.33	-78.35	5,483.24	-6.92	336.72	165.52	171.21	1.967		
11,800.00	5,606.00	11,718.43	5,538.00	88.70	88.77	-78.35	5,583.24	-6.92	336.72	162.70	174.02	1.935		
11,900.00	5,606.00	11,818.43	5,538.00	90.13	90.20	-78.35	5,683.24	-6.92	336.72	159.88	176.84	1.904		
12,000.00	5,606.00	11,918.43	5,538.00	91.57	91.64	-78.35	5,783.24	-6.92	336.72	157.06	179.66	1.874		
12,100.00	5,606.00	12,018.43	5,538.00	93.00	93.08	-78.35	5,883.24	-6.92	336.72	154.24	182.48	1.845		
12,200.00	5,606.00	12,118.43	5,538.00	94.44	94.52	-78.35	5,983.24	-6.92	336.72	151.41	185.31	1.817		
12,300.00	5,606.00	12,218.43	5,538.00	95.88	95.96	-78.35	6,083.24	-6.92	336.72	148.58	188.14	1.790		
12,400.00	5,606.00	12,318.43	5,538.00	97.32	97.40	-78.35	6,183.24	-6.92	336.72	145.76	190.97	1.763		
12,500.00	5,606.00	12,418.43	5,538.00	98.76	98.84	-78.35	6,283.24	-6.92	336.72	142.92	193.80	1.737		
12,600.00	5,606.00	12,518.43	5,538.00	100.20	100.28	-78.35	6,383.24	-6.92	336.72	140.09	196.63	1.712		
12,700.00	5,606.00	12,618.43	5,538.00	101.64	101.72	-78.35	6,483.24	-6.92	336.72	137.26	199.46	1.688		
12,800.00	5,606.00	12,718.43	5,538.00	103.08	103.17	-78.35	6,583.24	-6.92	336.72	134.42	202.30	1.664		
12,900.00	5,606.00	12,818.43	5,538.00	104.53	104.61	-78.35	6,683.24	-6.92	336.72	131.58	205.14	1.641		
13,000.00	5,606.00	12,918.43	5,538.00	105.97	106.06	-78.35	6,783.24	-6.92	336.72	128.75	207.97	1.619		
13,100.00	5,606.00	13,018.43	5,538.00	107.42	107.50	-78.35	6,883.24	-6.92	336.72	125.91	210.81	1.597		
13,200.00	5,606.00	13,118.43	5,538.00	108.86	108.95	-78.35	6,983.24	-6.92	336.72	123.06	213.66	1.576		
13,300.00	5,606.00	13,218.43	5,538.00	110.31	110.40	-78.35	7,083.24	-6.92	336.72	120.22	216.50	1.555		
13,400.00	5,606.00	13,318.43	5,538.00	111.76	111.85	-78.35	7,183.24	-6.92	336.72	117.38	219.34	1.535		
13,500.00	5,606.00	13,418.43	5,538.00	113.21	113.30	-78.35	7,283.24	-6.92	336.72	114.53	222.19	1.515		
13,600.00	5,606.00	13,518.43	5,538.00	114.65	114.75	-78.35	7,383.24	-6.92	336.72	111.69	225.03	1.496	Level 3	
13,700.00	5,606.00	13,618.43	5,538.00	116.10	116.20	-78.35	7,483.24	-6.92	336.72	108.84	227.88	1.478	Level 3	
13,725.30	5,606.00	13,643.73	5,538.00	116.43	116.56	-78.35	7,508.54	-6.92	336.72	108.16	228.56	1.473	Level 3	
13,732.32	5,606.00	13,650.75	5,538.00	116.52	116.66	-78.35	7,515.56	-6.92	336.72	107.97	228.75	1.472	Level 3, SF	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<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	562.969		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.01	-149.95	149.95	149.01	0.94	159.407		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.01	-149.95	149.95	148.33	1.61	92.849 CC, ES		
400.00	399.98	398.22	398.20	1.11	1.10	113.13	-1.57	-150.52	151.22	149.00	2.22	68.206		
500.00	499.84	496.34	496.19	1.41	1.40	113.06	-6.30	-152.26	155.05	152.23	2.81	55.149		
600.00	599.45	594.28	593.76	1.74	1.72	112.94	-14.17	-155.14	161.41	157.95	3.46	46.637		
700.00	698.70	691.94	690.71	2.07	2.04	112.78	-25.12	-159.15	170.30	166.14	4.16	40.976		
800.00	797.47	789.23	786.85	2.44	2.39	112.58	-39.12	-164.28	181.70	176.81	4.89	37.121		
900.00	895.64	887.08	883.05	2.84	2.78	112.48	-55.96	-170.44	195.44	189.77	5.67	34.487		
1,000.00	993.60	986.05	980.24	3.26	3.18	112.72	-73.47	-176.85	209.78	203.33	6.45	32.507		
1,100.00	1,091.56	1,085.01	1,077.43	3.69	3.60	112.93	-90.98	-183.26	224.12	216.86	7.26	30.871		
1,200.00	1,189.52	1,183.97	1,174.62	4.12	4.02	113.12	-108.48	-189.68	238.47	230.39	8.08	29.513		
1,300.00	1,287.48	1,282.94	1,271.81	4.56	4.44	113.28	-125.99	-196.09	252.82	243.90	8.91	28.369		
1,400.00	1,385.44	1,381.90	1,369.01	5.00	4.87	113.43	-143.49	-202.50	267.16	257.41	9.75	27.400		
1,500.00	1,483.40	1,480.86	1,466.20	5.45	5.30	113.56	-161.00	-208.91	281.52	270.92	10.60	26.570		
1,600.00	1,581.36	1,579.83	1,563.39	5.90	5.73	113.67	-178.51	-215.32	295.87	284.42	11.44	25.853		
1,700.00	1,679.32	1,678.79	1,660.58	6.34	6.16	113.78	-196.01	-221.73	310.22	297.92	12.30	25.227		
1,800.00	1,777.28	1,777.75	1,757.77	6.79	6.59	113.88	-213.52	-228.14	324.57	311.42	13.15	24.678		
1,900.00	1,875.24	1,876.72	1,854.96	7.25	7.03	113.97	-231.02	-234.55	338.93	324.92	14.01	24.191		
2,000.00	1,973.21	1,975.68	1,952.15	7.70	7.46	114.05	-248.53	-240.96	353.28	338.41	14.87	23.758		
2,100.00	2,071.17	2,074.64	2,049.34	8.15	7.90	114.13	-266.04	-247.37	367.64	351.91	15.73	23.370		
2,200.00	2,169.13	2,173.60	2,146.54	8.60	8.34	114.20	-283.54	-253.78	382.00	365.40	16.59	23.020		
2,300.00	2,267.09	2,272.57	2,243.73	9.06	8.77	114.26	-301.05	-260.19	396.35	378.90	17.46	22.704		
2,400.00	2,365.05	2,371.53	2,340.92	9.51	9.21	114.32	-318.55	-266.60	410.71	392.39	18.32	22.416		
2,500.00	2,463.01	2,470.49	2,438.11	9.97	9.65	114.38	-336.06	-273.01	425.07	405.88	19.19	22.153		
2,600.00	2,560.97	2,569.46	2,535.30	10.42	10.09	114.43	-353.57	-279.42	439.43	419.37	20.05	21.912		
2,700.00	2,658.93	2,668.42	2,632.49	10.88	10.52	114.48	-371.07	-285.83	453.79	432.87	20.92	21.690		
2,800.00	2,756.89	2,767.38	2,729.68	11.33	10.96	114.53	-388.58	-292.24	468.15	446.36	21.79	21.486		
2,900.00	2,854.85	2,866.35	2,826.87	11.79	11.40	114.57	-406.08	-298.65	482.50	459.85	22.66	21.296		
3,000.00	2,952.81	2,965.31	2,924.07	12.24	11.84	114.61	-423.59	-305.06	496.86	473.34	23.53	21.121		
3,100.00	3,050.77	3,064.27	3,021.26	12.70	12.28	114.65	-441.10	-311.47	511.22	486.83	24.39	20.957		
3,200.00	3,148.73	3,163.23	3,118.45	13.15	12.72	114.69	-458.60	-317.88	525.58	500.32	25.26	20.805		
3,300.00	3,246.69	3,262.20	3,215.64	13.61	13.16	114.72	-476.11	-324.29	539.94	513.81	26.13	20.662		
3,400.00	3,344.66	3,361.16	3,312.83	14.07	13.60	114.75	-493.61	-330.70	554.31	527.30	27.00	20.528		
3,500.00	3,442.62	3,460.12	3,410.02	14.52	14.03	114.79	-511.12	-337.12	568.67	540.79	27.87	20.403		
3,600.00	3,540.58	3,559.09	3,507.21	14.98	14.47	114.82	-528.63	-343.53	583.03	554.28	28.74	20.285		
3,700.00	3,638.54	3,658.05	3,604.40	15.44	14.91	114.84	-546.13	-349.94	597.39	567.77	29.61	20.173		
3,800.00	3,736.50	3,757.01	3,701.59	15.89	15.35	114.87	-563.64	-356.35	611.75	581.27	30.48	20.068		
3,900.00	3,834.46	3,855.98	3,798.79	16.35	15.79	114.90	-581.14	-362.76	626.11	594.76	31.35	19.969		
4,000.00	3,932.42	3,954.94	3,895.98	16.81	16.23	114.92	-598.65	-369.17	640.47	608.25	32.23	19.875		
4,100.00	4,030.38	4,053.90	3,993.17	17.26	16.67	114.94	-616.16	-375.58	654.83	621.74	33.10	19.786		
4,200.00	4,128.34	4,152.86	4,090.36	17.72	17.11	114.97	-633.66	-381.99	669.19	635.23	33.97	19.701		
4,300.00	4,226.30	4,251.83	4,187.55	18.18	17.55	114.99	-651.17	-388.40	683.56	648.72	34.84	19.620		
4,400.00	4,324.27	4,350.79	4,284.74	18.62	17.99	115.05	-668.67	-394.81	697.90	662.20	35.70	19.550		
4,500.00	4,422.66	4,449.87	4,382.05	18.90	18.43	115.14	-686.20	-401.23	711.31	674.90	36.41	19.539		
4,600.00	4,521.61	4,549.47	4,479.86	19.17	18.87	114.97	-703.81	-407.68	723.26	686.16	37.10	19.494		
4,700.00	4,621.00	4,657.39	4,586.25	19.42	19.20	114.63	-720.83	-413.91	733.16	695.45	37.71	19.441		
4,800.00	4,720.72	4,765.94	4,693.86	19.66	19.48	114.29	-734.14	-418.78	740.46	702.21	38.25	19.357		
4,900.00	4,820.63	4,874.96	4,802.41	19.88	19.75	113.94	-743.64	-422.26	745.14	706.37	38.76	19.223		
5,000.00	4,920.63	4,984.36	4,911.63	20.12	19.99	-89.56	-749.27	-424.32	747.26	707.98	39.27	19.027		
5,100.00	5,020.63	5,093.38	5,020.63	20.33	20.26	-89.69	-750.99	-424.95	747.82	708.06	39.76	18.808		

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-1904
<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-1904	<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	5,120.60	5,193.35	5,120.60	20.54	20.47	-89.79	-750.99	-424.95	747.82	707.63	40.19	18.609		
5,229.09	5,149.55	5,222.30	5,149.55	20.58	20.53	-90.00	-750.99	-424.95	747.81	707.52	40.29	18.561		
5,300.00	5,219.10	5,291.91	5,219.17	20.68	20.68	-91.00	-750.96	-424.95	747.93	707.40	40.54	18.451		
5,400.00	5,312.68	5,392.47	5,318.99	20.73	20.84	-92.81	-740.30	-425.05	748.89	708.14	40.74	18.381		
5,500.00	5,397.89	5,498.36	5,419.84	20.70	20.92	-94.55	-708.60	-425.35	750.77	710.01	40.77	18.417		
5,600.00	5,471.61	5,610.19	5,517.06	20.63	20.92	-96.17	-653.78	-425.86	753.40	712.79	40.61	18.550		
5,700.00	5,531.14	5,728.23	5,604.51	20.52	20.84	-97.59	-574.87	-426.59	756.45	716.11	40.34	18.753		
5,800.00	5,574.27	5,852.26	5,674.83	20.42	20.72	-98.72	-473.06	-427.54	759.48	719.45	40.03	18.974		
5,900.00	5,599.44	5,981.26	5,720.34	20.33	20.60	-99.45	-352.71	-428.66	762.05	722.23	39.82	19.135		
6,000.00	5,606.00	6,111.37	5,735.00	20.29	20.56	-99.72	-223.77	-429.86	763.73	723.88	39.85	19.166		
6,100.00	5,606.00	6,211.37	5,735.00	20.34	20.62	-99.71	-123.78	-430.79	764.65	724.54	40.10	19.067		
6,200.00	5,606.00	6,311.36	5,735.00	20.50	20.78	-99.70	-23.79	-431.73	765.57	725.00	40.57	18.872		
6,300.00	5,606.00	6,411.36	5,735.00	20.79	21.07	-99.69	76.20	-432.66	766.48	725.26	41.23	18.591		
6,400.00	5,606.00	6,511.35	5,735.00	21.19	21.46	-99.68	176.19	-433.59	767.40	725.32	42.08	18.236		
6,500.00	5,606.00	6,611.35	5,735.00	21.70	21.96	-99.67	276.19	-434.52	768.32	725.21	43.12	17.820		
6,600.00	5,606.00	6,711.35	5,735.00	22.30	22.55	-99.65	376.18	-435.45	769.24	724.92	44.32	17.358		
6,700.00	5,606.00	6,811.34	5,735.00	22.99	23.23	-99.64	476.17	-436.38	770.16	724.49	45.67	16.863		
6,800.00	5,606.00	6,911.34	5,735.00	23.75	23.98	-99.63	576.16	-437.32	771.08	723.91	47.17	16.347		
6,900.00	5,606.00	7,011.33	5,735.00	24.58	24.80	-99.62	676.15	-438.25	771.99	723.20	48.79	15.822		
7,000.00	5,606.00	7,111.33	5,735.00	25.47	25.67	-99.61	776.14	-439.18	772.91	722.38	50.53	15.295		
7,100.00	5,606.00	7,211.32	5,735.00	26.41	26.60	-99.60	876.13	-440.11	773.83	721.45	52.38	14.774		
7,200.00	5,606.00	7,311.32	5,735.00	27.39	27.58	-99.59	976.12	-441.04	774.75	720.44	54.32	14.264		
7,300.00	5,606.00	7,411.32	5,735.00	28.42	28.60	-99.57	1,076.12	-441.97	775.67	719.33	56.34	13.768		
7,400.00	5,606.00	7,511.31	5,735.00	29.49	29.66	-99.56	1,176.11	-442.91	776.59	718.15	58.43	13.290		
7,500.00	5,606.00	7,611.31	5,735.00	30.59	30.76	-99.55	1,276.10	-443.84	777.51	716.91	60.60	12.830		
7,600.00	5,606.00	7,711.30	5,735.00	31.72	31.88	-99.54	1,376.09	-444.77	778.43	715.60	62.82	12.390		
7,700.00	5,606.00	7,811.30	5,735.00	32.88	33.03	-99.53	1,476.08	-445.70	779.34	714.24	65.10	11.971		
7,800.00	5,606.00	7,911.29	5,735.00	34.06	34.21	-99.52	1,576.07	-446.63	780.26	712.83	67.43	11.571		
7,900.00	5,606.00	8,011.29	5,735.00	35.26	35.40	-99.51	1,676.06	-447.56	781.18	711.38	69.81	11.191		
8,000.00	5,606.00	8,111.29	5,735.00	36.48	36.62	-99.49	1,776.06	-448.50	782.10	709.88	72.22	10.830		
8,100.00	5,606.00	8,211.28	5,735.00	37.72	37.86	-99.48	1,876.05	-449.43	783.02	708.35	74.67	10.487		
8,200.00	5,606.00	8,311.28	5,735.00	38.98	39.11	-99.47	1,976.04	-450.36	783.94	706.79	77.15	10.162		
8,300.00	5,606.00	8,411.27	5,735.00	40.25	40.38	-99.46	2,076.03	-451.29	784.86	705.20	79.66	9.853		
8,400.00	5,606.00	8,511.27	5,735.00	41.53	41.66	-99.45	2,176.02	-452.22	785.78	703.58	82.19	9.560		
8,500.00	5,606.00	8,611.26	5,735.00	42.82	42.95	-99.44	2,276.01	-453.15	786.70	701.94	84.75	9.282		
8,600.00	5,606.00	8,711.26	5,735.00	44.13	44.25	-99.43	2,376.00	-454.09	787.62	700.28	87.34	9.018		
8,700.00	5,606.00	8,811.25	5,735.00	45.45	45.57	-99.42	2,475.99	-455.02	788.53	698.59	89.94	8.767		
8,800.00	5,606.00	8,911.25	5,735.00	46.77	46.89	-99.40	2,575.99	-455.95	789.45	696.89	92.56	8.529		
8,900.00	5,606.00	9,011.25	5,735.00	48.11	48.23	-99.39	2,675.98	-456.88	790.37	695.17	95.20	8.302		
9,000.00	5,606.00	9,111.24	5,735.00	49.45	49.57	-99.38	2,775.97	-457.81	791.29	693.43	97.86	8.086		
9,100.00	5,606.00	9,211.24	5,735.00	50.80	50.91	-99.37	2,875.96	-458.74	792.21	691.68	100.53	7.880		
9,200.00	5,606.00	9,311.23	5,735.00	52.15	52.27	-99.36	2,975.95	-459.68	793.13	689.92	103.21	7.685		
9,300.00	5,606.00	9,411.23	5,735.00	53.51	53.63	-99.35	3,075.94	-460.61	794.05	688.14	105.91	7.498		
9,400.00	5,606.00	9,511.22	5,735.00	54.88	55.00	-99.34	3,175.93	-461.54	794.97	686.36	108.61	7.319		
9,500.00	5,606.00	9,611.22	5,735.00	56.25	56.37	-99.33	3,275.92	-462.47	795.89	684.56	111.33	7.149		
9,600.00	5,606.00	9,711.22	5,735.00	57.63	57.74	-99.32	3,375.92	-463.40	796.81	682.75	114.06	6.986		
9,700.00	5,606.00	9,811.21	5,735.00	59.01	59.13	-99.31	3,475.91	-464.33	797.73	680.93	116.80	6.830		
9,800.00	5,606.00	9,911.21	5,735.00	60.40	60.51	-99.30	3,575.90	-465.27	798.65	679.11	119.54	6.681		
9,900.00	5,606.00	10,011.20	5,735.00	61.79	61.90	-99.28	3,675.89	-466.20	799.57	677.27	122.29	6.538		
10,000.00	5,606.00	10,111.20	5,735.00	63.18	63.29	-99.27	3,775.88	-467.13	800.49	675.43	125.05	6.401		
10,100.00	5,606.00	10,211.19	5,735.00	64.58	64.69	-99.26	3,875.87	-468.06	801.41	673.58	127.82	6.270		
10,200.00	5,606.00	10,311.19	5,735.00	65.98	66.09	-99.25	3,975.86	-468.99	802.33	671.73	130.60	6.144		

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-1904
<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-1904	<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	5,606.00	10,411.19	5,735.00	67.38	67.50	-99.24	4,075.86	-469.92	803.25	669.87	133.38	6.022		
10,400.00	5,606.00	10,511.18	5,735.00	68.79	68.90	-99.23	4,175.85	-470.86	804.16	668.00	136.16	5.906		
10,500.00	5,606.00	10,611.18	5,735.00	70.20	70.31	-99.22	4,275.84	-471.79	805.08	666.13	138.96	5.794		
10,600.00	5,606.00	10,711.17	5,735.00	71.61	71.72	-99.21	4,375.83	-472.72	806.00	664.25	141.75	5.686		
10,700.00	5,606.00	10,811.17	5,735.00	73.02	73.14	-99.20	4,475.82	-473.65	806.92	662.37	144.55	5.582		
10,800.00	5,606.00	10,911.16	5,735.00	74.44	74.55	-99.19	4,575.81	-474.58	807.84	660.48	147.36	5.482		
10,900.00	5,606.00	11,011.16	5,735.00	75.86	75.97	-99.18	4,675.80	-475.51	808.76	658.59	150.17	5.386		
11,000.00	5,606.00	11,111.16	5,735.00	77.28	77.39	-99.17	4,775.79	-476.45	809.68	656.70	152.99	5.293		
11,100.00	5,606.00	11,211.15	5,735.00	78.70	78.82	-99.16	4,875.79	-477.38	810.60	654.80	155.81	5.203		
11,200.00	5,606.00	11,311.15	5,735.00	80.12	80.24	-99.15	4,975.78	-478.31	811.52	652.89	158.63	5.116		
11,300.00	5,606.00	11,411.14	5,735.00	81.55	81.67	-99.14	5,075.77	-479.24	812.44	650.99	161.45	5.032		
11,400.00	5,606.00	11,511.14	5,735.00	82.97	83.09	-99.13	5,175.76	-480.17	813.36	649.08	164.28	4.951		
11,500.00	5,606.00	11,611.13	5,735.00	84.40	84.52	-99.12	5,275.75	-481.10	814.28	647.17	167.12	4.873		
11,600.00	5,606.00	11,711.13	5,735.00	85.83	85.96	-99.11	5,375.74	-482.04	815.20	645.25	169.95	4.797		
11,700.00	5,606.00	11,811.12	5,735.00	87.26	87.39	-99.09	5,475.73	-482.97	816.12	643.33	172.79	4.723		
11,800.00	5,606.00	11,911.12	5,735.00	88.70	88.82	-99.08	5,575.73	-483.90	817.04	641.41	175.63	4.652		
11,900.00	5,606.00	12,011.12	5,735.00	90.13	90.26	-99.07	5,675.72	-484.83	817.96	639.49	178.47	4.583		
12,000.00	5,606.00	12,111.11	5,735.00	91.57	91.69	-99.06	5,775.71	-485.76	818.88	637.56	181.32	4.516		
12,100.00	5,606.00	12,211.11	5,735.00	93.00	93.13	-99.05	5,875.70	-486.69	819.80	635.63	184.17	4.451		
12,200.00	5,606.00	12,311.10	5,735.00	94.44	94.57	-99.04	5,975.69	-487.62	820.72	633.70	187.02	4.388		
12,300.00	5,606.00	12,411.10	5,735.00	95.88	96.01	-99.03	6,075.68	-488.56	821.64	631.77	189.87	4.327		
12,400.00	5,606.00	12,511.09	5,735.00	97.32	97.45	-99.02	6,175.67	-489.49	822.56	629.83	192.73	4.268		
12,500.00	5,606.00	12,611.09	5,735.00	98.76	98.89	-99.01	6,275.66	-490.42	823.48	627.90	195.59	4.210		
12,600.00	5,606.00	12,711.09	5,735.00	100.20	100.33	-99.00	6,375.66	-491.35	824.40	625.96	198.45	4.154		
12,700.00	5,606.00	12,811.08	5,735.00	101.64	101.78	-98.99	6,475.65	-492.28	825.32	624.02	201.31	4.100		
12,800.00	5,606.00	12,911.08	5,735.00	103.08	103.22	-98.98	6,575.64	-493.21	826.24	622.08	204.17	4.047		
12,900.00	5,606.00	13,011.07	5,735.00	104.53	104.67	-98.97	6,675.63	-494.15	827.16	620.13	207.03	3.995		
13,000.00	5,606.00	13,111.07	5,735.00	105.97	106.11	-98.96	6,775.62	-495.08	828.08	618.19	209.90	3.945		
13,100.00	5,606.00	13,211.06	5,735.00	107.42	107.56	-98.95	6,875.61	-496.01	829.00	616.24	212.77	3.896		
13,200.00	5,606.00	13,311.06	5,735.00	108.86	109.00	-98.94	6,975.60	-496.94	829.93	614.29	215.64	3.849		
13,300.00	5,606.00	13,411.05	5,735.00	110.31	110.45	-98.93	7,075.59	-497.87	830.85	612.34	218.51	3.802		
13,400.00	5,606.00	13,511.05	5,735.00	111.76	111.90	-98.92	7,175.59	-498.80	831.77	610.39	221.38	3.757		
13,500.00	5,606.00	13,611.05	5,735.00	113.21	113.35	-98.91	7,275.58	-499.74	832.69	608.43	224.25	3.713		
13,600.00	5,606.00	13,711.04	5,735.00	114.65	114.80	-98.90	7,375.57	-500.67	833.61	606.48	227.13	3.670		
13,700.00	5,606.00	13,811.04	5,735.00	116.10	116.25	-98.89	7,475.56	-501.60	834.53	604.52	230.00	3.628		
13,732.32	5,606.00	13,843.36	5,735.00	116.52	116.72	-98.89	7,507.88	-501.90	834.82	603.95	230.88	3.616 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.99	0.01	-89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.01	-89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.01	-89.97	89.97	89.03	0.94	95.644		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.01	-89.97	89.97	88.35	1.61	55.709 CC, ES		
400.00	399.98	399.65	399.63	1.11	1.11	113.07	-1.71	-90.16	90.84	88.63	2.21	41.058		
500.00	499.84	499.26	499.10	1.41	1.41	112.79	-6.87	-90.72	93.47	90.68	2.79	33.457		
600.00	599.45	598.77	598.23	1.74	1.73	112.37	-15.46	-91.66	97.85	94.41	3.43	28.508		
700.00	698.70	698.15	698.87	2.07	2.06	111.83	-27.45	-92.97	103.97	99.85	4.12	25.228		
800.00	797.47	797.34	794.85	2.44	2.41	111.21	-42.79	-94.66	111.83	106.97	4.86	23.009		
900.00	895.64	896.89	892.90	2.84	2.80	111.36	-59.92	-96.53	121.17	115.53	5.64	21.479		
1,000.00	993.60	996.41	990.91	3.26	3.20	112.05	-77.04	-98.41	130.93	124.48	6.44	20.322		
1,100.00	1,091.56	1,095.92	1,088.92	3.69	3.61	112.64	-94.16	-100.28	140.69	133.43	7.26	19.379		
1,200.00	1,189.52	1,195.43	1,186.93	4.12	4.02	113.16	-111.28	-102.16	150.47	142.39	8.09	18.603		
1,300.00	1,287.48	1,294.94	1,284.94	4.56	4.44	113.62	-128.40	-104.03	160.27	151.34	8.92	17.957		
1,400.00	1,385.44	1,394.45	1,382.95	5.00	4.85	114.02	-145.52	-105.91	170.07	160.30	9.77	17.413		
1,500.00	1,483.40	1,493.96	1,480.96	5.45	5.27	114.38	-162.64	-107.78	179.88	169.26	10.61	16.949		
1,600.00	1,581.36	1,593.48	1,578.97	5.90	5.69	114.70	-179.76	-109.66	189.69	178.23	11.46	16.550		
1,700.00	1,679.32	1,692.99	1,676.98	6.34	6.12	114.99	-196.88	-111.53	199.51	187.20	12.31	16.202		
1,800.00	1,777.28	1,792.50	1,774.99	6.79	6.54	115.25	-214.00	-113.41	209.33	196.17	13.17	15.898		
1,900.00	1,875.24	1,892.01	1,873.00	7.25	6.96	115.49	-231.12	-115.28	219.16	205.14	14.02	15.630		
2,000.00	1,973.21	1,991.52	1,971.01	7.70	7.39	115.71	-248.24	-117.16	228.99	214.12	14.88	15.391		
2,100.00	2,071.17	2,091.04	2,069.02	8.15	7.81	115.91	-265.36	-119.03	238.83	223.09	15.74	15.177		
2,200.00	2,169.13	2,190.55	2,167.03	8.60	8.24	116.09	-282.48	-120.91	248.67	232.07	16.59	14.985		
2,300.00	2,267.09	2,290.06	2,265.04	9.06	8.66	116.27	-299.60	-122.78	258.51	241.05	17.45	14.811		
2,400.00	2,365.05	2,389.57	2,363.05	9.51	9.09	116.42	-316.72	-124.66	268.35	250.04	18.31	14.654		
2,500.00	2,463.01	2,489.08	2,461.06	9.97	9.51	116.57	-333.84	-126.53	278.19	259.02	19.17	14.510		
2,600.00	2,560.97	2,588.60	2,559.07	10.42	9.94	116.71	-350.96	-128.41	288.04	268.00	20.03	14.378		
2,700.00	2,658.93	2,688.11	2,657.08	10.88	10.37	116.84	-368.08	-130.28	297.89	276.99	20.89	14.257		
2,800.00	2,756.89	2,787.62	2,755.09	11.33	10.80	116.96	-385.20	-132.16	307.73	285.98	21.76	14.145		
2,900.00	2,854.85	2,887.13	2,853.10	11.79	11.22	117.07	-402.32	-134.03	317.58	294.97	22.62	14.042		
3,000.00	2,952.81	2,986.64	2,951.11	12.24	11.65	117.17	-419.44	-135.91	327.43	303.96	23.48	13.946		
3,100.00	3,050.77	3,086.15	3,049.12	12.70	12.08	117.27	-436.56	-137.78	337.29	312.95	24.34	13.857		
3,200.00	3,148.73	3,185.67	3,147.13	13.15	12.50	117.37	-453.68	-139.66	347.14	321.94	25.20	13.774		
3,300.00	3,246.69	3,285.18	3,245.14	13.61	12.93	117.45	-470.80	-141.53	356.99	330.93	26.06	13.697		
3,400.00	3,344.66	3,384.69	3,343.15	14.07	13.36	117.54	-487.92	-143.41	366.85	339.92	26.93	13.624		
3,500.00	3,442.62	3,484.20	3,441.16	14.52	13.79	117.62	-505.04	-145.28	376.70	348.91	27.79	13.556		
3,600.00	3,540.58	3,583.71	3,539.17	14.98	14.22	117.69	-522.16	-147.16	386.56	357.91	28.65	13.492		
3,700.00	3,638.54	3,683.23	3,637.18	15.44	14.64	117.76	-539.28	-149.03	396.41	366.90	29.51	13.431		
3,800.00	3,736.50	3,782.74	3,735.19	15.89	15.07	117.83	-556.40	-150.91	406.27	375.89	30.38	13.374		
3,900.00	3,834.46	3,882.25	3,833.20	16.35	15.50	117.90	-573.52	-152.78	416.13	384.89	31.24	13.320		
4,000.00	3,932.42	3,981.76	3,931.21	16.81	15.93	117.96	-590.64	-154.66	425.99	393.88	32.10	13.269		
4,100.00	4,030.38	4,081.27	4,029.22	17.26	16.36	118.02	-607.76	-156.53	435.85	402.88	32.97	13.221		
4,200.00	4,128.34	4,180.79	4,127.23	17.72	16.79	118.08	-624.88	-158.41	445.71	411.88	33.83	13.175		
4,300.00	4,226.30	4,280.30	4,225.25	18.18	17.21	118.13	-642.00	-160.28	455.57	420.87	34.69	13.131		
4,400.00	4,324.27	4,379.81	4,323.26	18.62	17.64	118.20	-659.12	-162.16	465.41	429.86	35.54	13.094		
4,500.00	4,422.66	4,479.41	4,421.35	18.90	18.07	118.17	-676.25	-164.03	474.20	437.94	36.25	13.080		
4,600.00	4,521.61	4,579.04	4,519.48	19.17	18.50	117.74	-693.39	-165.91	481.37	444.40	36.97	13.021		
4,700.00	4,621.00	4,678.68	4,617.63	19.42	18.92	116.94	-710.50	-167.79	487.00	449.33	37.67	12.927		
4,800.00	4,720.72	4,779.10	4,716.89	19.66	19.20	116.03	-725.54	-169.43	491.10	452.86	38.23	12.845		
4,900.00	4,820.63	4,879.90	4,817.01	19.88	19.45	115.13	-737.16	-170.71	493.59	454.84	38.75	12.738		
5,000.00	4,920.63	4,981.06	4,917.83	20.12	19.69	-88.87	-745.29	-171.60	494.56	455.29	39.27	12.593		
5,100.00	5,020.63	5,082.61	5,019.27	20.33	19.92	-89.41	-749.88	-172.10	494.99	455.25	39.74	12.457		

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-1904
<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-1904	<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	5,120.60	5,183.95	5,120.60	20.54	20.17	-89.68	-750.99	-172.22	495.09	454.88	40.21	12.314		
5,229.07	5,149.53	5,212.89	5,149.53	20.58	20.24	-90.00	-750.99	-172.22	495.08	454.76	40.32	12.278		
5,300.00	5,219.10	5,282.45	5,219.10	20.68	20.39	-91.51	-750.99	-172.22	495.27	454.66	40.61	12.196		
5,400.00	5,312.68	5,377.42	5,314.07	20.73	20.59	-95.07	-750.77	-172.22	497.42	456.50	40.92	12.155		
5,500.00	5,397.89	5,482.66	5,418.25	20.70	20.75	-99.34	-737.16	-172.22	503.01	461.97	41.04	12.257		
5,600.00	5,471.61	5,599.15	5,527.73	20.63	20.83	-103.48	-698.09	-172.22	511.32	470.53	40.79	12.536		
5,700.00	5,531.14	5,729.40	5,636.43	20.52	20.80	-107.29	-626.95	-172.22	521.09	481.02	40.07	13.004		
5,800.00	5,574.27	5,875.01	5,732.84	20.42	20.71	-110.50	-518.47	-172.22	530.44	491.44	39.00	13.602		
5,900.00	5,599.44	6,034.81	5,799.70	20.33	20.64	-112.68	-374.01	-172.22	537.14	499.10	38.05	14.117		
6,000.00	5,606.00	6,193.97	5,820.00	20.29	20.67	-113.38	-216.76	-172.22	539.35	501.46	37.89	14.234		
6,100.00	5,606.00	6,293.97	5,820.00	20.34	20.81	-113.38	-116.76	-172.22	539.35	501.17	38.18	14.126		
6,200.00	5,606.00	6,393.97	5,820.00	20.50	21.05	-113.38	-16.76	-172.22	539.35	500.69	38.66	13.950		
6,300.00	5,606.00	6,493.97	5,820.00	20.79	21.39	-113.38	83.24	-172.22	539.35	500.02	39.33	13.713		
6,400.00	5,606.00	6,593.97	5,820.00	21.19	21.82	-113.38	183.24	-172.22	539.35	499.18	40.17	13.426		
6,500.00	5,606.00	6,693.97	5,820.00	21.70	22.35	-113.38	283.24	-172.22	539.35	498.17	41.18	13.097		
6,600.00	5,606.00	6,793.97	5,820.00	22.30	22.95	-113.38	383.24	-172.22	539.35	497.01	42.34	12.738		
6,700.00	5,606.00	6,893.97	5,820.00	22.99	23.64	-113.38	483.24	-172.22	539.35	495.70	43.64	12.358		
6,800.00	5,606.00	6,993.97	5,820.00	23.75	24.39	-113.38	583.24	-172.22	539.35	494.27	45.08	11.966		
6,900.00	5,606.00	7,093.97	5,820.00	24.58	25.21	-113.38	683.24	-172.22	539.35	492.72	46.62	11.568		
7,000.00	5,606.00	7,193.97	5,820.00	25.47	26.08	-113.38	783.24	-172.22	539.35	491.07	48.28	11.172		
7,100.00	5,606.00	7,293.97	5,820.00	26.41	27.01	-113.38	883.24	-172.21	539.35	489.32	50.03	10.781		
7,200.00	5,606.00	7,393.97	5,820.00	27.39	27.98	-113.38	983.24	-172.21	539.35	487.49	51.86	10.400		
7,300.00	5,606.00	7,493.97	5,820.00	28.42	29.00	-113.38	1,083.24	-172.21	539.35	485.57	53.77	10.030		
7,400.00	5,606.00	7,593.97	5,820.00	29.49	30.05	-113.38	1,183.24	-172.21	539.35	483.59	55.75	9.674		
7,500.00	5,606.00	7,693.97	5,820.00	30.59	31.14	-113.38	1,283.24	-172.21	539.35	481.55	57.80	9.332		
7,600.00	5,606.00	7,793.97	5,820.00	31.72	32.25	-113.38	1,383.24	-172.21	539.35	479.45	59.89	9.005		
7,700.00	5,606.00	7,893.97	5,820.00	32.88	33.40	-113.38	1,483.24	-172.21	539.35	477.30	62.04	8.693		
7,800.00	5,606.00	7,993.97	5,820.00	34.06	34.57	-113.38	1,583.24	-172.21	539.35	475.11	64.23	8.397		
7,900.00	5,606.00	8,093.97	5,820.00	35.26	35.76	-113.38	1,683.24	-172.21	539.34	472.88	66.47	8.115		
8,000.00	5,606.00	8,193.97	5,820.00	36.48	36.97	-113.38	1,783.24	-172.21	539.34	470.61	68.74	7.847		
8,100.00	5,606.00	8,293.97	5,820.00	37.72	38.21	-113.38	1,883.24	-172.21	539.34	468.31	71.04	7.592		
8,200.00	5,606.00	8,393.97	5,820.00	38.98	39.45	-113.38	1,983.24	-172.21	539.34	465.97	73.37	7.351		
8,300.00	5,606.00	8,493.97	5,820.00	40.25	40.71	-113.38	2,083.24	-172.21	539.34	463.61	75.73	7.122		
8,400.00	5,606.00	8,593.97	5,820.00	41.53	41.99	-113.38	2,183.24	-172.21	539.34	461.23	78.12	6.904		
8,500.00	5,606.00	8,693.97	5,820.00	42.82	43.28	-113.38	2,283.24	-172.21	539.34	458.82	80.52	6.698		
8,600.00	5,606.00	8,793.97	5,820.00	44.13	44.58	-113.38	2,383.24	-172.21	539.34	456.39	82.95	6.502		
8,700.00	5,606.00	8,893.97	5,820.00	45.45	45.89	-113.38	2,483.24	-172.21	539.34	453.95	85.40	6.316		
8,800.00	5,606.00	8,993.97	5,820.00	46.77	47.21	-113.38	2,583.24	-172.21	539.34	451.48	87.86	6.139		
8,900.00	5,606.00	9,093.97	5,820.00	48.11	48.54	-113.38	2,683.24	-172.21	539.34	449.00	90.34	5.970		
9,000.00	5,606.00	9,193.97	5,820.00	49.45	49.87	-113.38	2,783.24	-172.21	539.34	446.51	92.83	5.810		
9,100.00	5,606.00	9,293.97	5,820.00	50.80	51.22	-113.38	2,883.24	-172.21	539.34	444.00	95.34	5.657		
9,200.00	5,606.00	9,393.97	5,820.00	52.15	52.57	-113.38	2,983.24	-172.21	539.34	441.48	97.86	5.511		
9,300.00	5,606.00	9,493.97	5,820.00	53.51	53.92	-113.38	3,083.24	-172.21	539.34	438.95	100.39	5.372		
9,400.00	5,606.00	9,593.97	5,820.00	54.88	55.29	-113.38	3,183.24	-172.21	539.34	436.41	102.93	5.240		
9,500.00	5,606.00	9,693.97	5,820.00	56.25	56.65	-113.38	3,283.24	-172.21	539.34	433.86	105.48	5.113		
9,600.00	5,606.00	9,793.97	5,820.00	57.63	58.03	-113.38	3,383.24	-172.21	539.34	431.30	108.04	4.992		
9,700.00	5,606.00	9,893.97	5,820.00	59.01	59.41	-113.38	3,483.24	-172.21	539.34	428.73	110.61	4.876		
9,800.00	5,606.00	9,993.97	5,820.00	60.40	60.79	-113.38	3,583.24	-172.21	539.34	426.15	113.19	4.765		
9,900.00	5,606.00	10,093.97	5,820.00	61.79	62.17	-113.38	3,683.24	-172.21	539.34	423.57	115.77	4.659		
10,000.00	5,606.00	10,193.97	5,820.00	63.18	63.56	-113.38	3,783.24	-172.21	539.34	420.97	118.36	4.557		
10,100.00	5,606.00	10,293.97	5,820.00	64.58	64.96	-113.38	3,883.24	-172.20	539.34	418.38	120.96	4.459		
10,200.00	5,606.00	10,393.97	5,820.00	65.98	66.36	-113.38	3,983.24	-172.20	539.34	415.77	123.57	4.365		

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-1904
<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-1904	<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	5,606.00	10,493.97	5,820.00	67.38	67.76	-113.38	4,083.24	-172.20	539.34	413.16	126.18	4.275	
10,400.00	5,606.00	10,593.97	5,820.00	68.79	69.16	-113.38	4,183.24	-172.20	539.34	410.55	128.79	4.188	
10,500.00	5,606.00	10,693.97	5,820.00	70.20	70.57	-113.38	4,283.24	-172.20	539.34	407.93	131.41	4.104	
10,600.00	5,606.00	10,793.97	5,820.00	71.61	71.97	-113.38	4,383.24	-172.20	539.34	405.30	134.03	4.024	
10,700.00	5,606.00	10,893.97	5,820.00	73.02	73.39	-113.38	4,483.24	-172.20	539.34	402.67	136.66	3.946	
10,800.00	5,606.00	10,993.97	5,820.00	74.44	74.80	-113.38	4,583.24	-172.20	539.34	400.04	139.30	3.872	
10,900.00	5,606.00	11,093.97	5,820.00	75.86	76.22	-113.38	4,683.24	-172.20	539.34	397.40	141.93	3.800	
11,000.00	5,606.00	11,193.97	5,820.00	77.28	77.63	-113.38	4,783.24	-172.20	539.34	394.76	144.57	3.731	
11,100.00	5,606.00	11,293.97	5,820.00	78.70	79.05	-113.38	4,883.24	-172.20	539.34	392.12	147.22	3.664	
11,200.00	5,606.00	11,393.97	5,820.00	80.12	80.47	-113.38	4,983.24	-172.20	539.34	389.47	149.87	3.599	
11,300.00	5,606.00	11,493.97	5,820.00	81.55	81.90	-113.38	5,083.24	-172.20	539.33	386.82	152.52	3.536	
11,400.00	5,606.00	11,593.97	5,820.00	82.97	83.32	-113.38	5,183.24	-172.20	539.33	384.16	155.17	3.476	
11,500.00	5,606.00	11,693.97	5,820.00	84.40	84.75	-113.38	5,283.24	-172.20	539.33	381.51	157.83	3.417	
11,600.00	5,606.00	11,793.97	5,820.00	85.83	86.18	-113.38	5,383.24	-172.20	539.33	378.85	160.49	3.361	
11,700.00	5,606.00	11,893.97	5,820.00	87.26	87.61	-113.38	5,483.24	-172.20	539.33	376.18	163.15	3.306	
11,800.00	5,606.00	11,993.97	5,820.00	88.70	89.04	-113.38	5,583.24	-172.20	539.33	373.52	165.81	3.253	
11,900.00	5,606.00	12,093.97	5,820.00	90.13	90.47	-113.38	5,683.24	-172.20	539.33	370.85	168.48	3.201	
12,000.00	5,606.00	12,193.97	5,820.00	91.57	91.90	-113.38	5,783.24	-172.20	539.33	368.18	171.15	3.151	
12,100.00	5,606.00	12,293.97	5,820.00	93.00	93.34	-113.38	5,883.24	-172.20	539.33	365.51	173.82	3.103	
12,200.00	5,606.00	12,393.97	5,820.00	94.44	94.78	-113.38	5,983.24	-172.20	539.33	362.84	176.49	3.056	
12,300.00	5,606.00	12,493.97	5,820.00	95.88	96.21	-113.38	6,083.24	-172.20	539.33	360.16	179.17	3.010	
12,400.00	5,606.00	12,593.97	5,820.00	97.32	97.65	-113.38	6,183.24	-172.20	539.33	357.48	181.85	2.966	
12,500.00	5,606.00	12,693.97	5,820.00	98.76	99.09	-113.38	6,283.24	-172.20	539.33	354.81	184.53	2.923	
12,600.00	5,606.00	12,793.97	5,820.00	100.20	100.53	-113.38	6,383.24	-172.20	539.33	352.12	187.21	2.881	
12,700.00	5,606.00	12,893.97	5,820.00	101.64	101.97	-113.38	6,483.24	-172.20	539.33	349.44	189.89	2.840	
12,800.00	5,606.00	12,993.97	5,820.00	103.08	103.41	-113.38	6,583.24	-172.20	539.33	346.76	192.57	2.801	
12,900.00	5,606.00	13,093.97	5,820.00	104.53	104.85	-113.38	6,683.24	-172.20	539.33	344.07	195.26	2.762	
13,000.00	5,606.00	13,193.97	5,820.00	105.97	106.30	-113.38	6,783.24	-172.20	539.33	341.39	197.94	2.725	
13,100.00	5,606.00	13,293.97	5,820.00	107.42	107.74	-113.38	6,883.24	-172.19	539.33	338.70	200.63	2.688	
13,200.00	5,606.00	13,393.97	5,820.00	108.86	109.19	-113.38	6,983.24	-172.19	539.33	336.01	203.32	2.653	
13,300.00	5,606.00	13,493.97	5,820.00	110.31	110.63	-113.38	7,083.24	-172.19	539.33	333.32	206.01	2.618	
13,400.00	5,606.00	13,593.97	5,820.00	111.76	112.08	-113.38	7,183.24	-172.19	539.33	330.62	208.70	2.584	
13,500.00	5,606.00	13,693.97	5,820.00	113.21	113.53	-113.38	7,283.24	-172.19	539.33	327.93	211.40	2.551	
13,600.00	5,606.00	13,793.97	5,820.00	114.65	114.97	-113.38	7,383.24	-172.19	539.33	325.24	214.09	2.519	
13,700.00	5,606.00	13,893.97	5,820.00	116.10	116.42	-113.38	7,483.24	-172.19	539.33	322.54	216.79	2.488	
13,727.77	5,606.00	13,921.73	5,820.00	116.46	116.82	-113.38	7,511.01	-172.19	539.33	321.84	217.49	2.480	
13,732.32	5,606.00	13,926.28	5,820.00	116.52	116.89	-113.38	7,515.56	-172.19	539.33	321.72	217.60	2.478 SF	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.98	0.01	-29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	-89.98	0.01	-29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	-89.98	0.01	-29.99	29.99	29.05	0.94	31.881		
300.00	300.00	300.00	300.00	0.81	0.81	-89.98	0.01	-29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	400.25	400.23	1.11	1.11	112.99	-1.69	-29.56	30.25	28.03	2.22	13.643		
500.00	499.84	500.50	500.34	1.41	1.41	112.47	-6.79	-28.29	31.04	28.24	2.80	11.069		
600.00	599.45	600.74	600.19	1.74	1.73	111.65	-15.29	-26.17	32.36	28.91	3.45	9.388		
700.00	698.70	700.97	699.66	2.07	2.07	110.61	-27.17	-23.20	34.21	30.07	4.14	8.266		
800.00	797.47	801.17	798.62	2.44	2.43	109.42	-42.41	-19.39	36.60	31.72	4.88	7.499		
900.00	895.64	901.18	896.96	2.84	2.83	109.50	-60.02	-14.99	39.68	34.01	5.67	7.000		
1,000.00	993.60	1,001.11	995.22	3.26	3.24	110.85	-77.71	-10.57	43.13	36.64	6.49	6.650		
1,100.00	1,091.56	1,101.05	1,093.48	3.69	3.65	112.00	-95.41	-6.15	46.59	39.28	7.31	6.371		
1,200.00	1,189.52	1,200.99	1,191.74	4.12	4.07	112.99	-113.10	-1.73	50.07	41.92	8.15	6.144		
1,300.00	1,287.48	1,300.92	1,289.99	4.56	4.50	113.85	-130.80	2.69	53.56	44.57	8.99	5.957		
1,400.00	1,385.44	1,400.86	1,388.25	5.00	4.92	114.60	-148.50	7.11	57.07	47.23	9.84	5.802		
1,500.00	1,483.40	1,500.79	1,486.51	5.45	5.35	115.27	-166.19	11.53	60.58	49.90	10.68	5.670		
1,600.00	1,581.36	1,600.73	1,584.77	5.90	5.78	115.87	-183.89	15.95	64.10	52.57	11.53	5.558		
1,700.00	1,679.32	1,700.66	1,683.02	6.34	6.22	116.40	-201.58	20.37	67.62	55.24	12.38	5.461		
1,800.00	1,777.28	1,800.60	1,781.28	6.79	6.65	116.88	-219.28	24.79	71.15	57.92	13.23	5.376		
1,900.00	1,875.24	1,900.54	1,879.54	7.25	7.08	117.31	-236.97	29.21	74.69	60.60	14.09	5.302		
2,000.00	1,973.21	2,000.47	1,977.80	7.70	7.52	117.71	-254.67	33.63	78.23	63.29	14.94	5.237		
2,100.00	2,071.17	2,100.41	2,076.05	8.15	7.95	118.07	-272.36	38.05	81.77	65.98	15.79	5.178		
2,200.00	2,169.13	2,200.34	2,174.31	8.60	8.39	118.40	-290.06	42.47	85.32	68.67	16.65	5.126		
2,300.00	2,267.09	2,300.28	2,272.57	9.06	8.83	118.71	-307.75	46.89	88.87	71.37	17.50	5.079		
2,400.00	2,365.05	2,400.22	2,370.83	9.51	9.26	118.99	-325.45	51.31	92.42	74.06	18.35	5.036		
2,500.00	2,463.01	2,500.15	2,469.08	9.97	9.70	119.25	-343.15	55.73	95.97	76.76	19.21	4.997		
2,600.00	2,560.97	2,600.09	2,567.34	10.42	10.14	119.49	-360.84	60.15	99.52	79.46	20.06	4.961		
2,700.00	2,658.93	2,700.02	2,665.60	10.88	10.57	119.71	-378.54	64.57	103.08	82.17	20.91	4.929		
2,800.00	2,756.89	2,799.96	2,763.86	11.33	11.01	119.92	-396.23	68.99	106.64	84.87	21.77	4.899		
2,900.00	2,854.85	2,899.90	2,862.11	11.79	11.45	120.12	-413.93	73.41	110.20	87.58	22.62	4.871		
3,000.00	2,952.81	2,999.83	2,960.37	12.24	11.89	120.31	-431.62	77.83	113.76	90.28	23.47	4.846		
3,100.00	3,050.77	3,099.77	3,058.63	12.70	12.32	120.48	-449.32	82.25	117.32	92.99	24.33	4.822		
3,200.00	3,148.73	3,199.70	3,156.89	13.15	12.76	120.64	-467.01	86.67	120.88	95.70	25.18	4.800		
3,300.00	3,246.69	3,299.64	3,255.14	13.61	13.20	120.79	-484.71	91.09	124.44	98.41	26.04	4.780		
3,400.00	3,344.66	3,399.58	3,353.40	14.07	13.64	120.94	-502.41	95.51	128.01	101.12	26.89	4.760		
3,500.00	3,442.62	3,499.51	3,451.66	14.52	14.08	121.08	-520.10	99.93	131.57	103.83	27.74	4.742		
3,600.00	3,540.58	3,599.45	3,549.92	14.98	14.52	121.21	-537.80	104.35	135.14	106.54	28.60	4.725		
3,700.00	3,638.54	3,699.38	3,648.17	15.44	14.95	121.33	-555.49	108.77	138.70	109.25	29.45	4.710		
3,800.00	3,736.50	3,799.32	3,746.43	15.89	15.39	121.45	-573.19	113.19	142.27	111.97	30.31	4.695		
3,900.00	3,834.46	3,899.26	3,844.69	16.35	15.83	121.56	-590.88	117.61	145.84	114.68	31.16	4.680		
4,000.00	3,932.42	3,999.19	3,942.95	16.81	16.27	121.66	-608.58	122.03	149.41	117.39	32.01	4.667		
4,100.00	4,030.38	4,099.13	4,041.20	17.26	16.71	121.76	-626.27	126.45	152.97	120.11	32.87	4.654		
4,200.00	4,128.34	4,199.06	4,139.46	17.72	17.15	121.86	-643.97	130.87	156.54	122.82	33.72	4.642		
4,300.00	4,226.30	4,299.00	4,237.72	18.18	17.59	121.95	-661.66	135.29	160.11	125.54	34.57	4.631		
4,400.00	4,324.27	4,398.94	4,335.98	18.62	18.03	122.04	-679.36	139.71	163.66	128.24	35.42	4.621		
4,500.00	4,422.66	4,498.89	4,434.25	18.90	18.47	122.10	-697.06	144.13	166.03	129.86	36.17	4.591		
4,600.00	4,521.61	4,597.92	4,531.67	19.17	18.87	122.03	-714.31	148.44	166.76	129.81	36.95	4.513		
4,700.00	4,621.00	4,695.84	4,628.46	19.42	19.13	118.45	-728.70	152.03	166.88	129.30	37.58	4.440		
4,800.00	4,720.72	4,793.92	4,725.85	19.66	19.38	116.91	-739.89	154.83	166.61	128.42	38.18	4.364		
4,900.00	4,820.63	4,892.14	4,823.73	19.88	19.62	115.41	-747.85	156.82	165.91	127.17	38.74	4.282		
5,000.00	4,920.63	4,990.53	4,921.99	20.12	19.84	-89.15	-752.55	157.99	164.89	125.59	39.30	4.196		
5,100.00	5,020.63	5,089.19	5,020.63	20.33	20.08	-89.65	-753.99	158.35	164.51	124.73	39.78	4.136		

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-1904
<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-1904	<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		
5,154.40	5,075.01	5,143.57	5,075.01	20.45	20.20	-90.00	-753.99	158.35	164.51	124.47	40.04	4.109		
5,200.00	5,120.60	5,189.16	5,120.60	20.54	20.30	-90.07	-753.99	158.35	164.51	124.28	40.23	4.089		
5,300.00	5,219.10	5,287.83	5,219.27	20.68	20.51	-95.56	-753.96	158.35	165.34	124.45	40.89	4.044		
5,400.00	5,312.68	5,390.46	5,321.13	20.73	20.67	-103.63	-742.86	158.35	169.57	128.27	41.30	4.106		
5,500.00	5,397.89	5,498.67	5,423.97	20.70	20.75	-110.96	-709.80	158.35	176.78	135.80	40.98	4.314		
5,600.00	5,471.61	5,612.95	5,522.69	20.63	20.75	-117.18	-652.69	158.35	185.73	146.00	39.73	4.675		
5,700.00	5,531.14	5,733.40	5,610.65	20.52	20.67	-122.07	-570.80	158.35	194.86	157.16	37.71	5.168		
5,800.00	5,574.27	5,859.49	5,680.04	20.42	20.58	-125.53	-465.89	158.35	202.60	167.16	35.44	5.717		
5,900.00	5,599.44	5,989.89	5,723.21	20.33	20.51	-127.55	-343.20	158.35	207.61	173.81	33.80	6.142		
6,000.00	5,606.00	6,117.17	5,735.00	20.29	20.53	-128.10	-216.76	158.35	209.06	175.52	33.54	6.234		
6,100.00	5,606.00	6,217.17	5,735.00	20.34	20.65	-128.10	-116.76	158.35	209.06	175.19	33.86	6.174		
6,200.00	5,606.00	6,317.17	5,735.00	20.50	20.87	-128.10	-16.76	158.35	209.06	174.70	34.36	6.085		
6,300.00	5,606.00	6,417.17	5,735.00	20.79	21.20	-128.10	83.24	158.35	209.06	174.05	35.01	5.971		
6,400.00	5,606.00	6,517.17	5,735.00	21.19	21.63	-128.10	183.24	158.35	209.06	173.24	35.81	5.837		
6,500.00	5,606.00	6,617.17	5,735.00	21.70	22.15	-128.10	283.24	158.35	209.06	172.30	36.76	5.687		
6,600.00	5,606.00	6,717.17	5,735.00	22.30	22.76	-128.10	383.24	158.35	209.06	171.22	37.84	5.525		
6,700.00	5,606.00	6,817.17	5,735.00	22.99	23.44	-128.10	483.24	158.35	209.06	170.02	39.03	5.356		
6,800.00	5,606.00	6,917.17	5,735.00	23.75	24.20	-128.10	583.24	158.35	209.06	168.72	40.34	5.183		
6,900.00	5,606.00	7,017.17	5,735.00	24.58	25.02	-128.10	683.24	158.35	209.06	167.31	41.74	5.008		
7,000.00	5,606.00	7,117.17	5,735.00	25.47	25.90	-128.10	783.24	158.35	209.06	165.82	43.23	4.835		
7,100.00	5,606.00	7,217.17	5,735.00	26.41	26.83	-128.10	883.24	158.35	209.06	164.25	44.81	4.666		
7,200.00	5,606.00	7,317.17	5,735.00	27.39	27.81	-128.10	983.24	158.35	209.06	162.60	46.45	4.500		
7,300.00	5,606.00	7,417.17	5,735.00	28.42	28.83	-128.10	1,083.24	158.35	209.06	160.89	48.16	4.341		
7,400.00	5,606.00	7,517.17	5,735.00	29.49	29.89	-128.10	1,183.24	158.35	209.06	159.12	49.93	4.187		
7,500.00	5,606.00	7,617.17	5,735.00	30.59	30.98	-128.10	1,283.24	158.35	209.06	157.30	51.75	4.040		
7,600.00	5,606.00	7,717.17	5,735.00	31.72	32.10	-128.10	1,383.24	158.35	209.06	155.44	53.62	3.899		
7,700.00	5,606.00	7,817.17	5,735.00	32.88	33.25	-128.10	1,483.24	158.35	209.06	153.53	55.53	3.765		
7,800.00	5,606.00	7,917.17	5,735.00	34.06	34.42	-128.10	1,583.24	158.35	209.06	151.58	57.48	3.637		
7,900.00	5,606.00	8,017.17	5,735.00	35.26	35.62	-128.10	1,683.24	158.35	209.06	149.60	59.46	3.516		
8,000.00	5,606.00	8,117.17	5,735.00	36.48	36.83	-128.10	1,783.24	158.35	209.06	147.59	61.47	3.401		
8,100.00	5,606.00	8,217.17	5,735.00	37.72	38.07	-128.10	1,883.24	158.35	209.06	145.54	63.51	3.292		
8,200.00	5,606.00	8,317.17	5,735.00	38.98	39.32	-128.10	1,983.24	158.35	209.06	143.48	65.58	3.188		
8,300.00	5,606.00	8,417.17	5,735.00	40.25	40.58	-128.10	2,083.24	158.35	209.06	141.39	67.67	3.090		
8,400.00	5,606.00	8,517.17	5,735.00	41.53	41.86	-128.10	2,183.24	158.35	209.06	139.28	69.77	2.996		
8,500.00	5,606.00	8,617.17	5,735.00	42.82	43.15	-128.10	2,283.24	158.35	209.06	137.15	71.90	2.907		
8,600.00	5,606.00	8,717.17	5,735.00	44.13	44.45	-128.10	2,383.24	158.35	209.06	135.01	74.05	2.823		
8,700.00	5,606.00	8,817.17	5,735.00	45.45	45.76	-128.10	2,483.24	158.35	209.05	132.84	76.21	2.743		
8,800.00	5,606.00	8,917.17	5,735.00	46.77	47.09	-128.10	2,583.24	158.35	209.05	130.67	78.39	2.667		
8,900.00	5,606.00	9,017.17	5,735.00	48.11	48.42	-128.10	2,683.24	158.35	209.05	128.48	80.58	2.594		
9,000.00	5,606.00	9,117.17	5,735.00	49.45	49.75	-128.10	2,783.24	158.35	209.05	126.27	82.78	2.525		
9,100.00	5,606.00	9,217.17	5,735.00	50.80	51.10	-128.10	2,883.24	158.35	209.05	124.06	85.00	2.460		
9,200.00	5,606.00	9,317.17	5,735.00	52.15	52.45	-128.10	2,983.24	158.35	209.05	121.83	87.22	2.397		
9,300.00	5,606.00	9,417.17	5,735.00	53.51	53.81	-128.10	3,083.24	158.35	209.05	119.60	89.46	2.337		
9,400.00	5,606.00	9,517.17	5,735.00	54.88	55.17	-128.10	3,183.24	158.35	209.05	117.36	91.70	2.280		
9,500.00	5,606.00	9,617.17	5,735.00	56.25	56.54	-128.10	3,283.24	158.35	209.05	115.10	93.95	2.225		
9,600.00	5,606.00	9,717.17	5,735.00	57.63	57.92	-128.10	3,383.24	158.35	209.05	112.84	96.21	2.173		
9,700.00	5,606.00	9,817.17	5,735.00	59.01	59.30	-128.10	3,483.24	158.35	209.05	110.58	98.48	2.123		
9,800.00	5,606.00	9,917.17	5,735.00	60.40	60.68	-128.10	3,583.24	158.35	209.05	108.30	100.75	2.075		
9,900.00	5,606.00	10,017.17	5,735.00	61.79	62.07	-128.10	3,683.24	158.35	209.05	106.02	103.03	2.029		
10,000.00	5,606.00	10,117.17	5,735.00	63.18	63.46	-128.10	3,783.24	158.35	209.05	103.74	105.32	1.985		
10,100.00	5,606.00	10,217.17	5,735.00	64.58	64.86	-128.10	3,883.24	158.35	209.05	101.44	107.61	1.943		
10,200.00	5,606.00	10,317.17	5,735.00	65.98	66.25	-128.10	3,983.24	158.35	209.05	99.15	109.91	1.902		

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-1904
<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-1904	<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	5,606.00	10,417.17	5,735.00	67.38	67.66	-128.10	4,083.24	158.35	209.05	96.85	112.21	1.863		
10,400.00	5,606.00	10,517.17	5,735.00	68.79	69.06	-128.10	4,183.24	158.35	209.05	94.54	114.52	1.826		
10,500.00	5,606.00	10,617.17	5,735.00	70.20	70.47	-128.10	4,283.24	158.35	209.05	92.23	116.83	1.789		
10,600.00	5,606.00	10,717.17	5,735.00	71.61	71.88	-128.10	4,383.24	158.35	209.05	89.91	119.14	1.755		
10,700.00	5,606.00	10,817.17	5,735.00	73.02	73.29	-128.10	4,483.24	158.35	209.05	87.59	121.46	1.721		
10,800.00	5,606.00	10,917.17	5,735.00	74.44	74.70	-128.10	4,583.24	158.35	209.05	85.27	123.78	1.689		
10,900.00	5,606.00	11,017.17	5,735.00	75.86	76.12	-128.10	4,683.24	158.35	209.05	82.95	126.11	1.658		
11,000.00	5,606.00	11,117.17	5,735.00	77.28	77.54	-128.10	4,783.24	158.35	209.05	80.62	128.44	1.628		
11,100.00	5,606.00	11,217.17	5,735.00	78.70	78.96	-128.10	4,883.24	158.35	209.05	78.29	130.77	1.599		
11,200.00	5,606.00	11,317.17	5,735.00	80.12	80.38	-128.10	4,983.24	158.35	209.05	75.95	133.10	1.571		
11,300.00	5,606.00	11,417.17	5,735.00	81.55	81.80	-128.10	5,083.24	158.35	209.05	73.61	135.44	1.544		
11,400.00	5,606.00	11,517.17	5,735.00	82.97	83.23	-128.10	5,183.24	158.35	209.05	71.27	137.78	1.517		
11,500.00	5,606.00	11,617.17	5,735.00	84.40	84.66	-128.10	5,283.24	158.35	209.05	68.93	140.12	1.492 Level 3		
11,600.00	5,606.00	11,717.17	5,735.00	85.83	86.09	-128.10	5,383.24	158.35	209.05	66.59	142.47	1.467 Level 3		
11,700.00	5,606.00	11,817.17	5,735.00	87.26	87.52	-128.10	5,483.24	158.35	209.05	64.24	144.82	1.444 Level 3		
11,800.00	5,606.00	11,917.17	5,735.00	88.70	88.95	-128.10	5,583.24	158.35	209.05	61.89	147.16	1.421 Level 3		
11,900.00	5,606.00	12,017.17	5,735.00	90.13	90.38	-128.10	5,683.24	158.35	209.05	59.54	149.52	1.398 Level 3		
12,000.00	5,606.00	12,117.17	5,735.00	91.57	91.82	-128.10	5,783.24	158.35	209.05	57.18	151.87	1.377 Level 3		
12,100.00	5,606.00	12,217.17	5,735.00	93.00	93.25	-128.10	5,883.24	158.35	209.05	54.83	154.23	1.356 Level 3		
12,200.00	5,606.00	12,317.17	5,735.00	94.44	94.69	-128.10	5,983.24	158.35	209.05	52.47	156.58	1.335 Level 3		
12,300.00	5,606.00	12,417.17	5,735.00	95.88	96.12	-128.10	6,083.24	158.35	209.05	50.11	158.94	1.315 Level 3		
12,400.00	5,606.00	12,517.17	5,735.00	97.32	97.56	-128.10	6,183.24	158.35	209.05	47.75	161.30	1.296 Level 3		
12,500.00	5,606.00	12,617.17	5,735.00	98.76	99.00	-128.10	6,283.24	158.35	209.05	45.39	163.66	1.277 Level 3		
12,600.00	5,606.00	12,717.17	5,735.00	100.20	100.44	-128.10	6,383.24	158.35	209.05	43.03	166.03	1.259 Level 3		
12,700.00	5,606.00	12,817.17	5,735.00	101.64	101.88	-128.10	6,483.24	158.36	209.05	40.66	168.39	1.241 Level 2		
12,800.00	5,606.00	12,917.17	5,735.00	103.08	103.33	-128.10	6,583.24	158.36	209.05	38.30	170.76	1.224 Level 2		
12,900.00	5,606.00	13,017.17	5,735.00	104.53	104.77	-128.10	6,683.24	158.36	209.05	35.93	173.12	1.208 Level 2		
13,000.00	5,606.00	13,117.17	5,735.00	105.97	106.21	-128.10	6,783.24	158.36	209.05	33.56	175.49	1.191 Level 2		
13,100.00	5,606.00	13,217.17	5,735.00	107.42	107.66	-128.10	6,883.24	158.36	209.05	31.19	177.86	1.175 Level 2		
13,200.00	5,606.00	13,317.17	5,735.00	108.86	109.10	-128.10	6,983.24	158.36	209.05	28.82	180.23	1.160 Level 2		
13,300.00	5,606.00	13,417.17	5,735.00	110.31	110.55	-128.10	7,083.24	158.36	209.05	26.45	182.61	1.145 Level 2		
13,400.00	5,606.00	13,517.17	5,735.00	111.76	112.00	-128.10	7,183.24	158.36	209.05	24.07	184.98	1.130 Level 2		
13,500.00	5,606.00	13,617.17	5,735.00	113.21	113.44	-128.10	7,283.24	158.36	209.05	21.70	187.35	1.116 Level 2		
13,600.00	5,606.00	13,717.17	5,735.00	114.65	114.89	-128.10	7,383.24	158.36	209.05	19.32	189.73	1.102 Level 2		
13,700.00	5,606.00	13,817.17	5,735.00	116.10	116.34	-128.10	7,483.24	158.36	209.05	16.95	192.10	1.088 Level 2		
13,722.36	5,606.00	13,839.54	5,735.00	116.39	116.66	-128.10	7,505.61	158.36	209.05	16.46	192.60	1.085 Level 2		
13,732.32	5,606.00	13,849.49	5,735.00	116.52	116.81	-128.10	7,515.56	158.36	209.05	16.24	192.82	1.084 Level 2, ES, SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-129.22	-49.57	-60.75	78.41					
100.00	100.00	100.00	100.00	0.13	0.13	-129.22	-49.57	-60.75	78.41	78.14	0.27	294.384		
200.00	200.00	200.00	200.00	0.47	0.47	-129.22	-49.57	-60.75	78.41	77.47	0.94	83.356		
300.00	300.00	300.00	300.00	0.81	0.81	-129.22	-49.57	-60.75	78.41	76.79	1.61	48.552		
400.00	399.98	402.64	402.62	1.11	1.15	74.90	-48.84	-59.06	76.21	73.89	2.32	32.872		
500.00	499.84	504.89	504.72	1.41	1.49	78.12	-46.66	-54.03	69.76	66.68	3.08	22.673		
600.00	599.45	604.81	604.32	1.74	1.83	84.88	-43.50	-46.74	60.57	56.84	3.73	16.237		
700.00	698.70	703.73	702.92	2.07	2.16	97.46	-40.33	-39.41	52.64	48.29	4.35	12.093		
793.07	790.64	795.36	794.25	2.41	2.47	115.26	-37.39	-32.63	49.42	44.48	4.94	10.004 CC		
800.00	797.47	802.17	801.03	2.44	2.50	116.76	-37.17	-32.12	49.45	44.46	4.98	9.922		
900.00	895.64	900.01	898.56	2.84	2.84	138.36	-34.03	-24.87	54.82	49.20	5.63	9.744		
1,000.00	993.60	997.65	995.87	3.26	3.18	154.83	-30.90	-17.64	67.45	61.18	6.27	10.754		
1,100.00	1,091.56	1,095.28	1,093.19	3.69	3.52	165.63	-27.76	-10.41	83.84	76.92	6.93	12.106		
1,200.00	1,189.52	1,192.91	1,190.50	4.12	3.86	172.78	-24.63	-3.18	102.20	94.61	7.59	13.470		
1,300.00	1,287.48	1,290.55	1,287.82	4.56	4.20	177.73	-21.49	4.05	121.64	113.38	8.26	14.734		
1,400.00	1,385.44	1,388.18	1,385.13	5.00	4.54	-178.70	-18.36	11.28	141.71	132.78	8.93	15.870		
1,500.00	1,483.40	1,485.81	1,482.45	5.45	4.89	-176.01	-15.23	18.51	162.18	152.58	9.61	16.881		
1,600.00	1,581.36	1,583.44	1,579.76	5.90	5.23	-173.93	-12.09	25.75	182.92	172.63	10.29	17.779		
1,700.00	1,679.32	1,681.08	1,677.07	6.34	5.57	-172.27	-8.96	32.98	203.85	192.87	10.97	18.577		
1,800.00	1,777.28	1,778.71	1,774.39	6.79	5.92	-170.92	-5.83	40.21	224.90	213.25	11.66	19.290		
1,900.00	1,875.24	1,876.34	1,871.70	7.25	6.26	-169.81	-2.69	47.44	246.06	233.71	12.35	19.929		
2,000.00	1,973.21	1,973.98	1,969.02	7.70	6.60	-168.86	0.44	54.67	267.29	254.26	13.04	20.503		
2,100.00	2,071.17	2,071.61	2,066.33	8.15	6.95	-168.06	3.58	61.90	288.58	274.86	13.73	21.023		
2,200.00	2,169.13	2,169.24	2,163.65	8.60	7.29	-167.37	6.71	69.14	309.92	295.50	14.42	21.495		
2,300.00	2,267.09	2,266.88	2,260.96	9.06	7.64	-166.77	9.84	76.37	331.30	316.19	15.11	21.924		
2,400.00	2,365.05	2,364.51	2,358.28	9.51	7.98	-166.24	12.98	83.60	352.70	336.90	15.80	22.317		
2,500.00	2,463.01	2,462.14	2,455.59	9.97	8.32	-165.77	16.11	90.83	374.13	357.64	16.50	22.678		
2,600.00	2,560.97	2,559.78	2,552.91	10.42	8.67	-165.35	19.24	98.06	395.59	378.39	17.19	23.009		
2,700.00	2,658.93	2,657.41	2,650.22	10.88	9.01	-164.97	22.38	105.29	417.06	399.17	17.89	23.316		
2,800.00	2,756.89	2,755.04	2,747.53	11.33	9.36	-164.63	25.51	112.53	438.54	419.96	18.58	23.600		
2,900.00	2,854.85	2,852.68	2,844.85	11.79	9.70	-164.33	28.65	119.76	460.04	440.76	19.28	23.863		
3,000.00	2,952.81	2,950.31	2,942.16	12.24	10.04	-164.05	31.78	126.99	481.55	461.58	19.97	24.109		
3,100.00	3,050.77	3,047.94	3,039.48	12.70	10.39	-163.79	34.91	134.22	503.07	482.40	20.67	24.338		
3,200.00	3,148.73	3,145.58	3,136.79	13.15	10.73	-163.56	38.05	141.45	524.60	503.24	21.37	24.552		
3,300.00	3,246.69	3,243.21	3,234.11	13.61	11.08	-163.34	41.18	148.68	546.14	524.08	22.06	24.752		
3,400.00	3,344.66	3,340.84	3,331.42	14.07	11.42	-163.14	44.31	155.91	567.69	544.93	22.76	24.941		
3,500.00	3,442.62	3,438.48	3,428.74	14.52	11.77	-162.95	47.45	163.15	589.24	565.78	23.46	25.118		
3,600.00	3,540.58	3,536.11	3,526.05	14.98	12.11	-162.78	50.58	170.38	610.79	586.64	24.16	25.285		
3,700.00	3,638.54	3,633.74	3,623.37	15.44	12.46	-162.62	53.72	177.61	632.35	607.50	24.85	25.443		
3,800.00	3,736.50	3,731.37	3,720.68	15.89	12.80	-162.47	56.85	184.84	653.92	628.37	25.55	25.592		
3,900.00	3,834.46	3,829.01	3,817.99	16.35	13.14	-162.33	59.98	192.07	675.49	649.24	26.25	25.733		
4,000.00	3,932.42	3,926.64	3,915.31	16.81	13.49	-162.20	63.12	199.30	697.06	670.11	26.95	25.867		
4,100.00	4,030.38	4,024.27	4,012.62	17.26	13.83	-162.08	66.25	206.54	718.64	690.99	27.65	25.994		
4,200.00	4,128.34	4,121.91	4,109.94	17.72	14.18	-161.96	69.38	213.77	740.22	711.87	28.35	26.114		
4,300.00	4,226.30	4,219.54	4,207.25	18.18	14.52	-161.85	72.52	221.00	761.80	732.76	29.04	26.229		
4,400.00	4,324.27	4,317.18	4,304.58	18.62	14.87	-161.77	75.65	228.23	783.35	753.61	29.74	26.343		
4,500.00	4,422.66	4,415.24	4,402.31	18.90	15.21	-161.74	78.80	235.49	802.82	772.46	30.36	26.441		
4,600.00	4,521.61	4,513.86	4,500.61	19.17	15.56	-161.62	81.97	242.80	819.04	788.05	30.99	26.430		
4,700.00	4,621.00	4,614.34	4,600.77	19.42	15.91	-161.41	85.18	250.20	831.99	800.36	31.62	26.311		
4,800.00	4,720.72	4,713.25	4,700.00	19.66	16.25	-161.20	-750.67	257.70	819.73	809.48	10.26	79.931		
4,900.00	4,820.63	4,813.92	4,800.00	19.88	16.58	-161.00	-754.33	257.70	720.30	709.74	10.56	68.212		
5,000.00	4,920.63	4,913.92	4,900.00	20.12	16.91	-160.80	-758.00	257.70	620.80	609.88	10.92	56.845		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-3103 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
5,100.00	5,020.63	6,171.59	5,538.00	20.33	21.35	-90.00	-755.00	257.70	521.46	510.03	11.43	45.616					
5,200.00	5,120.60	6,170.37	5,538.00	20.54	21.34	-113.64	-753.78	257.70	422.46	410.23	12.23	34.541					
5,300.00	5,219.10	6,154.03	5,538.00	20.68	21.22	-141.56	-737.45	257.70	325.49	312.01	13.48	24.146					
5,400.00	5,312.68	6,119.21	5,538.00	20.73	20.97	-146.51	-702.62	257.70	234.56	218.81	15.75	14.893					
5,500.00	5,397.89	6,067.17	5,538.00	20.70	20.63	-142.25	-650.58	257.70	154.52	134.08	20.44	7.561					
5,600.00	5,471.61	5,999.83	5,538.00	20.63	20.21	-127.09	-583.24	257.70	93.02	62.96	30.06	3.095					
5,700.00	5,531.14	5,919.67	5,538.00	20.52	19.78	-95.15	-503.08	257.70	65.52	26.18	39.34	1.666					
5,713.59	5,538.00	5,907.94	5,538.00	20.51	19.72	-90.00	-491.36	257.70	65.16	25.94	39.22	1.662 ES, SF					
5,800.00	5,574.27	5,830.90	5,537.68	20.42	19.37	-62.50	-414.32	257.70	74.74	41.89	32.85	2.275					
5,900.00	5,599.44	5,746.60	5,527.94	20.33	19.04	-43.63	-330.67	257.70	97.78	72.23	25.55	3.827					
6,000.00	5,606.00	5,666.18	5,506.19	20.29	18.76	-33.14	-253.33	257.70	124.68	101.74	22.94	5.436					
6,100.00	5,606.00	5,592.74	5,476.16	20.34	18.55	-26.65	-186.38	257.70	161.09	137.96	23.13	6.965					
6,200.00	5,606.00	5,528.89	5,442.62	20.50	18.38	-21.74	-132.10	257.70	210.34	185.59	24.74	8.501					
6,300.00	5,606.00	5,474.43	5,408.95	20.79	18.24	-18.30	-89.33	257.70	269.92	243.20	26.72	10.102					
6,400.00	5,606.00	5,428.38	5,377.11	21.19	18.13	-15.89	-56.07	257.70	337.50	308.98	28.52	11.835					
6,500.00	5,606.00	5,400.00	5,356.08	21.70	18.06	-14.61	-37.02	257.70	411.43	380.89	30.53	13.475					
6,600.00	5,606.00	5,350.00	5,316.62	22.30	17.94	-12.69	-6.35	257.70	489.66	458.73	30.93	15.829					
6,700.00	5,606.00	5,328.55	5,298.82	22.99	17.88	-11.98	5.62	257.70	571.60	539.46	32.14	17.787					
6,800.00	5,606.00	5,300.00	5,274.40	23.75	17.81	-11.12	20.40	257.70	656.50	623.73	32.77	20.032					
6,900.00	5,606.00	5,283.82	5,260.21	24.58	17.77	-10.67	28.17	257.70	743.59	710.10	33.49	22.205					
7,000.00	5,606.00	5,265.82	5,244.15	25.47	17.72	-10.21	36.30	257.70	832.53	798.55	33.98	24.503					
7,100.00	5,606.00	5,250.00	5,229.81	26.41	17.68	-9.83	42.98	257.70	922.93	888.56	34.37	26.850					
7,200.00	5,606.00	5,250.00	5,229.81	27.39	17.68	-9.83	42.98	257.70	1,014.82	979.95	34.87	29.102					
7,300.00	5,606.00	5,223.87	5,205.70	28.42	17.61	-9.25	53.05	257.70	1,107.15	1,072.16	34.99	31.643					
7,400.00	5,606.00	5,200.00	5,183.26	29.49	17.55	-8.76	61.18	257.70	1,200.82	1,165.71	35.11	34.202					
7,500.00	5,606.00	5,200.00	5,183.26	30.59	17.55	-8.76	61.18	257.70	1,294.75	1,259.34	35.41	36.565					
7,600.00	5,606.00	5,200.00	5,183.26	31.72	17.55	-8.76	61.18	257.70	1,389.53	1,353.87	35.66	38.971					
7,700.00	5,606.00	5,200.00	5,183.26	32.88	17.55	-8.76	61.18	257.70	1,484.99	1,449.13	35.86	41.409					





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-179.11	-49.59	-0.77	49.60					
100.00	100.00	100.00	100.00	0.13	0.13	-179.11	-49.59	-0.77	49.60	49.33	0.27	186.210		
200.00	200.00	200.00	200.00	0.47	0.47	-179.11	-49.59	-0.77	49.60	48.66	0.94	52.726		
300.00	300.00	300.00	300.00	0.81	0.81	-179.11	-49.59	-0.77	49.60	47.98	1.61	30.711		
400.00	399.98	400.37	400.35	1.11	1.13	22.86	-49.19	0.94	47.59	45.34	2.25	21.171		
500.00	499.84	500.43	500.27	1.41	1.47	18.65	-48.01	6.06	41.73	38.85	2.88	14.509		
600.00	599.45	599.89	599.35	1.74	1.81	8.42	-46.06	14.51	32.71	29.19	3.53	9.279		
700.00	698.70	698.47	697.18	2.07	2.15	-17.51	-43.36	26.19	23.42	19.15	4.27	5.485		
755.03	753.12	752.48	750.64	2.27	2.35	-43.03	-41.63	33.70	21.42	16.60	4.82	4.447 CC, ES		
800.00	797.47	796.56	794.26	2.44	2.51	-65.42	-40.20	39.85	22.96	17.73	5.23	4.388 SF		
900.00	895.64	894.20	890.90	2.84	2.87	-100.37	-37.05	53.48	35.71	29.77	5.93	6.017		
1,000.00	993.60	991.65	987.35	3.26	3.24	-115.74	-33.91	67.08	54.82	48.23	6.59	8.324		
1,100.00	1,091.56	1,089.11	1,083.80	3.69	3.61	-122.97	-30.77	80.68	75.75	68.49	7.27	10.423		
1,200.00	1,189.52	1,186.57	1,180.25	4.12	3.98	-127.05	-27.62	94.28	97.35	89.38	7.97	12.211		
1,300.00	1,287.48	1,284.02	1,276.70	4.56	4.36	-129.64	-24.48	107.89	119.25	110.56	8.69	13.722		
1,400.00	1,385.44	1,381.48	1,373.16	5.00	4.73	-131.43	-21.33	121.49	141.30	131.89	9.42	15.006		
1,500.00	1,483.40	1,478.94	1,469.61	5.45	5.11	-132.74	-18.19	135.09	163.45	153.31	10.15	16.106		
1,600.00	1,581.36	1,576.39	1,566.06	5.90	5.49	-133.73	-15.05	148.70	185.67	174.78	10.89	17.057		
1,700.00	1,679.32	1,673.85	1,662.51	6.34	5.86	-134.51	-11.90	162.30	207.92	196.30	11.63	17.885		
1,800.00	1,777.28	1,771.31	1,758.96	6.79	6.24	-135.14	-8.76	175.90	230.21	217.84	12.37	18.613		
1,900.00	1,875.24	1,868.77	1,855.42	7.25	6.62	-135.66	-5.62	189.50	252.52	239.40	13.11	19.257		
2,000.00	1,973.21	1,966.22	1,951.87	7.70	7.00	-136.10	-2.47	203.11	274.84	260.98	13.86	19.830		
2,100.00	2,071.17	2,063.68	2,048.32	8.15	7.38	-136.46	0.67	216.71	297.17	282.57	14.61	20.344		
2,200.00	2,169.13	2,161.14	2,144.77	8.60	7.76	-136.78	3.82	230.31	319.52	304.16	15.36	20.806		
2,300.00	2,267.09	2,258.59	2,241.22	9.06	8.14	-137.06	6.96	243.91	341.88	325.77	16.11	21.225		
2,400.00	2,365.05	2,356.05	2,337.67	9.51	8.52	-137.30	10.10	257.52	364.24	347.38	16.86	21.606		
2,500.00	2,463.01	2,453.51	2,434.13	9.97	8.90	-137.52	13.25	271.12	386.60	368.99	17.61	21.954		
2,600.00	2,560.97	2,550.96	2,530.58	10.42	9.28	-137.71	16.39	284.72	408.97	390.61	18.36	22.273		
2,700.00	2,658.93	2,648.42	2,627.03	10.88	9.66	-137.88	19.53	298.33	431.35	412.23	19.12	22.566		
2,800.00	2,756.89	2,745.88	2,723.48	11.33	10.04	-138.03	22.68	311.93	453.73	433.86	19.87	22.837		
2,900.00	2,854.85	2,843.34	2,819.93	11.79	10.42	-138.17	25.82	325.53	476.11	455.49	20.62	23.087		
3,000.00	2,952.81	2,940.79	2,916.39	12.24	10.80	-138.30	28.97	339.13	498.49	477.11	21.38	23.320		
3,100.00	3,050.77	3,038.25	3,012.84	12.70	11.18	-138.41	32.11	352.74	520.88	498.75	22.13	23.536		
3,200.00	3,148.73	3,135.71	3,109.29	13.15	11.56	-138.52	35.25	366.34	543.26	520.38	22.89	23.738		
3,300.00	3,246.69	3,233.16	3,205.74	13.61	11.94	-138.62	38.40	379.94	565.65	542.01	23.64	23.927		
3,400.00	3,344.66	3,330.62	3,302.19	14.07	12.32	-138.71	41.54	393.54	588.04	563.65	24.40	24.104		
3,500.00	3,442.62	3,428.08	3,398.64	14.52	12.70	-138.79	44.69	407.15	610.44	585.28	25.15	24.270		
3,600.00	3,540.58	3,525.53	3,495.10	14.98	13.08	-138.87	47.83	420.75	632.83	606.92	25.91	24.426		
3,700.00	3,638.54	3,622.99	3,591.55	15.44	13.46	-138.94	50.97	434.35	655.22	628.56	26.66	24.573		
3,800.00	3,736.50	3,720.45	3,688.00	15.89	13.84	-139.01	54.12	447.96	677.62	650.20	27.42	24.712		
3,900.00	3,834.46	3,817.91	3,784.45	16.35	14.22	-139.08	57.26	461.56	700.01	671.84	28.18	24.843		
4,000.00	3,932.42	3,915.36	3,880.90	16.81	14.60	-139.14	60.40	475.16	722.41	693.48	28.93	24.968		
4,100.00	4,030.38	4,012.82	3,977.36	17.26	14.98	-139.19	63.55	488.76	744.81	715.12	29.69	25.086		
4,200.00	4,128.34	4,110.28	4,073.81	17.72	15.36	-139.24	66.69	502.37	767.21	736.76	30.45	25.198		
4,300.00	4,226.30	4,207.73	4,170.26	18.18	15.75	-139.29	69.84	515.97	789.60	758.40	31.20	25.304		
4,400.00	4,324.27	4,305.20	4,266.72	18.62	16.13	-139.38	72.98	529.57	811.97	780.02	31.95	25.411		
4,500.00	4,422.66	4,403.02	4,363.53	18.90	16.51	-139.60	76.14	543.23	832.68	800.07	32.61	25.534		
4,600.00	4,521.61	4,501.31	4,460.81	19.17	16.89	-139.63	79.31	556.95	850.79	817.53	33.27	25.573		
4,700.00	4,621.00	4,615.15	4,573.71	19.42	17.27	-139.51	82.59	571.15	865.56	831.59	33.97	25.480		
4,800.00	4,720.72	4,732.60	4,690.69	19.66	17.59	-139.43	84.92	581.25	875.69	841.10	34.59	25.316		
4,900.00	4,820.63	4,826.19	4,784.45	19.88	22.56	-70.45	-754.34	587.68	828.90	815.82	13.09	63.336		
5,000.00	4,920.63	4,926.86	4,884.45	20.12	22.57	90.00	-755.00	587.68	734.76	720.36	14.40	51.032		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,020.63	6,265.86	5,606.00	20.33	22.57	90.00	-755.00	587.68	642.49	626.30	16.19	39.682		
5,200.00	5,120.60	6,264.64	5,606.00	20.54	22.56	97.14	-753.78	587.68	552.94	534.29	18.65	29.649		
5,300.00	5,219.10	6,248.30	5,606.00	20.68	22.45	110.61	-737.45	587.68	468.85	447.00	21.86	21.452		
5,400.00	5,312.68	6,213.48	5,606.00	20.73	22.22	115.83	-702.62	587.68	395.18	369.35	25.83	15.298		
5,500.00	5,397.89	6,161.44	5,606.00	20.70	21.89	115.26	-650.58	587.68	336.81	306.50	30.31	11.113		
5,600.00	5,471.61	6,094.10	5,606.00	20.63	21.50	110.63	-583.24	587.68	296.97	262.54	34.43	8.626		
5,700.00	5,531.14	6,013.94	5,606.00	20.52	21.10	103.61	-503.08	587.68	275.20	237.98	37.22	7.395		
5,800.00	5,574.27	5,922.51	5,605.50	20.42	20.70	96.22	-411.66	587.68	266.66	228.22	38.43	6.938		
5,881.83	5,596.26	5,844.52	5,596.26	20.35	20.42	90.00	-334.30	587.68	264.82	226.10	38.72	6.839		
5,900.00	5,599.44	5,827.80	5,592.77	20.33	20.36	88.63	-317.94	587.68	264.91	226.20	38.71	6.844		
6,000.00	5,606.00	5,739.12	5,565.68	20.29	20.10	81.34	-233.62	587.68	268.40	230.10	38.30	7.008		
6,100.00	5,606.00	5,660.06	5,529.77	20.34	19.89	73.94	-163.26	587.68	279.47	241.97	37.50	7.452		
6,200.00	5,606.00	5,593.28	5,491.44	20.50	19.74	66.61	-108.63	587.68	302.81	266.28	36.53	8.289		
6,300.00	5,606.00	5,537.84	5,454.52	20.79	19.61	60.23	-67.31	587.68	340.21	304.37	35.83	9.494		
6,400.00	5,606.00	5,500.00	5,426.89	21.19	19.52	55.93	-41.46	587.68	390.77	354.94	35.83	10.908		
6,500.00	5,606.00	5,450.00	5,387.65	21.70	19.41	50.49	-10.51	587.68	451.77	416.16	35.61	12.687		
6,600.00	5,606.00	5,422.58	5,364.93	22.30	19.35	47.69	4.82	587.68	521.01	484.96	36.05	14.451		
6,700.00	5,606.00	5,400.00	5,345.62	22.99	19.30	45.48	16.54	587.68	596.44	559.95	36.49	16.344		
6,800.00	5,606.00	5,373.55	5,322.39	23.75	19.23	43.04	29.18	587.68	676.42	639.65	36.77	18.395		
6,900.00	5,606.00	5,350.00	5,301.20	24.58	19.18	40.98	39.44	587.68	759.95	722.90	37.04	20.515		
7,000.00	5,606.00	5,350.00	5,301.20	25.47	19.18	40.98	39.44	587.68	846.34	808.79	37.55	22.542		
7,100.00	5,606.00	5,323.21	5,276.55	26.41	19.11	38.79	49.92	587.68	934.40	896.75	37.65	24.821		
7,200.00	5,606.00	5,300.00	5,254.78	27.39	19.06	37.02	57.97	587.68	1,024.51	986.74	37.77	27.128		
7,300.00	5,606.00	5,300.00	5,254.78	28.42	19.06	37.02	57.97	587.68	1,115.65	1,077.59	38.06	29.316		
7,400.00	5,606.00	5,300.00	5,254.78	29.49	19.06	37.02	57.97	587.68	1,208.19	1,169.90	38.29	31.556		
7,500.00	5,606.00	5,280.48	5,236.21	30.59	19.01	35.61	63.98	587.68	1,301.33	1,262.97	38.36	33.926		
7,600.00	5,606.00	5,272.49	5,228.54	31.72	18.99	35.05	66.25	587.68	1,395.38	1,356.89	38.49	36.256		
7,700.00	5,606.00	5,250.00	5,206.80	32.88	18.94	33.56	71.97	587.68	1,490.36	1,451.83	38.53	38.684		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<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	-118.65	-49.57	-90.74	103.40					
100.00	100.00	100.00	100.00	0.13	0.13	-118.65	-49.57	-90.74	103.40	103.13	0.27	388.200		
200.00	200.00	200.00	200.00	0.47	0.47	-118.65	-49.57	-90.74	103.40	102.46	0.94	109.920		
300.00	300.00	300.00	300.00	0.81	0.81	-118.65	-49.57	-90.74	103.40	101.78	1.61	64.025		
400.00	399.98	403.59	403.57	1.11	1.15	85.75	-48.39	-89.29	101.47	99.15	2.33	43.614		
500.00	499.84	504.35	504.23	1.41	1.49	89.51	-45.50	-85.75	96.84	93.88	2.96	32.679		
600.00	599.45	603.74	603.51	1.74	1.82	95.73	-42.54	-82.13	92.76	89.17	3.59	25.864		
700.00	698.70	702.73	702.38	2.07	2.15	104.47	-39.59	-78.53	90.65	86.41	4.24	21.386		
715.49	714.03	718.01	717.65	2.12	2.20	106.03	-39.14	-77.97	90.60	86.26	4.34	20.857 CC, ES		
800.00	797.47	801.18	800.72	2.44	2.48	115.22	-36.66	-74.94	92.18	87.26	4.92	18.746		
900.00	895.64	898.99	898.43	2.84	2.82	126.75	-33.75	-71.38	98.90	93.29	5.61	17.618		
1,000.00	993.60	996.58	995.91	3.26	3.15	136.95	-30.84	-67.83	110.02	103.73	6.30	17.473		
1,100.00	1,091.56	1,094.17	1,093.39	3.69	3.48	145.13	-27.94	-64.28	124.02	117.05	6.97	17.805		
1,200.00	1,189.52	1,191.76	1,190.87	4.12	3.81	151.59	-25.03	-60.72	140.03	132.41	7.62	18.365		
1,300.00	1,287.48	1,289.35	1,288.36	4.56	4.14	156.70	-22.13	-57.17	157.45	149.17	8.28	19.015		
1,400.00	1,385.44	1,386.94	1,385.84	5.00	4.47	160.78	-19.22	-53.62	175.85	166.91	8.93	19.682		
1,500.00	1,483.40	1,484.53	1,483.32	5.45	4.80	164.08	-16.32	-50.07	194.95	185.36	9.59	20.329		
1,600.00	1,581.36	1,582.12	1,580.80	5.90	5.14	166.80	-13.41	-46.51	214.58	204.33	10.25	20.942		
1,700.00	1,679.32	1,679.71	1,678.28	6.34	5.47	169.05	-10.51	-42.96	234.59	223.69	10.91	21.512		
1,800.00	1,777.28	1,777.30	1,775.77	6.79	5.80	170.96	-7.60	-39.41	254.91	243.34	11.57	22.040		
1,900.00	1,875.24	1,874.89	1,873.25	7.25	6.13	172.58	-4.70	-35.85	275.45	263.22	12.23	22.527		
2,000.00	1,973.21	1,972.48	1,970.73	7.70	6.46	173.98	-1.79	-32.30	296.17	283.28	12.89	22.975		
2,100.00	2,071.17	2,070.07	2,068.21	8.15	6.80	175.19	1.11	-28.75	317.05	303.49	13.56	23.387		
2,200.00	2,169.13	2,167.66	2,165.69	8.60	7.13	176.25	4.02	-25.20	338.04	323.82	14.22	23.768		
2,300.00	2,267.09	2,265.25	2,263.18	9.06	7.46	177.19	6.92	-21.64	359.13	344.24	14.89	24.119		
2,400.00	2,365.05	2,362.84	2,360.66	9.51	7.79	178.03	9.83	-18.09	380.30	364.75	15.56	24.444		
2,500.00	2,463.01	2,460.43	2,458.14	9.97	8.13	178.78	12.73	-14.54	401.55	385.32	16.23	24.745		
2,600.00	2,560.97	2,558.02	2,555.62	10.42	8.46	179.45	15.64	-10.99	422.85	405.95	16.90	25.024		
2,700.00	2,658.93	2,655.61	2,653.10	10.88	8.79	-179.94	18.54	-7.43	444.20	426.63	17.57	25.284		
2,800.00	2,756.89	2,753.20	2,750.59	11.33	9.12	-179.39	21.45	-3.88	465.60	447.36	18.24	25.527		
2,900.00	2,854.85	2,850.79	2,848.07	11.79	9.46	-178.88	24.35	-0.33	487.03	468.12	18.91	25.753		
3,000.00	2,952.81	2,948.38	2,945.55	12.24	9.79	-178.42	27.26	3.23	508.50	488.92	19.58	25.965		
3,100.00	3,050.77	3,045.97	3,043.03	12.70	10.12	-178.00	30.16	6.78	530.00	509.74	20.26	26.164		
3,200.00	3,148.73	3,143.56	3,140.51	13.15	10.45	-177.61	33.07	10.33	551.52	530.59	20.93	26.350		
3,300.00	3,246.69	3,241.15	3,238.00	13.61	10.79	-177.24	35.97	13.88	573.06	551.46	21.60	26.526		
3,400.00	3,344.66	3,338.74	3,335.48	14.07	11.12	-176.91	38.88	17.44	594.63	572.35	22.28	26.691		
3,500.00	3,442.62	3,436.33	3,432.96	14.52	11.45	-176.60	41.78	20.99	616.21	593.26	22.95	26.847		
3,600.00	3,540.58	3,533.92	3,530.44	14.98	11.79	-176.30	44.69	24.54	637.81	614.18	23.63	26.995		
3,700.00	3,638.54	3,631.51	3,627.92	15.44	12.12	-176.03	47.59	28.10	659.42	635.12	24.30	27.135		
3,800.00	3,736.50	3,729.10	3,725.41	15.89	12.45	-175.78	50.50	31.65	681.05	656.07	24.98	27.267		
3,900.00	3,834.46	3,826.69	3,822.89	16.35	12.78	-175.54	53.40	35.20	702.69	677.04	25.65	27.393		
4,000.00	3,932.42	3,924.28	3,920.37	16.81	13.12	-175.31	56.31	38.75	724.34	698.01	26.33	27.512		
4,100.00	4,030.38	4,021.87	4,017.85	17.26	13.45	-175.10	59.21	42.31	746.00	718.99	27.00	27.626		
4,200.00	4,128.34	4,119.46	4,115.33	17.72	13.78	-174.90	62.12	45.86	767.67	739.99	27.68	27.734		
4,300.00	4,226.30	4,217.05	4,212.82	18.18	14.11	-174.71	65.02	49.41	789.34	760.99	28.36	27.837		
4,400.00	4,324.27	4,314.65	4,310.31	18.62	14.45	-174.54	67.93	52.97	810.99	781.96	29.03	27.940		
4,500.00	4,422.66	4,412.69	4,408.24	18.90	14.78	-174.39	70.85	56.54	830.47	800.83	29.63	28.026		
4,600.00	4,521.61	4,511.35	4,506.79	19.17	15.12	-174.23	73.78	60.13	846.53	816.29	30.24	27.995		
4,700.00	4,621.00	4,610.49	4,605.82	19.42	15.46	-174.03	76.74	63.74	859.17	828.33	30.85	27.853		
4,800.00	4,720.72	4,710.00	4,705.22	19.66	15.79	-173.82	79.70	67.36	868.38	836.92	31.45	27.607		
4,900.00	4,820.63	4,809.75	4,804.86	19.88	16.13	-173.57	82.67	70.99	874.14	842.08	32.06	27.263		
5,000.00	4,920.63	4,909.62	4,904.62	20.12	16.48	-16.45	85.64	74.63	876.67	843.98	32.70	26.813		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,020.63	6,446.33	5,820.00	20.33	21.73	-90.10	-755.40	80.66	835.26	819.13	16.13	51.788	
5,200.00	5,120.60	6,445.11	5,820.00	20.54	21.72	-101.25	-754.18	80.65	740.15	722.71	17.44	42.429	
5,300.00	5,219.10	6,428.78	5,820.00	20.68	21.61	-122.62	-737.85	80.63	647.89	628.86	19.03	34.050	
5,400.00	5,312.68	6,393.95	5,820.00	20.73	21.37	-132.51	-703.02	80.57	562.21	541.31	20.90	26.897	
5,500.00	5,397.89	6,341.91	5,820.00	20.70	21.04	-136.32	-650.98	80.48	486.75	463.66	23.09	21.084	
5,600.00	5,471.61	6,274.57	5,820.00	20.63	20.64	-136.86	-583.65	80.37	424.47	399.02	25.45	16.676	
5,700.00	5,531.14	6,194.41	5,820.00	20.52	20.22	-135.58	-503.48	80.24	377.24	349.50	27.74	13.600	
5,800.00	5,574.27	6,088.22	5,818.87	20.42	19.77	-132.73	-397.32	80.06	345.00	315.42	29.59	11.661	
5,900.00	5,599.44	5,932.40	5,785.70	20.33	19.26	-125.40	-245.67	79.81	314.28	281.82	32.45	9.684	
6,000.00	5,606.00	5,804.87	5,726.14	20.29	18.94	-116.29	-133.26	79.62	283.85	248.34	35.51	7.995	
6,100.00	5,606.00	5,707.09	5,662.98	20.34	18.71	-103.18	-58.80	79.50	256.57	218.84	37.73	6.800	
6,200.00	5,606.00	5,636.30	5,609.13	20.50	18.54	-90.74	-12.94	79.42	243.49	204.86	38.63	6.304	
6,205.91	5,606.00	5,632.78	5,606.30	20.52	18.53	-90.07	-10.85	79.42	243.44	204.80	38.64	6.301 SF	
6,300.00	5,606.00	5,584.45	5,566.00	20.79	18.41	-80.67	15.81	79.38	255.80	217.57	38.23	6.691	
6,400.00	5,606.00	5,550.00	5,535.86	21.19	18.32	-73.93	32.47	79.35	294.87	257.32	37.55	7.853	
6,500.00	5,606.00	5,515.57	5,504.70	21.70	18.23	-67.41	47.10	79.32	354.03	317.18	36.84	9.609	
6,600.00	5,606.00	5,500.00	5,490.30	22.30	18.19	-64.59	53.03	79.31	426.31	389.55	36.76	11.596	
6,700.00	5,606.00	5,472.87	5,464.82	22.99	18.12	-59.90	62.33	79.30	506.38	469.90	36.48	13.881	
6,800.00	5,606.00	5,450.00	5,442.98	23.75	18.05	-56.21	69.13	79.29	591.78	555.43	36.35	16.279	
6,900.00	5,606.00	5,450.00	5,442.98	24.58	18.05	-56.21	69.13	79.29	680.46	643.90	36.56	18.613	
7,000.00	5,606.00	5,433.12	5,426.69	25.47	18.01	-53.64	73.53	79.28	771.47	734.95	36.52	21.123	
7,100.00	5,606.00	5,423.66	5,417.50	26.41	17.98	-52.26	75.77	79.28	864.22	827.66	36.56	23.637	
7,200.00	5,606.00	5,400.00	5,394.34	27.39	17.92	-49.01	80.63	79.27	958.57	922.08	36.49	26.272	
7,300.00	5,606.00	5,400.00	5,394.34	28.42	17.92	-49.01	80.63	79.27	1,053.27	1,016.68	36.59	28.785	
7,400.00	5,606.00	5,400.00	5,394.34	29.49	17.92	-49.01	80.63	79.27	1,148.87	1,112.19	36.67	31.326	
7,500.00	5,606.00	5,400.00	5,394.34	30.59	17.92	-49.01	80.63	79.27	1,245.16	1,208.41	36.74	33.887	
7,600.00	5,606.00	5,400.00	5,394.34	31.72	17.92	-49.01	80.63	79.27	1,341.99	1,305.19	36.81	36.462	
7,700.00	5,606.00	5,400.00	5,394.34	32.88	17.92	-49.01	80.63	79.27	1,439.26	1,402.40	36.86	39.046	
7,800.00	5,606.00	5,400.00	5,394.34	34.06	17.92	-49.01	80.63	79.27	1,536.88	1,499.96	36.91	41.635	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-148.19	-49.58	-30.76	58.35					
100.00	100.00	100.00	100.00	0.13	0.13	-148.19	-49.58	-30.76	58.35	58.08	0.27	219.067		
200.00	200.00	200.00	200.00	0.47	0.47	-148.19	-49.58	-30.76	58.35	57.41	0.94	62.030		
300.00	300.00	300.00	300.00	0.81	0.81	-148.19	-49.58	-30.76	58.35	56.73	1.61	36.130		
400.00	399.98	401.49	401.47	1.11	1.14	55.27	-49.07	-29.04	56.02	53.73	2.29	24.479		
500.00	499.84	502.65	502.48	1.41	1.48	56.34	-47.53	-23.90	49.06	46.06	3.00	16.356		
600.00	599.45	603.14	602.58	1.74	1.82	58.96	-44.98	-15.41	37.54	33.77	3.76	9.975		
700.00	698.70	702.01	700.88	2.07	2.16	68.94	-41.95	-5.29	23.13	18.69	4.44	5.209		
800.00	797.47	800.40	798.70	2.44	2.51	118.70	-38.93	4.79	12.44	7.37	5.06	2.457		
805.16	802.55	805.46	803.74	2.46	2.52	123.22	-38.78	5.30	12.39	7.31	5.08	2.439 CC, ES, SF		
900.00	895.64	898.24	895.98	2.84	2.85	178.73	-35.93	14.80	23.68	18.08	5.60	4.228		
1,000.00	993.60	995.88	993.06	3.26	3.21	-166.68	-32.93	24.80	43.72	37.42	6.30	6.944		
1,100.00	1,091.56	1,093.52	1,090.14	3.69	3.56	-161.36	-29.94	34.80	64.76	57.77	6.99	9.262		
1,200.00	1,189.52	1,191.16	1,187.23	4.12	3.91	-158.66	-26.94	44.80	86.08	78.39	7.69	11.191		
1,300.00	1,287.48	1,288.80	1,284.31	4.56	4.27	-157.04	-23.94	54.79	107.50	99.11	8.39	12.808		
1,400.00	1,385.44	1,386.44	1,381.39	5.00	4.62	-155.95	-20.95	64.79	128.98	119.88	9.10	14.176		
1,500.00	1,483.40	1,484.08	1,478.47	5.45	4.98	-155.17	-17.95	74.79	150.49	140.69	9.81	15.347		
1,600.00	1,581.36	1,581.73	1,575.55	5.90	5.33	-154.59	-14.96	84.79	172.02	161.51	10.52	16.359		
1,700.00	1,679.32	1,679.37	1,672.64	6.34	5.69	-154.14	-11.96	94.79	193.57	182.34	11.23	17.242		
1,800.00	1,777.28	1,777.01	1,769.72	6.79	6.04	-153.78	-8.96	104.78	215.12	203.18	11.94	18.018		
1,900.00	1,875.24	1,874.65	1,868.80	7.25	6.40	-153.48	-5.97	114.78	236.68	224.03	12.65	18.705		
2,000.00	1,973.21	1,972.29	1,963.88	7.70	6.76	-153.24	-2.97	124.78	258.25	244.88	13.37	19.317		
2,100.00	2,071.17	2,069.93	2,060.97	8.15	7.11	-153.03	0.02	134.78	279.82	265.73	14.08	19.867		
2,200.00	2,169.13	2,167.58	2,158.05	8.60	7.47	-152.85	3.02	144.77	301.39	286.59	14.80	20.362		
2,300.00	2,267.09	2,265.22	2,255.13	9.06	7.83	-152.69	6.02	154.77	322.96	307.44	15.52	20.811		
2,400.00	2,365.05	2,362.86	2,352.21	9.51	8.18	-152.56	9.01	164.77	344.54	328.30	16.24	21.219		
2,500.00	2,463.01	2,460.50	2,449.29	9.97	8.54	-152.44	12.01	174.77	366.12	349.16	16.96	21.593		
2,600.00	2,560.97	2,558.14	2,546.38	10.42	8.90	-152.33	15.00	184.76	387.70	370.02	17.67	21.935		
2,700.00	2,658.93	2,655.78	2,643.46	10.88	9.26	-152.24	18.00	194.76	409.28	390.88	18.39	22.251		
2,800.00	2,756.89	2,753.42	2,740.54	11.33	9.61	-152.15	21.00	204.76	430.86	411.75	19.11	22.542		
2,900.00	2,854.85	2,851.07	2,837.62	11.79	9.97	-152.07	23.99	214.76	452.44	432.61	19.83	22.811		
3,000.00	2,952.81	2,948.71	2,934.70	12.24	10.33	-152.00	26.99	224.76	474.02	453.47	20.55	23.062		
3,100.00	3,050.77	3,046.35	3,031.79	12.70	10.69	-151.94	29.98	234.75	495.61	474.33	21.27	23.295		
3,200.00	3,148.73	3,143.99	3,128.87	13.15	11.04	-151.88	32.98	244.75	517.19	495.20	22.00	23.513		
3,300.00	3,246.69	3,241.63	3,225.95	13.61	11.40	-151.83	35.98	254.75	538.78	516.06	22.72	23.717		
3,400.00	3,344.66	3,339.27	3,323.03	14.07	11.76	-151.78	38.97	264.75	560.36	536.92	23.44	23.908		
3,500.00	3,442.62	3,436.91	3,420.11	14.52	12.12	-151.73	41.97	274.74	581.95	557.79	24.16	24.088		
3,600.00	3,540.58	3,534.56	3,517.20	14.98	12.47	-151.69	44.96	284.74	603.53	578.65	24.88	24.256		
3,700.00	3,638.54	3,632.20	3,614.28	15.44	12.83	-151.65	47.96	294.74	625.12	599.52	25.60	24.416		
3,800.00	3,736.50	3,729.84	3,711.36	15.89	13.19	-151.61	50.96	304.74	646.71	620.38	26.33	24.566		
3,900.00	3,834.46	3,827.48	3,808.44	16.35	13.55	-151.58	53.95	314.73	668.29	641.25	27.05	24.708		
4,000.00	3,932.42	3,925.12	3,905.53	16.81	13.91	-151.54	56.95	324.73	689.88	662.11	27.77	24.843		
4,100.00	4,030.38	4,022.76	4,002.61	17.26	14.26	-151.51	59.94	334.73	711.47	682.97	28.49	24.971		
4,200.00	4,128.34	4,120.41	4,099.69	17.72	14.62	-151.48	62.94	344.73	733.05	703.84	29.21	25.092		
4,300.00	4,226.30	4,218.05	4,196.77	18.18	14.98	-151.46	65.94	354.73	754.64	724.70	29.94	25.208		
4,400.00	4,324.27	4,315.70	4,293.86	18.62	15.34	-151.46	68.93	364.72	776.19	745.54	30.65	25.322		
4,500.00	4,422.66	4,413.73	4,391.34	18.90	15.70	-151.55	71.94	374.76	795.83	764.53	31.29	25.431		
4,600.00	4,521.61	4,512.29	4,489.33	19.17	16.06	-151.49	74.96	384.85	812.45	780.51	31.94	25.440		
4,700.00	4,621.00	4,611.25	4,587.72	19.42	16.42	-151.29	78.00	394.99	826.05	793.47	32.58	25.354		
4,800.00	4,720.72	4,710.48	4,686.39	19.66	16.78	-150.96	81.04	405.15	836.66	803.43	33.23	25.180		
4,900.00	4,820.63	4,820.03	4,795.44	19.88	17.13	-150.53	84.02	415.07	843.82	809.93	33.89	24.902		
5,000.00	4,920.63	6,377.61	5,735.00	20.12	22.36	90.00	-755.00	423.07	820.52	811.23	9.29	88.333		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,020.63	6,377.61	5,735.00	20.33	22.36	90.00	-755.00	423.07	721.37	711.88	9.49	76.026		
5,200.00	5,120.60	6,376.39	5,735.00	20.54	22.35	112.73	-753.78	423.07	622.52	612.70	9.82	63.418		
5,300.00	5,219.10	6,360.05	5,735.00	20.68	22.24	142.96	-737.45	423.07	525.54	515.31	10.23	51.359		
5,400.00	5,312.68	6,325.23	5,735.00	20.73	22.00	151.50	-702.62	423.07	434.05	423.20	10.85	39.996		
5,500.00	5,397.89	6,273.19	5,735.00	20.70	21.67	153.67	-650.58	423.07	351.69	339.75	11.94	29.460		
5,600.00	5,471.61	6,205.85	5,735.00	20.63	21.28	152.85	-583.24	423.07	281.81	268.06	13.75	20.500		
5,700.00	5,531.14	6,125.69	5,735.00	20.52	20.86	150.14	-503.08	423.07	227.16	210.82	16.34	13.900		
5,800.00	5,574.27	6,026.06	5,734.07	20.42	20.42	145.68	-403.47	423.07	188.86	169.10	19.77	9.555		
5,900.00	5,599.44	5,902.20	5,712.11	20.33	19.98	136.55	-281.87	423.07	154.70	128.56	26.13	5.919		
6,000.00	5,606.00	5,792.94	5,669.41	20.29	19.66	122.33	-181.52	423.07	123.71	90.97	32.74	3.779		
6,100.00	5,606.00	5,702.25	5,618.70	20.34	19.43	97.22	-106.46	423.07	101.54	63.57	37.96	2.674		
6,125.36	5,606.00	5,682.54	5,606.00	20.38	19.38	90.00	-91.40	423.07	100.21	61.77	38.44	2.607		
6,200.00	5,606.00	5,631.39	5,570.47	20.50	19.26	70.48	-54.63	423.07	112.86	75.69	37.18	3.036		
6,300.00	5,606.00	5,576.40	5,528.46	20.79	19.13	52.27	-19.19	423.07	162.93	127.99	34.94	4.664		
6,400.00	5,606.00	5,533.37	5,493.12	21.19	19.03	41.60	5.34	423.07	233.31	198.65	34.66	6.732		
6,500.00	5,606.00	5,500.00	5,464.39	21.70	18.94	35.29	22.30	423.07	313.34	278.28	35.06	8.936		
6,600.00	5,606.00	5,471.68	5,439.19	22.30	18.87	31.00	35.23	423.07	398.72	363.22	35.49	11.234		
6,700.00	5,606.00	5,450.00	5,419.46	22.99	18.82	28.24	44.19	423.07	487.45	451.52	35.93	13.566		
6,800.00	5,606.00	5,430.34	5,401.25	23.75	18.77	26.08	51.61	423.07	578.45	542.20	36.25	15.959		
6,900.00	5,606.00	5,414.53	5,386.41	24.58	18.73	24.53	57.06	423.07	671.09	634.57	36.52	18.376		
7,000.00	5,606.00	5,400.00	5,372.63	25.47	18.69	23.24	61.68	423.07	764.95	728.22	36.73	20.827		
7,100.00	5,606.00	5,400.00	5,372.63	26.41	18.69	23.24	61.68	423.07	859.92	822.90	37.03	23.225		
7,200.00	5,606.00	5,379.34	5,352.84	27.39	18.64	21.60	67.58	423.07	955.29	918.21	37.08	25.764		
7,300.00	5,606.00	5,370.48	5,344.28	28.42	18.62	20.95	69.86	423.07	1,051.41	1,014.20	37.21	28.256		
7,400.00	5,606.00	5,350.00	5,324.35	29.49	18.56	19.59	74.60	423.07	1,148.24	1,111.00	37.25	30.829		
7,500.00	5,606.00	5,350.00	5,324.35	30.59	18.56	19.59	74.60	423.07	1,245.07	1,207.67	37.40	33.294		
7,600.00	5,606.00	5,350.00	5,324.35	31.72	18.56	19.59	74.60	423.07	1,342.36	1,304.84	37.52	35.776		
7,700.00	5,606.00	5,350.00	5,324.35	32.88	18.56	19.59	74.60	423.07	1,440.02	1,402.39	37.63	38.268		
7,800.00	5,606.00	5,350.00	5,324.35	34.06	18.56	19.59	74.60	423.07	1,537.98	1,500.25	37.73	40.768		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	149.48	-49.57	29.22	57.55					
100.00	100.00	100.00	100.00	0.13	0.13	149.48	-49.57	29.22	57.55	57.28	0.27	216.054		
200.00	200.00	200.00	200.00	0.47	0.47	149.48	-49.57	29.22	57.55	56.60	0.94	61.177		
300.00	300.00	300.00	300.00	0.81	0.81	149.48	-49.57	29.22	57.55	55.93	1.61	35.633		
400.00	399.98	399.28	399.26	1.11	1.13	-9.24	-49.25	30.91	56.43	54.19	2.25	25.130		
500.00	499.84	498.28	498.12	1.41	1.46	-15.27	-48.29	35.96	53.48	50.59	2.89	18.522		
600.00	599.45	596.72	596.18	1.74	1.79	-26.55	-46.71	44.30	50.07	46.46	3.61	13.874		
675.72	674.64	670.71	669.68	1.99	2.05	-39.05	-45.10	52.75	48.84	44.61	4.23	11.535 CC		
700.00	698.70	694.33	693.08	2.07	2.14	-43.67	-44.51	55.84	49.01	44.56	4.45	11.021 ES		
800.00	797.47	790.96	788.56	2.44	2.49	-63.84	-41.74	70.44	54.10	48.74	5.35	10.108 SF		
900.00	895.64	888.42	884.62	2.84	2.86	-81.93	-38.67	86.58	65.72	59.67	6.04	10.874		
1,000.00	993.60	985.70	980.52	3.26	3.24	-94.75	-35.61	102.69	82.03	75.31	6.72	12.204		
1,100.00	1,091.56	1,082.99	1,076.41	3.69	3.63	-103.14	-32.54	118.79	101.04	93.63	7.41	13.630		
1,200.00	1,189.52	1,180.27	1,172.31	4.12	4.02	-108.82	-29.48	134.90	121.49	113.37	8.12	14.955		
1,300.00	1,287.48	1,277.56	1,268.20	4.56	4.41	-112.86	-26.42	151.01	142.77	133.92	8.85	16.129		
1,400.00	1,385.44	1,374.85	1,364.09	5.00	4.80	-115.84	-23.35	167.12	164.55	154.96	9.59	17.157		
1,500.00	1,483.40	1,472.13	1,459.99	5.45	5.19	-118.13	-20.29	183.22	186.66	176.32	10.34	18.054		
1,600.00	1,581.36	1,569.42	1,555.88	5.90	5.59	-119.93	-17.23	199.33	208.99	197.89	11.09	18.840		
1,700.00	1,679.32	1,666.70	1,651.78	6.34	5.98	-121.38	-14.17	215.44	231.48	219.63	11.85	19.531		
1,800.00	1,777.28	1,763.99	1,747.67	6.79	6.38	-122.58	-11.10	231.55	254.08	241.47	12.61	20.142		
1,900.00	1,875.24	1,861.27	1,843.57	7.25	6.78	-123.58	-8.04	247.65	276.78	263.40	13.38	20.685		
2,000.00	1,973.21	1,958.56	1,939.46	7.70	7.18	-124.43	-4.98	263.76	299.54	285.39	14.15	21.171		
2,100.00	2,071.17	2,055.85	2,035.35	8.15	7.57	-125.16	-1.91	279.87	322.36	307.44	14.92	21.608		
2,200.00	2,169.13	2,153.13	2,131.25	8.60	7.97	-125.79	1.15	295.98	345.22	329.53	15.69	22.002		
2,300.00	2,267.09	2,250.42	2,227.14	9.06	8.37	-126.35	4.21	312.08	368.11	351.65	16.46	22.360		
2,400.00	2,365.05	2,347.70	2,323.04	9.51	8.77	-126.84	7.27	328.19	391.04	373.80	17.24	22.686		
2,500.00	2,463.01	2,444.99	2,418.93	9.97	9.17	-127.27	10.34	344.30	413.99	395.97	18.01	22.984		
2,600.00	2,560.97	2,542.28	2,514.82	10.42	9.57	-127.66	13.40	360.41	436.96	418.17	18.79	23.257		
2,700.00	2,658.93	2,639.56	2,610.72	10.88	9.96	-128.01	16.46	376.52	459.94	440.38	19.56	23.509		
2,800.00	2,756.89	2,736.85	2,706.61	11.33	10.36	-128.33	19.53	392.62	482.94	462.60	20.34	23.741		
2,900.00	2,854.85	2,834.13	2,802.51	11.79	10.76	-128.62	22.59	408.73	505.95	484.83	21.12	23.957		
3,000.00	2,952.81	2,931.42	2,898.40	12.24	11.16	-128.88	25.65	424.84	528.98	507.08	21.90	24.157		
3,100.00	3,050.77	3,028.70	2,994.30	12.70	11.56	-129.12	28.71	440.95	552.01	529.34	22.68	24.343		
3,200.00	3,148.73	3,125.99	3,090.19	13.15	11.96	-129.35	31.78	457.05	575.05	551.60	23.46	24.517		
3,300.00	3,246.69	3,223.28	3,186.08	13.61	12.36	-129.55	34.84	473.16	598.10	573.87	24.23	24.680		
3,400.00	3,344.66	3,320.56	3,281.98	14.07	12.76	-129.74	37.90	489.27	621.16	596.15	25.01	24.832		
3,500.00	3,442.62	3,417.85	3,377.87	14.52	13.16	-129.92	40.97	505.38	644.22	618.43	25.79	24.975		
3,600.00	3,540.58	3,515.13	3,473.77	14.98	13.56	-130.08	44.03	521.48	667.29	640.72	26.57	25.110		
3,700.00	3,638.54	3,612.42	3,569.66	15.44	13.96	-130.23	47.09	537.59	690.36	663.01	27.36	25.237		
3,800.00	3,736.50	3,709.70	3,665.55	15.89	14.36	-130.38	50.15	553.70	713.44	685.31	28.14	25.357		
3,900.00	3,834.46	3,806.99	3,761.45	16.35	14.76	-130.51	53.22	569.81	736.52	707.61	28.92	25.471		
4,000.00	3,932.42	3,904.28	3,857.34	16.81	15.16	-130.64	56.28	585.91	759.61	729.91	29.70	25.578		
4,100.00	4,030.38	4,001.56	3,953.24	17.26	15.56	-130.76	59.34	602.02	782.70	752.22	30.48	25.680		
4,200.00	4,128.34	4,098.85	4,049.13	17.72	15.96	-130.87	62.41	618.13	805.79	774.53	31.26	25.777		
4,300.00	4,226.30	4,196.13	4,145.03	18.18	16.36	-130.97	65.47	634.24	828.88	796.84	32.04	25.869		
4,400.00	4,324.27	4,293.43	4,240.93	18.62	16.76	-131.13	68.53	650.35	851.95	819.14	32.81	25.962		
4,500.00	4,422.66	4,391.05	4,337.16	18.90	17.16	-131.44	71.61	666.51	873.59	840.11	33.48	26.091		
4,600.00	4,521.61	4,489.11	4,433.81	19.17	17.57	-131.54	74.69	682.74	892.97	858.82	34.15	26.151		
4,700.00	4,621.00	4,587.61	4,530.90	19.42	17.97	-131.45	77.79	699.05	910.09	875.29	34.81	26.146		
4,800.00	4,720.72	4,709.55	4,651.51	19.66	18.34	-131.17	81.15	716.69	923.73	888.23	35.50	26.022		
4,900.00	4,820.63	4,832.82	4,774.09	19.88	18.68	-130.89	83.56	729.39	932.59	896.46	36.13	25.810		
5,000.00	4,920.63	6,409.83	5,734.00	20.12	23.54	90.00	-755.01	739.18	913.73	896.20	17.53	52.120		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
5,100.00	5,020.63	6,409.83	5,734.00	20.33	23.54	90.00	-755.01	739.18	825.97	806.57	19.40	42.583	
5,200.00	5,120.60	6,408.61	5,734.00	20.54	23.53	95.75	-753.79	739.18	741.34	719.64	21.70	34.169	
5,300.00	5,219.10	6,392.28	5,734.00	20.68	23.43	107.66	-737.45	739.18	662.15	637.82	24.33	27.211	
5,400.00	5,312.68	6,357.45	5,734.00	20.73	23.21	113.86	-702.63	739.18	592.31	565.13	27.19	21.786	
5,500.00	5,397.89	6,305.41	5,734.00	20.70	22.90	115.87	-650.59	739.18	535.06	505.04	30.02	17.821	
5,600.00	5,471.61	6,238.07	5,734.00	20.63	22.54	115.07	-583.25	739.18	492.11	459.56	32.55	15.118	
5,700.00	5,531.14	6,157.91	5,734.00	20.52	22.15	112.65	-503.09	739.18	463.12	428.67	34.45	13.443	
5,800.00	5,574.27	6,057.94	5,732.99	20.42	21.75	109.28	-403.14	739.18	445.66	409.94	35.72	12.477	
5,900.00	5,599.44	5,934.57	5,710.87	20.33	21.36	104.10	-282.06	739.19	432.35	395.32	37.02	11.678	
6,000.00	5,606.00	5,825.72	5,668.20	20.29	21.08	98.50	-182.13	739.19	422.37	384.47	37.90	11.144	
6,100.00	5,606.00	5,735.31	5,617.61	20.34	20.87	91.60	-107.35	739.19	416.60	378.17	38.43	10.842	
6,123.22	5,606.00	5,717.28	5,606.01	20.37	20.83	90.00	-93.54	739.19	416.33	377.82	38.51	10.811	
6,200.00	5,606.00	5,664.65	5,569.51	20.50	20.72	84.99	-55.65	739.19	419.73	381.09	38.64	10.862	
6,300.00	5,606.00	5,609.77	5,527.59	20.79	20.60	79.33	-20.27	739.19	436.11	397.40	38.72	11.264	
6,400.00	5,606.00	5,566.81	5,492.31	21.19	20.51	74.73	4.23	739.19	467.23	428.40	38.82	12.035	
6,500.00	5,606.00	5,532.69	5,462.93	21.70	20.43	71.04	21.56	739.19	512.13	473.14	38.99	13.134	
6,600.00	5,606.00	5,500.00	5,433.78	22.30	20.36	67.53	36.33	739.19	568.63	529.45	39.18	14.514	
6,700.00	5,606.00	5,482.59	5,417.89	22.99	20.32	65.69	43.45	739.19	634.14	594.64	39.50	16.055	
6,800.00	5,606.00	5,463.82	5,400.51	23.75	20.28	63.73	50.52	739.19	706.65	666.91	39.74	17.781	
6,900.00	5,606.00	5,450.00	5,387.55	24.58	20.25	62.31	55.32	739.19	784.44	744.46	39.98	19.622	
7,000.00	5,606.00	5,434.52	5,372.89	25.47	20.21	60.75	60.29	739.19	866.22	826.08	40.14	21.579	
7,100.00	5,606.00	5,422.90	5,361.79	26.41	20.18	59.61	63.73	739.19	951.09	910.79	40.30	23.601	
7,200.00	5,606.00	5,400.00	5,339.70	27.39	20.13	57.40	69.78	739.19	1,038.58	998.22	40.36	25.736	
7,300.00	5,606.00	5,400.00	5,339.70	28.42	20.13	57.40	69.78	739.19	1,127.54	1,087.01	40.53	27.821	
7,400.00	5,606.00	5,400.00	5,339.70	29.49	20.13	57.40	69.78	739.19	1,218.21	1,177.54	40.67	29.955	
7,500.00	5,606.00	5,400.00	5,339.70	30.59	20.13	57.40	69.78	739.19	1,310.24	1,269.45	40.78	32.127	
7,600.00	5,606.00	5,400.00	5,339.70	31.72	20.13	57.40	69.78	739.19	1,403.36	1,362.48	40.88	34.328	
7,700.00	5,606.00	5,377.27	5,317.54	32.88	20.07	55.28	74.83	739.19	1,496.72	1,455.83	40.89	36.602	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	129.94	-49.58	59.21	77.23					
100.00	100.00	100.00	100.00	0.13	0.13	129.94	-49.58	59.21	77.23	76.96	0.27	289.952		
200.00	200.00	200.00	200.00	0.47	0.47	129.94	-49.58	59.21	77.23	76.29	0.94	82.101		
300.00	300.00	300.00	300.00	0.81	0.81	129.94	-49.58	59.21	77.23	75.61	1.61	47.821		
400.00	399.98	398.16	398.14	1.11	1.13	-28.41	-49.37	60.88	76.86	74.60	2.26	33.992		
500.00	499.84	496.07	495.92	1.41	1.45	-32.96	-48.72	65.86	76.09	73.15	2.94	25.922		
567.45	567.06	561.84	561.48	1.63	1.67	-37.79	-48.05	71.07	75.81	72.37	3.43	22.076 CC		
600.00	599.45	593.48	592.96	1.74	1.78	-40.60	-47.66	74.10	75.90	72.22	3.68	20.622 ES		
700.00	698.70	690.14	688.93	2.07	2.12	-50.92	-46.19	85.51	77.95	73.46	4.49	17.354		
800.00	797.47	785.82	783.49	2.44	2.47	-62.73	-44.32	99.97	84.13	78.79	5.34	15.751		
900.00	895.64	880.31	876.35	2.84	2.84	-74.28	-42.08	117.30	95.95	89.76	6.19	15.513 SF		
1,000.00	993.60	973.74	967.54	3.26	3.23	-83.42	-39.48	137.42	114.11	107.11	7.00	16.300		
1,100.00	1,091.56	1,067.65	1,058.56	3.69	3.65	-89.71	-36.52	160.39	137.27	129.54	7.74	17.746		
1,200.00	1,189.52	1,163.82	1,151.60	4.12	4.09	-94.22	-33.41	184.47	162.19	153.78	8.41	19.278		
1,300.00	1,287.48	1,259.98	1,244.65	4.56	4.54	-97.53	-30.30	208.56	187.81	178.70	9.11	20.609		
1,400.00	1,385.44	1,356.15	1,337.70	5.00	4.99	-100.04	-27.19	232.65	213.88	204.03	9.85	21.712		
1,500.00	1,483.40	1,452.31	1,430.75	5.45	5.45	-102.01	-24.08	256.74	240.25	229.64	10.60	22.656		
1,600.00	1,581.36	1,548.48	1,523.80	5.90	5.92	-103.59	-20.96	280.83	266.83	255.46	11.37	23.460		
1,700.00	1,679.32	1,644.65	1,616.84	6.34	6.38	-104.88	-17.85	304.92	293.57	281.41	12.16	24.150		
1,800.00	1,777.28	1,740.81	1,709.89	6.79	6.85	-105.96	-14.74	329.01	320.42	307.47	12.95	24.748		
1,900.00	1,875.24	1,836.98	1,802.94	7.25	7.32	-106.87	-11.63	353.10	347.37	333.62	13.75	25.270		
2,000.00	1,973.21	1,933.14	1,895.99	7.70	7.79	-107.65	-8.52	377.19	374.38	359.83	14.55	25.728		
2,100.00	2,071.17	2,029.31	1,989.03	8.15	8.26	-108.33	-5.41	401.28	401.45	386.08	15.36	26.133		
2,200.00	2,169.13	2,125.48	2,082.08	8.60	8.73	-108.92	-2.30	425.37	428.56	412.38	16.18	26.493		
2,300.00	2,267.09	2,221.64	2,175.13	9.06	9.21	-109.44	0.81	449.46	455.71	438.72	16.99	26.816		
2,400.00	2,365.05	2,317.81	2,268.18	9.51	9.68	-109.90	3.92	473.55	482.89	465.08	17.82	27.106		
2,500.00	2,463.01	2,413.97	2,361.23	9.97	10.16	-110.31	7.03	497.64	510.10	491.46	18.64	27.368		
2,600.00	2,560.97	2,510.14	2,454.27	10.42	10.63	-110.68	10.14	521.73	537.33	517.87	19.46	27.606		
2,700.00	2,658.93	2,606.31	2,547.32	10.88	11.11	-111.02	13.25	545.81	564.58	544.29	20.29	27.823		
2,800.00	2,756.89	2,702.47	2,640.37	11.33	11.58	-111.32	16.36	569.90	591.85	570.73	21.12	28.022		
2,900.00	2,854.85	2,798.64	2,733.42	11.79	12.06	-111.60	19.47	593.99	619.13	597.18	21.95	28.204		
3,000.00	2,952.81	2,894.80	2,826.47	12.24	12.53	-111.85	22.58	618.08	646.42	623.63	22.78	28.372		
3,100.00	3,050.77	2,990.97	2,919.51	12.70	13.01	-112.09	25.69	642.17	673.72	650.10	23.62	28.527		
3,200.00	3,148.73	3,087.13	3,012.56	13.15	13.49	-112.30	28.81	666.26	701.03	676.58	24.45	28.671		
3,300.00	3,246.69	3,183.30	3,105.61	13.61	13.97	-112.50	31.92	690.35	728.35	703.07	25.29	28.805		
3,400.00	3,344.66	3,279.47	3,198.66	14.07	14.44	-112.69	35.03	714.44	755.68	729.56	26.12	28.930		
3,500.00	3,442.62	3,375.63	3,291.70	14.52	14.92	-112.86	38.14	738.53	783.02	756.06	26.96	29.046		
3,600.00	3,540.58	3,471.80	3,384.75	14.98	15.40	-113.02	41.25	762.62	810.36	782.56	27.79	29.155		
3,700.00	3,638.54	3,567.96	3,477.80	15.44	15.88	-113.17	44.36	786.71	837.70	809.07	28.63	29.257		
3,800.00	3,736.50	3,664.13	3,570.85	15.89	16.35	-113.31	47.47	810.80	865.06	835.59	29.47	29.353		
3,900.00	3,834.46	3,760.30	3,663.90	16.35	16.83	-113.44	50.58	834.89	892.41	862.10	30.31	29.443		
4,000.00	3,932.42	3,856.46	3,756.94	16.81	17.31	-113.56	53.69	858.98	919.77	888.62	31.15	29.528		
4,100.00	4,030.38	3,952.63	3,849.99	17.26	17.79	-113.68	56.80	883.06	947.14	915.15	31.99	29.609		
4,200.00	4,128.34	4,048.79	3,943.04	17.72	18.27	-113.79	59.91	907.15	974.50	941.67	32.83	29.685		
4,300.00	4,226.30	4,144.96	4,036.09	18.18	18.74	-113.90	63.02	931.24	1,001.87	968.20	33.67	29.757		
4,400.00	4,324.27	4,241.13	4,129.14	18.62	19.22	-114.07	66.13	955.33	1,029.23	994.73	34.50	29.834		
4,500.00	4,422.66	4,337.56	4,222.44	18.90	19.70	-114.55	69.25	979.49	1,055.71	1,020.52	35.19	29.999		
4,600.00	4,521.61	4,444.79	4,326.26	19.17	20.21	-114.80	72.69	1,006.12	1,080.66	1,044.73	35.93	30.073		
4,700.00	4,621.00	4,581.86	4,460.05	19.42	20.72	-114.87	76.50	1,035.59	1,101.64	1,064.88	36.76	29.967		
4,800.00	4,720.72	4,721.39	4,597.55	19.66	21.15	-114.84	79.52	1,059.03	1,117.61	1,080.13	37.48	29.816		
4,900.00	4,820.63	4,862.81	4,737.92	19.88	21.55	-114.73	81.71	1,075.99	1,128.47	1,090.34	38.13	29.595		
5,000.00	4,920.63	4,976.89	5,735.00	20.12	25.79	90.13	-756.77	1,087.26	1,116.92	1,091.23	25.70	43.466		

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-1904
<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-1904	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,100.00	5,020.63	6,476.89	5,735.00	20.33	25.79	90.13	-756.77	1,087.26	1,046.25	1,018.45	27.80	37.636		
5,200.00	5,120.60	6,475.68	5,735.00	20.54	25.79	93.28	-755.55	1,087.27	980.72	950.64	30.08	32.602		
5,300.00	5,219.10	6,459.34	5,735.00	20.68	25.69	99.98	-739.22	1,087.31	922.24	889.93	32.31	28.540		
5,400.00	5,312.68	6,424.51	5,735.00	20.73	25.51	103.68	-704.39	1,087.39	873.42	839.13	34.29	25.471		
5,500.00	5,397.89	6,372.48	5,735.00	20.70	25.24	104.93	-652.35	1,087.51	835.66	799.79	35.87	23.296		
5,600.00	5,471.61	6,305.14	5,735.00	20.63	24.93	104.42	-585.01	1,087.66	808.89	771.92	36.96	21.884		
5,700.00	5,531.14	6,224.97	5,735.00	20.52	24.61	102.92	-504.85	1,087.85	791.69	754.09	37.60	21.057		
5,800.00	5,574.27	6,124.81	5,733.96	20.42	24.28	100.88	-404.71	1,088.08	781.75	743.85	37.90	20.627		
5,900.00	5,599.44	6,001.20	5,711.67	20.33	23.95	97.85	-283.42	1,088.36	774.39	736.16	38.22	20.259		
6,000.00	5,606.00	5,892.21	5,668.81	20.29	23.72	94.69	-183.43	1,088.59	769.03	730.59	38.43	20.009		
6,100.00	5,606.00	5,801.78	5,618.08	20.34	23.55	90.90	-108.70	1,088.76	766.04	727.41	38.63	19.828		
6,120.01	5,606.00	5,786.17	5,608.05	20.37	23.53	90.15	-96.75	1,088.79	765.93	727.25	38.69	19.798		
6,200.00	5,606.00	5,731.14	5,569.92	20.50	23.43	87.30	-57.10	1,088.88	767.93	729.05	38.88	19.750		
6,300.00	5,606.00	5,676.32	5,527.99	20.79	23.33	84.19	-21.83	1,088.97	777.20	737.97	39.23	19.810		
6,400.00	5,606.00	5,633.42	5,492.73	21.19	23.25	81.59	2.59	1,089.02	795.28	755.58	39.70	20.034		
6,500.00	5,606.00	5,600.00	5,463.94	21.70	23.19	79.50	19.55	1,089.06	822.66	782.36	40.31	20.410		
6,600.00	5,606.00	5,571.88	5,438.92	22.30	23.13	77.70	32.37	1,089.09	859.15	818.18	40.97	20.969		
6,700.00	5,606.00	5,550.00	5,418.99	22.99	23.09	76.28	41.40	1,089.11	904.07	862.40	41.67	21.695		
6,800.00	5,606.00	5,530.64	5,401.05	23.75	23.05	75.03	48.68	1,089.13	956.52	914.19	42.33	22.596		
6,900.00	5,606.00	5,514.86	5,386.24	24.58	23.02	74.00	54.12	1,089.14	1,015.51	972.57	42.94	23.648		
7,000.00	5,606.00	5,500.00	5,372.15	25.47	22.99	73.03	58.84	1,089.15	1,080.12	1,036.63	43.48	24.839		
7,100.00	5,606.00	5,500.00	5,372.15	26.41	22.99	73.03	58.84	1,089.15	1,149.58	1,105.57	44.01	26.124		
7,200.00	5,606.00	5,479.74	5,352.73	27.39	22.95	71.71	64.61	1,089.17	1,222.81	1,178.43	44.37	27.557		
7,300.00	5,606.00	5,470.89	5,344.18	28.42	22.93	71.14	66.89	1,089.17	1,299.52	1,254.79	44.73	29.055		
7,400.00	5,606.00	5,450.00	5,323.85	29.49	22.89	69.79	71.71	1,089.18	1,379.26	1,334.28	44.99	30.660		
7,500.00	5,606.00	5,450.00	5,323.85	30.59	22.89	69.79	71.71	1,089.18	1,461.05	1,415.78	45.27	32.274		
7,600.00	5,606.00	5,450.00	5,323.85	31.72	22.89	69.79	71.71	1,089.18	1,544.99	1,499.47	45.51	33.947		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1904
<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-1904	<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	90.36	-7.15	1,139.43	1,139.86					
100.00	100.00	74.61	74.61	0.13	0.12	90.36	-7.20	1,139.27	1,139.30	1,139.05	0.25	4,551.693		
200.00	200.00	181.58	181.57	0.47	0.36	90.37	-7.44	1,138.46	1,138.55	1,137.72	0.83	1,368.319		
300.00	300.00	286.36	286.35	0.81	0.70	90.39	-7.71	1,137.10	1,137.25	1,135.74	1.52	749.380		
400.00	399.98	394.12	394.09	1.11	1.06	-66.59	-7.76	1,135.22	1,134.81	1,132.63	2.18	520.626		
500.00	499.84	506.60	506.53	1.41	1.44	-66.93	-8.18	1,132.18	1,130.04	1,127.17	2.87	394.026		
600.00	599.45	632.00	631.78	1.74	1.89	-67.49	-10.08	1,126.48	1,122.08	1,118.41	3.67	306.061		
700.00	698.70	751.70	751.18	2.07	2.33	-68.21	-13.73	1,118.83	1,111.03	1,106.57	4.46	248.989		
800.00	797.47	871.13	870.03	2.44	2.82	-69.09	-19.80	1,108.82	1,096.74	1,091.45	5.29	207.302		
900.00	895.64	995.48	993.22	2.84	3.39	-69.99	-30.40	1,095.82	1,079.20	1,072.99	6.21	173.844		
1,000.00	993.60	1,127.87	1,123.43	3.26	4.10	-70.49	-47.25	1,078.94	1,059.04	1,051.79	7.24	146.233		
1,100.00	1,091.56	1,233.36	1,226.22	3.69	4.75	-70.66	-64.80	1,062.95	1,036.22	1,028.08	8.14	127.293		
1,200.00	1,189.52	1,328.09	1,318.27	4.12	5.36	-70.75	-82.03	1,048.70	1,013.46	1,004.47	9.00	112.642		
1,300.00	1,287.48	1,438.86	1,425.43	4.56	6.14	-70.73	-104.18	1,031.49	990.10	980.07	10.04	98.624		
1,400.00	1,385.44	1,526.70	1,510.19	5.00	6.75	-70.65	-122.67	1,017.77	966.60	955.69	10.91	88.558		
1,500.00	1,483.40	1,616.73	1,597.38	5.45	7.26	-70.62	-140.81	1,004.58	944.10	932.35	11.75	80.338		
1,600.00	1,581.36	1,713.64	1,691.48	5.90	7.83	-70.66	-159.29	990.58	921.88	909.23	12.65	72.871		
1,700.00	1,679.32	1,807.66	1,782.67	6.34	8.46	-70.65	-177.84	977.24	899.87	886.28	13.60	66.186		
1,800.00	1,777.28	1,900.89	1,873.03	6.79	9.10	-70.59	-196.94	964.50	878.33	863.77	14.56	60.313		
1,900.00	1,875.24	1,996.67	1,965.92	7.25	9.72	-70.54	-216.48	951.67	857.07	841.54	15.53	55.181		
2,000.00	1,973.21	2,091.37	2,057.77	7.70	10.36	-70.46	-236.06	939.53	836.35	819.83	16.52	50.618		
2,100.00	2,071.17	2,206.15	2,169.06	8.15	11.15	-70.41	-259.14	923.51	814.54	796.91	17.62	46.218		
2,200.00	2,169.13	2,305.46	2,265.33	8.60	11.84	-70.45	-278.08	908.16	791.31	772.69	18.62	42.495		
2,300.00	2,267.09	2,414.19	2,370.83	9.06	12.60	-70.54	-298.25	891.32	768.15	748.49	19.65	39.084		
2,400.00	2,365.05	2,518.73	2,471.87	9.51	13.38	-70.61	-317.93	873.06	742.94	722.25	20.69	35.905		
2,500.00	2,463.01	2,618.10	2,567.79	9.97	14.15	-70.66	-336.83	855.27	717.33	695.61	21.72	33.027		
2,600.00	2,560.97	2,698.08	2,645.11	10.42	14.74	-70.70	-352.14	841.70	692.62	669.95	22.67	30.551		
2,700.00	2,658.93	2,790.67	2,734.87	10.88	15.39	-70.73	-370.02	827.67	669.68	646.02	23.66	28.308		
2,800.00	2,756.89	2,886.73	2,828.04	11.33	16.05	-70.78	-388.45	813.33	646.98	622.33	24.65	26.246		
2,900.00	2,854.85	2,981.29	2,919.88	11.79	16.70	-70.85	-406.24	799.49	624.58	598.95	25.63	24.365		
3,000.00	2,952.81	3,082.00	3,017.64	12.24	17.41	-70.93	-425.30	784.62	602.05	575.40	26.65	22.590		
3,100.00	3,050.77	3,175.84	3,108.68	12.70	18.09	-70.98	-443.32	770.77	579.52	551.86	27.66	20.951		
3,200.00	3,148.73	3,275.13	3,205.21	13.15	18.77	-71.13	-461.59	756.37	557.29	528.63	28.65	19.450		
3,300.00	3,246.69	3,373.43	3,300.45	13.61	19.47	-71.12	-481.17	741.99	534.83	505.15	29.68	18.018		
3,400.00	3,344.66	3,472.31	3,395.99	14.07	20.22	-70.96	-502.12	727.43	512.20	481.43	30.77	16.648		
3,500.00	3,442.62	3,572.74	3,492.81	14.52	21.00	-70.71	-524.01	712.21	489.11	457.24	31.87	15.346		
3,600.00	3,540.58	3,669.47	3,586.03	14.98	21.74	-70.47	-544.91	697.02	465.50	432.53	32.97	14.121		
3,700.00	3,638.54	3,761.40	3,675.12	15.44	22.41	-70.45	-563.05	683.40	442.87	408.86	34.01	13.022		
3,800.00	3,736.50	3,855.23	3,766.20	15.89	23.06	-70.44	-581.40	670.32	421.11	386.08	35.03	12.020		
3,900.00	3,834.46	3,956.18	3,864.45	16.35	23.75	-70.56	-600.30	656.85	400.01	363.98	36.03	11.103		
4,000.00	3,932.42	4,059.88	3,965.18	16.81	24.48	-70.84	-618.89	640.71	376.72	339.75	36.97	10.189		
4,100.00	4,030.38	4,158.61	4,061.04	17.26	25.18	-71.20	-636.30	624.76	352.91	314.99	37.92	9.306		
4,200.00	4,128.34	4,255.26	4,154.72	17.72	25.88	-71.48	-654.01	608.88	328.80	289.90	38.89	8.454		
4,300.00	4,226.30	4,346.53	4,243.28	18.18	26.53	-71.73	-670.95	594.74	305.60	265.69	39.91	7.657		
4,400.00	4,324.27	4,441.66	4,335.68	18.62	27.19	-71.78	-689.44	581.72	284.12	243.21	40.91	6.944		
4,500.00	4,422.66	4,535.99	4,427.79	18.90	27.79	-71.54	-705.60	569.36	264.09	222.37	41.73	6.329		
4,600.00	4,521.61	4,631.74	4,521.85	19.17	28.35	-71.25	-719.27	557.91	246.49	204.01	42.49	5.802		
4,700.00	4,621.00	4,723.27	4,612.23	19.42	28.83	-70.75	-730.25	548.50	231.84	188.59	43.26	5.360		
4,800.00	4,720.72	4,815.91	4,704.12	19.66	29.24	-69.85	-739.96	541.88	221.56	177.54	44.03	5.033		
4,900.00	4,820.63	4,911.11	4,798.84	19.88	29.61	-68.47	-748.43	537.41	215.09	170.28	44.81	4.800		
5,000.00	4,920.63	5,008.85	4,896.28	20.12	29.93	90.06	-755.22	534.22	211.45	165.83	45.62	4.635		
5,100.00	5,020.63	5,107.97	4,995.31	20.33	30.18	90.93	-758.40	531.54	208.76	162.55	46.21	4.517		

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-1904
<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-1904	<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		
5,177.62	5,098.21	5,180.82	5,068.14	20.50	30.32	91.72	-759.17	530.57	207.81	161.17	46.63	4.456	CC	
5,200.00	5,120.60	5,202.24	5,089.56	20.54	30.36	91.51	-759.30	530.60	207.81	161.12	46.70	4.450		
5,300.00	5,219.10	5,301.11	5,188.43	20.68	30.52	95.88	-759.71	531.06	209.39	161.80	47.59	4.400		
5,400.00	5,312.68	5,411.91	5,297.62	20.73	30.43	101.65	-742.72	530.26	211.80	163.93	47.87	4.425		
5,500.00	5,397.89	5,515.25	5,394.41	20.70	30.03	106.63	-707.00	528.02	214.47	167.05	47.42	4.523		
5,600.00	5,471.61	5,619.63	5,485.20	20.63	29.34	111.46	-655.68	529.42	223.26	177.05	46.21	4.832		
5,700.00	5,531.14	5,745.57	5,581.86	20.52	28.35	117.59	-575.43	527.30	231.54	188.59	42.95	5.391		
5,800.00	5,574.27	5,860.17	5,653.97	20.42	27.31	122.25	-486.60	526.79	243.14	203.33	39.81	6.107		
5,900.00	5,599.44	5,998.82	5,715.32	20.33	26.06	126.84	-362.69	525.41	254.10	218.57	35.52	7.153		
6,000.00	5,606.00	6,120.01	5,745.33	20.29	25.15	129.96	-245.45	525.43	265.83	232.52	33.31	7.981		
6,100.00	5,606.00	6,247.55	5,752.64	20.34	24.60	131.00	-118.27	526.51	269.85	236.60	33.26	8.115		
6,200.00	5,606.00	6,346.52	5,753.78	20.50	24.58	131.20	-19.31	526.41	270.53	236.93	33.60	8.051		
6,300.00	5,606.00	6,453.62	5,755.22	20.79	25.00	131.67	87.76	524.67	270.20	235.69	34.51	7.830		
6,400.00	5,606.00	6,555.20	5,753.72	21.19	25.72	131.66	189.31	523.04	268.02	232.18	35.84	7.479		
6,500.00	5,606.00	6,651.17	5,752.10	21.70	26.57	131.50	285.27	522.34	266.36	229.31	37.05	7.189		
6,531.28	5,606.00	6,680.43	5,751.81	21.88	26.85	131.44	314.52	522.44	266.24	228.82	37.42	7.115		
6,600.00	5,606.00	6,745.34	5,751.66	22.30	27.51	131.30	379.42	523.25	266.77	228.47	38.30	6.965		
6,700.00	5,606.00	6,843.75	5,753.02	22.99	28.66	131.31	477.81	524.72	268.80	228.83	39.96	6.726		
6,800.00	5,606.00	6,943.42	5,753.93	23.75	30.05	131.21	577.47	526.49	270.74	228.71	42.03	6.442		
6,900.00	5,606.00	7,047.45	5,754.47	24.58	31.67	131.04	681.47	528.30	272.40	227.86	44.54	6.115		
7,000.00	5,606.00	7,148.41	5,755.26	25.47	33.35	131.20	782.43	528.10	272.77	225.94	46.83	5.825		
7,095.54	5,606.00	7,244.87	5,755.19	26.36	35.12	131.19	878.89	528.09	272.71	223.48	49.24	5.539		
7,100.00	5,606.00	7,248.90	5,755.16	26.41	35.19	131.18	882.91	528.12	272.71	223.39	49.32	5.529		
7,200.00	5,606.00	7,340.64	5,756.38	27.39	36.90	131.20	974.64	529.33	274.56	223.35	51.21	5.361		
7,300.00	5,606.00	7,442.51	5,760.44	28.42	38.84	131.74	1,076.42	530.05	277.74	224.11	53.63	5.179		
7,400.00	5,606.00	7,548.63	5,763.56	29.49	41.07	132.39	1,182.48	528.78	278.80	222.39	56.41	4.942		
7,500.00	5,606.00	7,647.26	5,766.07	30.59	43.22	133.05	1,281.06	526.79	279.05	220.38	58.67	4.756		
7,600.00	5,606.00	7,744.99	5,768.62	31.72	45.32	133.52	1,378.75	526.11	280.33	219.41	60.93	4.601		
7,700.00	5,606.00	7,848.65	5,770.84	32.88	47.64	133.92	1,482.39	525.61	281.47	217.76	63.71	4.418		
7,800.00	5,606.00	7,951.72	5,771.59	34.06	50.06	134.19	1,585.45	524.46	281.17	214.57	66.60	4.222		
7,900.00	5,606.00	8,051.12	5,770.74	35.26	52.41	134.10	1,684.83	524.21	280.40	210.93	69.46	4.037		
7,947.63	5,606.00	8,097.16	5,770.23	35.84	53.48	133.98	1,730.87	524.51	280.26	209.48	70.78	3.960		
8,000.00	5,606.00	8,148.86	5,770.09	36.48	54.69	133.92	1,782.58	524.80	280.37	208.11	72.26	3.880		
8,100.00	5,606.00	8,250.27	5,770.59	37.72	57.10	134.05	1,883.98	524.41	280.43	205.27	75.16	3.731		
8,200.00	5,606.00	8,351.23	5,770.12	38.98	59.60	134.03	1,984.94	524.07	279.87	201.68	78.19	3.579		
8,300.00	5,606.00	8,450.16	5,770.88	40.25	62.05	134.34	2,083.85	522.71	279.42	198.60	80.82	3.457		
8,337.39	5,606.00	8,486.94	5,771.08	40.73	62.96	134.40	2,120.63	522.46	279.37	197.55	81.82	3.415		
8,400.00	5,606.00	8,548.21	5,771.48	41.53	64.44	134.49	2,181.90	522.27	279.52	196.06	83.47	3.349		
8,500.00	5,606.00	8,648.69	5,771.86	42.82	66.91	134.50	2,282.38	522.59	280.01	193.58	86.44	3.240		
8,600.00	5,606.00	8,748.02	5,771.52	44.13	69.37	134.32	2,381.70	523.46	280.41	190.90	89.51	3.133		
8,700.00	5,606.00	8,848.16	5,771.29	45.45	71.85	134.16	2,481.84	524.40	280.92	188.27	92.65	3.032		
8,800.00	5,606.00	8,946.29	5,771.14	46.77	74.30	133.95	2,579.96	525.73	281.79	186.07	95.72	2.944		
8,900.00	5,606.00	9,047.75	5,771.19	48.11	76.83	133.74	2,681.41	527.23	282.89	183.84	99.05	2.856		
9,000.00	5,606.00	9,152.71	5,769.94	49.45	79.49	133.50	2,786.36	527.67	282.36	179.63	102.73	2.749		
9,100.00	5,606.00	9,250.92	5,769.74	50.80	82.01	133.62	2,884.56	526.58	281.41	175.88	105.53	2.667		
9,133.30	5,606.00	9,282.91	5,769.31	51.25	82.84	133.51	2,916.54	526.89	281.34	174.76	106.58	2.640		
9,200.00	5,606.00	9,347.77	5,768.19	52.15	84.52	133.15	2,981.38	528.29	281.59	172.68	108.91	2.585		
9,300.00	5,606.00	9,446.84	5,769.88	53.51	87.10	133.45	3,080.43	527.95	282.51	170.91	111.60	2.531		
9,400.00	5,606.00	9,550.09	5,772.35	54.88	89.78	134.01	3,183.64	526.51	283.17	168.90	114.27	2.478		
9,500.00	5,606.00	9,654.85	5,772.84	56.25	92.52	134.36	3,288.37	524.56	282.16	164.89	117.26	2.406		
9,600.00	5,606.00	9,750.79	5,771.23	57.63	95.01	134.16	3,384.30	524.31	280.81	160.51	120.30	2.334		
9,618.75	5,606.00	9,768.49	5,771.01	57.89	95.46	134.10	3,401.99	524.48	280.78	159.91	120.87	2.323		

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-1904
<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-1904	<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		
9,700.00	5,606.00	9,845.45	5,770.28	59.01	97.38	133.78	3,478.93	526.00	281.40	157.98	123.42	2.280		
9,800.00	5,606.00	9,947.62	5,769.78	60.40	99.97	133.39	3,581.08	528.30	282.70	155.49	127.20	2.222		
9,900.00	5,606.00	10,039.00	5,769.45	61.79	102.31	132.89	3,672.39	531.51	285.01	154.75	130.26	2.188		
10,000.00	5,606.00	10,146.52	5,769.52	63.18	105.07	132.40	3,779.84	535.26	287.63	152.88	134.74	2.135		
10,100.00	5,606.00	10,255.49	5,768.83	64.58	107.94	132.32	3,888.80	535.05	287.04	148.35	138.69	2.070		
10,200.00	5,606.00	10,354.67	5,768.71	65.98	110.59	132.62	3,987.94	532.75	285.25	143.85	141.40	2.017		
10,300.00	5,606.00	10,455.18	5,770.98	67.38	113.29	133.56	4,088.33	528.29	283.55	140.39	143.17	1.981		
10,400.00	5,606.00	10,553.45	5,773.73	68.79	115.95	134.66	4,186.43	523.38	281.91	137.46	144.45	1.952		
10,469.80	5,606.00	10,620.08	5,774.37	69.77	117.74	134.93	4,253.04	522.14	281.46	135.51	145.96	1.928		
10,500.00	5,606.00	10,648.73	5,774.09	70.20	118.50	134.83	4,281.69	522.54	281.55	134.61	146.94	1.916		
10,600.00	5,606.00	10,746.96	5,774.39	71.61	121.11	134.71	4,379.91	523.66	282.57	132.46	150.11	1.882		
10,700.00	5,606.00	10,850.76	5,773.99	73.02	123.85	134.46	4,483.69	525.06	283.27	129.30	153.97	1.840		
10,800.00	5,606.00	10,951.54	5,772.74	74.44	126.51	134.18	4,584.47	525.74	282.88	125.25	157.64	1.795		
10,900.00	5,606.00	11,051.38	5,771.26	75.86	129.19	133.85	4,684.30	526.54	282.44	121.06	161.38	1.750		
10,920.88	5,606.00	11,071.21	5,770.93	76.15	129.72	133.76	4,704.12	526.81	282.40	120.28	162.12	1.742		
11,000.00	5,606.00	11,146.45	5,768.95	77.28	131.72	133.10	4,779.28	529.44	282.97	117.46	165.51	1.710		
11,100.00	5,606.00	11,244.88	5,768.58	78.70	134.33	132.67	4,877.66	532.23	284.79	115.41	169.38	1.681		
11,200.00	5,606.00	11,348.61	5,768.89	80.12	137.10	132.50	4,981.37	533.77	286.09	112.87	173.22	1.652		
11,300.00	5,606.00	11,450.21	5,769.66	81.55	139.81	132.68	5,082.97	533.29	286.25	110.03	176.21	1.624		
11,400.00	5,606.00	11,550.74	5,770.72	82.97	142.45	132.93	5,183.49	532.62	286.49	107.54	178.95	1.601		
11,500.00	5,606.00	11,653.93	5,771.24	84.40	145.17	133.20	5,286.67	531.19	285.81	104.00	181.81	1.572		
11,600.00	5,606.00	11,754.14	5,772.34	85.83	147.89	133.77	5,386.83	528.24	284.42	100.56	183.86	1.547		
11,700.00	5,606.00	11,857.06	5,772.67	87.26	150.69	134.18	5,489.71	525.65	282.85	96.46	186.38	1.518		
11,800.00	5,606.00	11,953.73	5,773.23	88.70	153.28	134.71	5,586.33	522.50	280.93	92.76	188.17	1.493 Level 3		
11,900.00	5,606.00	12,051.44	5,773.04	90.13	155.89	134.83	5,684.02	521.46	280.04	89.18	190.87	1.467 Level 3		
12,000.00	5,606.00	12,153.46	5,771.34	91.57	158.64	134.50	5,786.02	522.08	279.31	84.38	194.93	1.433 Level 3		
12,100.00	5,606.00	12,257.76	5,768.30	93.00	161.47	134.01	5,890.26	522.33	277.44	77.95	199.49	1.391 Level 3		
12,200.00	5,606.00	12,358.56	5,764.35	94.44	164.21	133.41	5,990.98	522.42	274.79	70.65	204.14	1.346 Level 3		
12,300.00	5,606.00	12,459.69	5,760.99	95.88	166.96	133.05	6,092.05	521.35	271.74	63.48	208.27	1.305 Level 3		
12,400.00	5,606.00	12,558.41	5,758.59	97.32	169.62	132.98	6,190.72	519.21	268.50	56.94	211.56	1.269 Level 3		
12,500.00	5,606.00	12,654.76	5,757.05	98.76	172.12	132.93	6,287.05	517.95	266.45	51.83	214.62	1.241 Level 2		
12,600.00	5,606.00	12,754.91	5,755.77	100.20	174.71	132.79	6,387.20	517.52	265.27	47.15	218.13	1.216 Level 2		
12,694.39	5,606.00	12,845.36	5,754.72	101.56	177.08	132.71	6,477.63	516.91	264.08	43.06	221.02	1.195 Level 2		
12,700.00	5,606.00	12,850.46	5,754.68	101.64	177.21	132.70	6,482.74	516.95	264.09	42.90	221.19	1.194 Level 2		
12,800.00	5,606.00	12,946.86	5,754.52	103.08	179.74	132.40	6,579.11	518.79	265.36	40.56	224.80	1.180 Level 2		
12,900.00	5,606.00	13,045.54	5,755.30	104.53	182.35	132.29	6,677.77	520.40	267.10	38.92	228.18	1.171 Level 2		
13,000.00	5,606.00	13,145.70	5,756.67	105.97	184.97	132.28	6,777.91	521.99	269.20	37.77	231.43	1.163 Level 2		
13,100.00	5,606.00	13,243.08	5,758.03	107.42	187.49	132.23	6,875.27	523.87	271.57	37.07	234.50	1.158 Level 2		
13,200.00	5,606.00	13,344.60	5,759.28	108.86	190.12	132.05	6,976.74	526.49	274.31	36.00	238.30	1.151 Level 2		
13,300.00	5,606.00	13,450.35	5,760.47	110.31	192.93	132.16	7,082.48	527.06	275.45	33.67	241.78	1.139 Level 2		
13,400.00	5,606.00	13,551.23	5,762.43	111.76	195.66	132.64	7,183.34	525.79	275.84	32.03	243.80	1.131 Level 2		
13,500.00	5,606.00	13,656.59	5,763.58	113.21	198.47	133.21	7,288.64	522.98	274.61	28.81	245.80	1.117 Level 2		
13,600.00	5,606.00	13,760.96	5,764.02	114.65	201.26	133.86	7,392.93	518.90	272.08	24.70	247.38	1.100 Level 2		
13,700.00	5,606.00	13,863.16	5,765.03	116.10	204.05	135.08	7,494.87	511.77	267.78	20.65	247.13	1.084 Level 2		
13,732.32	5,606.00	13,895.20	5,765.32	116.52	204.93	135.47	7,526.83	509.53	266.39	19.46	246.94	1.079 Level 2, ES, SF		



# WOG

## Anticollision Report

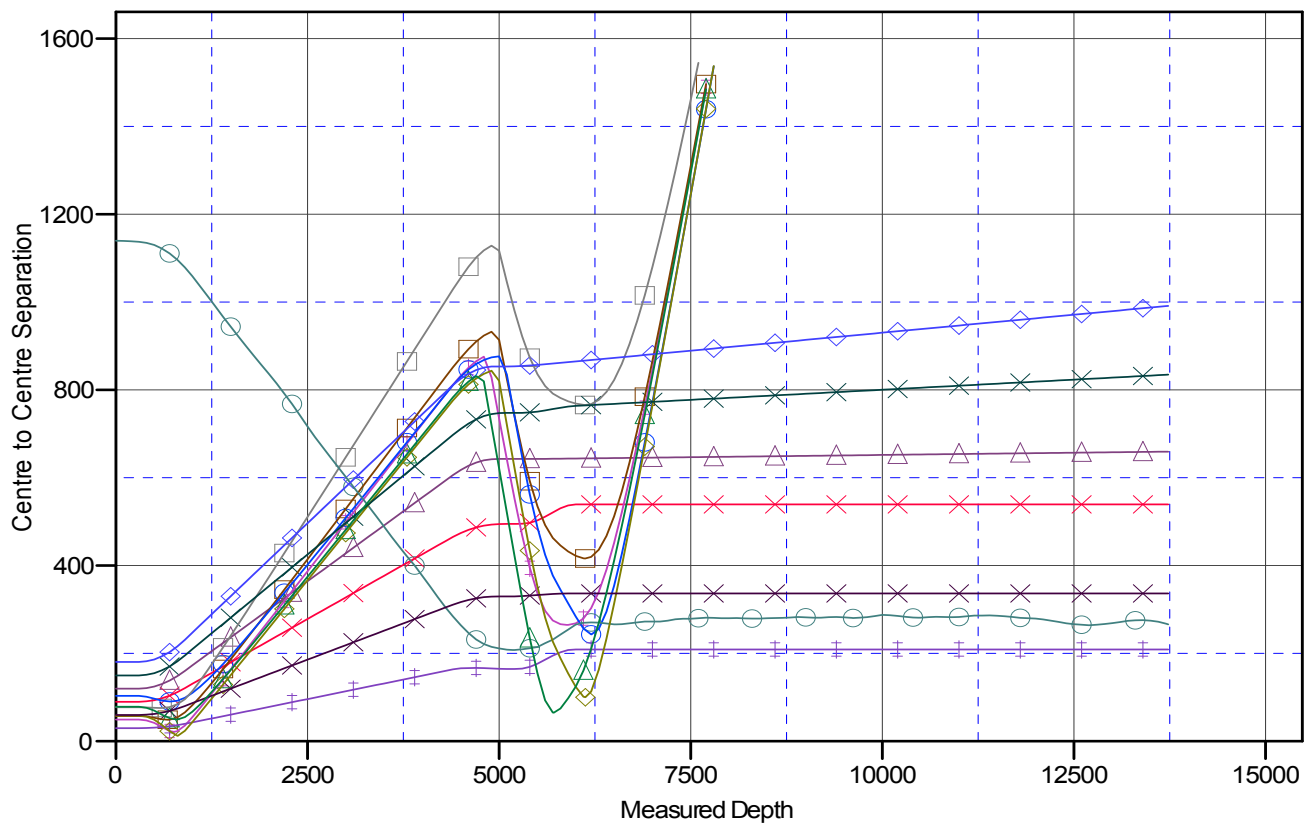
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1904  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1904  
**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' 0.00W

Coordinates are relative to: Horsetail #30E-1904  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Ladder Plot



### LEGEND

- |  |                                  |                                  |
|--|----------------------------------|----------------------------------|
| ✕ Horsetail #30E-1935, Hz, APDV0         | ⊠ Horsetail #30E-3138, Hz, APDV0 | ✕ Horsetail #30E-1903, Hz, APDV0 |
| △ Horsetail #30E-1902, Hz, APDV0         | ⊕ Horsetail #30E-1936, Hz, APDV0 | ✕ Horsetail #30E-1934, Hz, APDV0 |
| ⊕ Horsetail #30E-3104, Hz, APDV0         | ⊖ Horsetail #30F-1941, Hz, HzV0  | △ Horsetail #30E-3103, Hz, APDV0 |
| ⊠ Horsetail #30E-3137 Dropped, Hz, APDV0 | ⊖ Horsetail #30E-3136, Hz, APDV0 |                                  |
| ⊖ Horsetail #30E-3135, Hz, APDV0         | ⊖ Horsetail #30E-1901, Hz, APDV0 |                                  |





**WOG**  
Anticollision Report

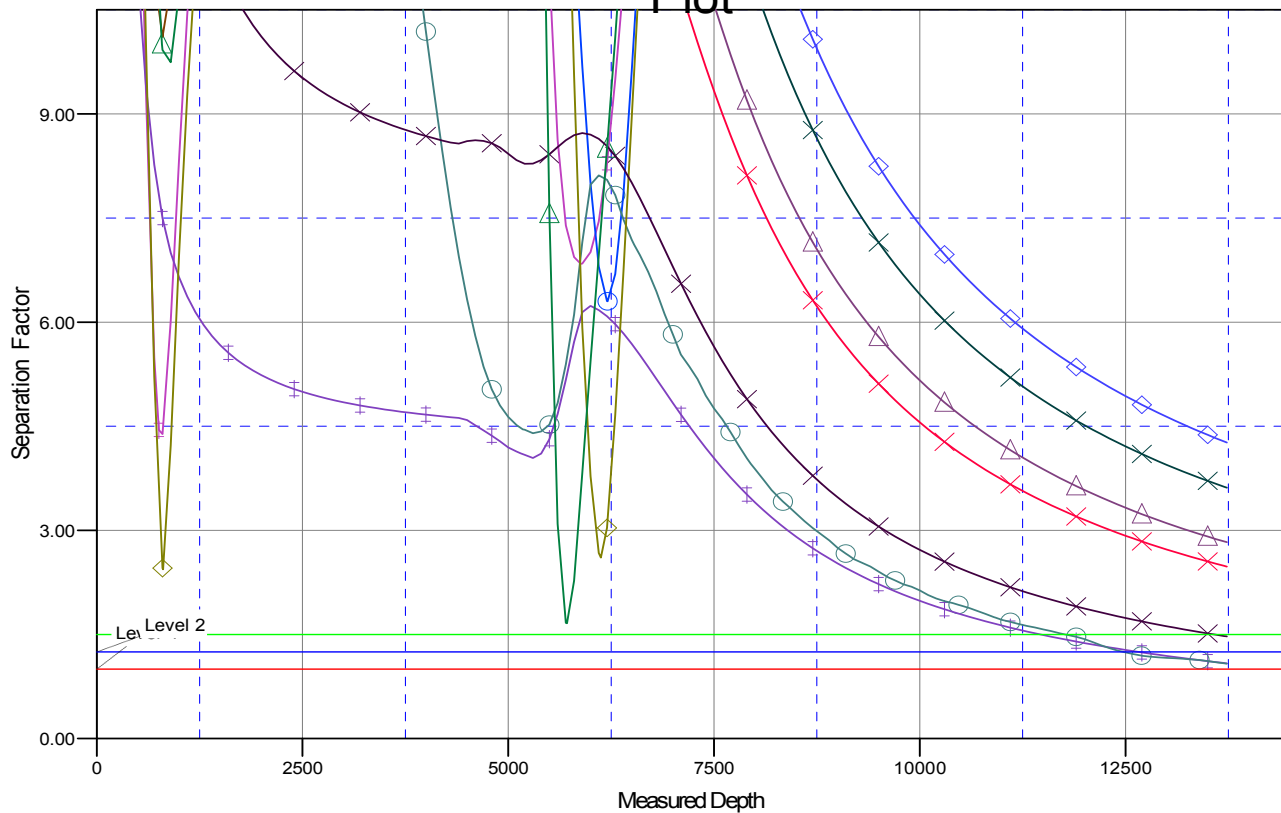
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1904  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1904  
**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-1904  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

## Separation Factor Plot



### LEGEND

- |   |                                   |                                   |
|---|-----------------------------------|-----------------------------------|
| ✕ Horsetail #30E-1935, Hz, APD V0         | ▣ Horsetail #30E-3138, Hz, APD V0 | ✕ Horsetail #30E-1903, Hz, APD V0 |
| ▴ Horsetail #30E-1902, Hz, APD V0         | ✚ Horsetail #30E-1936, Hz, APD V0 | ✕ Horsetail #30E-1934, Hz, APD V0 |
| ✚ Horsetail #30E-3104, Hz, APD V0         | ○ Horsetail #30F-1941, Hz, Hz V0  | ▴ Horsetail #30E-3103, Hz, APD V0 |
| ▣ Horsetail #30E-3137 Dropped, Hz, APD V0 | ◇ Horsetail #30E-3136, Hz, APD V0 |                                   |
| ○ Horsetail #30E-3135, Hz, APD V0         | ◇ Horsetail #30E-1901, Hz, APD V0 |                                   |