



# **Whiting Petroleum Corp.**

**Weld County, CO**

**Sec 30-T10N-R57W**

**Horsetail #30E-1935**

**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-1935
<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-1935	<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	13,926.28	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	90.74	89.12	56.185	CC
Horsetail #30E-1901 - Hz - APD	400.00	398.68	91.27	89.05	41.112	ES
Horsetail #30E-1901 - Hz - APD	13,926.28	13,655.05	569.03	361.18	2.738	SF
Horsetail #30E-1902 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-1902 - Hz - APD	400.00	399.73	30.25	28.03	13.659	ES
Horsetail #30E-1902 - Hz - APD	13,926.28	13,719.41	269.92	110.87	1.697	SF
Horsetail #30E-1903 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-1903 - Hz - APD	400.00	399.93	30.30	28.09	13.708	ES
Horsetail #30E-1903 - Hz - APD	13,926.28	13,650.75	326.86	185.50	2.312	SF
Horsetail #30E-1904 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC, ES
Horsetail #30E-1904 - Hz - APD	13,926.28	13,732.32	539.33	321.72	2.478	SF
Horsetail #30E-1934 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-1934 - Hz - APD	400.00	399.28	60.38	58.17	27.234	ES
Horsetail #30E-1934 - Hz - APD	13,926.28	13,847.97	340.54	113.10	1.497	Level 3, SF
Horsetail #30E-1936 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC, ES
Horsetail #30E-1936 - Hz - APD	13,926.28	13,849.49	341.30	113.68	1.499	Level 3, SF
Horsetail #30E-3103 - Hz - APD	602.27	599.77	52.62	49.05	14.749	CC, ES
Horsetail #30E-3103 - Hz - APD	5,610.64	6,109.52	429.92	388.76	10.444	SF
Horsetail #30E-3104 - Hz - APD	300.00	300.00	102.06	100.45	63.199	CC
Horsetail #30E-3104 - Hz - APD	400.00	397.35	102.68	100.42	45.363	ES
Horsetail #30E-3104 - Hz - APD	5,690.65	6,161.79	759.90	718.73	18.457	SF
Horsetail #30E-3135 - Hz - APD	741.39	739.58	17.16	12.68	3.827	CC, ES, SF
Horsetail #30E-3136 - Hz - APD	345.92	345.24	77.23	75.33	40.550	CC
Horsetail #30E-3136 - Hz - APD	400.00	398.46	77.27	75.01	34.284	ES
Horsetail #30E-3136 - Hz - APD	5,800.00	6,200.34	597.23	556.49	14.662	SF
Horsetail #30E-3137 Dropped - Hz - APD	300.00	300.00	129.09	127.48	79.935	CC, ES
Horsetail #30E-3137 Dropped - Hz - APD	5,800.00	6,232.57	912.61	871.71	22.313	SF
Horsetail #30E-3138 - Hz - APD	300.00	300.00	157.20	155.59	97.344	CC, ES
Horsetail #30E-3138 - Hz - APD	5,800.00	6,300.77	1,260.81	1,219.72	30.684	SF



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<b>Project:</b>	Weld County, CO	<b>TVD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Reference Site:</b>	Sec 30-T10N-R57W	<b>MD Reference:</b>	KBE @ 4827.40usft (Original Well Elev)
<b>Site Error:</b>	0.00 usft	<b>North Reference:</b>	True
<b>Reference Well:</b>	Horsetail #30E-1935	<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						
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-90.74	90.74					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-90.74	90.74	90.47	0.27	340.669		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-90.74	90.74	89.80	0.94	96.462		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-90.74	90.74	89.12	1.61	56.185 CC		
400.00	399.98	398.68	398.66	1.11	1.11	83.85	-1.54	-91.46	91.27	89.05	2.22	41.112 ES		
500.00	499.84	497.33	497.18	1.41	1.41	84.13	-6.15	-93.61	92.89	90.07	2.82	32.981		
600.00	599.45	595.96	595.43	1.73	1.72	84.59	-13.84	-97.20	95.59	92.12	3.47	27.557		
700.00	698.70	694.53	693.28	2.06	2.05	85.17	-24.57	-102.21	99.37	95.20	4.17	23.846		
800.00	797.47	793.03	790.60	2.42	2.41	85.86	-38.35	-108.63	104.24	99.33	4.91	21.227		
900.00	895.96	891.43	887.24	2.82	2.80	85.80	-55.12	-116.46	110.31	104.61	5.70	19.349		
1,000.00	994.45	991.11	984.77	3.22	3.22	84.90	-73.79	-125.17	117.13	110.63	6.50	18.022		
1,100.00	1,092.94	1,090.87	1,082.37	3.63	3.65	84.10	-92.47	-133.89	123.97	116.66	7.31	16.955		
1,200.00	1,191.43	1,190.62	1,179.97	4.04	4.09	83.38	-111.15	-142.61	130.84	122.70	8.13	16.086		
1,300.00	1,289.92	1,290.37	1,277.56	4.46	4.53	82.73	-129.83	-151.32	137.72	128.76	8.96	15.364		
1,400.00	1,388.41	1,390.12	1,375.16	4.88	4.98	82.15	-148.51	-160.04	144.62	134.82	9.80	14.759		
1,500.00	1,486.90	1,489.87	1,472.76	5.30	5.43	81.62	-167.19	-168.76	151.53	140.90	10.64	14.246		
1,600.00	1,585.39	1,589.62	1,570.36	5.72	5.88	81.13	-185.87	-177.48	158.46	146.98	11.48	13.805		
1,700.00	1,683.88	1,689.37	1,667.96	6.15	6.33	80.68	-204.55	-186.19	165.39	153.07	12.32	13.423		
1,800.00	1,782.38	1,789.12	1,765.56	6.57	6.78	80.27	-223.23	-194.91	172.34	159.17	13.17	13.090		
1,900.00	1,880.87	1,888.88	1,863.15	7.00	7.24	79.90	-241.91	-203.63	179.29	165.28	14.01	12.796		
2,000.00	1,979.36	1,988.63	1,960.75	7.42	7.69	79.55	-260.59	-212.35	186.25	171.39	14.86	12.535		
2,100.00	2,077.85	2,088.38	2,058.35	7.85	8.15	79.22	-279.27	-221.06	193.22	177.51	15.71	12.303		
2,200.00	2,176.34	2,188.13	2,155.95	8.28	8.61	78.92	-297.95	-229.78	200.19	183.63	16.55	12.094		
2,300.00	2,274.83	2,287.88	2,253.55	8.70	9.06	78.64	-316.63	-238.50	207.16	189.76	17.40	11.905		
2,400.00	2,373.32	2,387.63	2,351.14	9.13	9.52	78.38	-335.31	-247.22	214.15	195.90	18.25	11.734		
2,500.00	2,471.81	2,487.38	2,448.74	9.56	9.98	78.13	-353.99	-255.93	221.13	202.03	19.10	11.579		
2,600.00	2,570.30	2,587.14	2,546.34	9.99	10.44	77.90	-372.67	-264.65	228.12	208.17	19.95	11.436		
2,700.00	2,668.79	2,686.89	2,643.94	10.42	10.90	77.68	-391.35	-273.37	235.11	214.32	20.80	11.306		
2,800.00	2,767.29	2,786.64	2,741.54	10.85	11.36	77.48	-410.03	-282.09	242.11	220.46	21.65	11.185		
2,900.00	2,865.78	2,886.39	2,839.13	11.28	11.82	77.28	-428.71	-290.80	249.11	226.61	22.49	11.074		
3,000.00	2,964.27	2,986.14	2,936.73	11.71	12.28	77.10	-447.39	-299.52	256.11	232.77	23.34	10.971		
3,100.00	3,062.76	3,085.89	3,034.33	12.14	12.74	76.93	-466.07	-308.24	263.11	238.92	24.19	10.876		
3,200.00	3,161.25	3,185.64	3,131.93	12.57	13.20	76.76	-484.75	-316.96	270.12	245.08	25.04	10.787		
3,300.00	3,259.74	3,285.39	3,229.53	13.00	13.66	76.61	-503.43	-325.67	277.13	251.24	25.89	10.704		
3,400.00	3,358.23	3,385.15	3,327.12	13.43	14.12	76.46	-522.11	-334.39	284.14	257.40	26.74	10.626		
3,500.00	3,456.72	3,484.90	3,424.72	13.86	14.58	76.32	-540.79	-343.11	291.15	263.56	27.59	10.553		
3,600.00	3,555.21	3,584.65	3,522.32	14.29	15.04	76.18	-559.47	-351.83	298.17	269.73	28.44	10.484		
3,700.00	3,653.70	3,684.40	3,619.92	14.72	15.50	76.06	-578.15	-360.54	305.18	275.89	29.29	10.420		
3,800.00	3,752.20	3,784.15	3,717.52	15.15	15.96	75.93	-596.83	-369.26	312.20	282.06	30.14	10.359		
3,900.00	3,850.69	3,883.90	3,815.12	15.58	16.42	75.82	-615.51	-377.98	319.22	288.23	30.99	10.302		
4,000.00	3,949.18	3,983.65	3,912.71	16.01	16.88	75.70	-634.19	-386.70	326.24	294.40	31.84	10.247		
4,100.00	4,047.67	4,083.41	4,010.31	16.44	17.34	75.60	-652.87	-395.41	333.26	300.57	32.69	10.196		
4,200.00	4,146.16	4,183.16	4,107.91	16.87	17.80	75.49	-671.55	-404.13	340.28	306.74	33.53	10.147		
4,300.00	4,244.65	4,282.91	4,205.51	17.30	18.26	75.40	-690.23	-412.85	347.30	312.92	34.38	10.101		
4,400.00	4,343.14	4,388.43	4,309.00	17.73	18.67	75.47	-708.85	-421.54	353.67	318.46	35.22	10.043		
4,500.00	4,441.63	4,495.46	4,414.67	18.16	18.96	76.06	-724.27	-428.73	358.08	322.08	35.99	9.949		
4,600.00	4,540.12	4,602.30	4,520.70	18.59	19.24	77.18	-736.07	-434.24	360.55	323.78	36.77	9.805		
4,700.00	4,638.65	4,708.68	4,626.69	18.99	19.49	78.78	-744.26	-438.06	361.33	323.80	37.53	9.627		
4,800.00	4,737.61	4,814.68	4,732.57	19.25	19.73	80.45	-748.87	-440.21	361.08	322.94	38.14	9.468		
4,900.00	4,837.01	4,919.14	4,837.01	19.50	19.98		-749.99	-440.74	359.96	321.23	38.73	9.293		
5,000.00	4,936.74	5,018.86	4,936.74	19.74	20.21	83.19	-749.99	-440.74	359.01	319.72	39.28	9.139		
5,100.00	5,036.65	5,118.54	5,036.41	19.96	20.41	83.86	-749.63	-440.75	358.57	318.81	39.76	9.019		

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



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<b>Reference Well:</b>	Horsetail #30E-1935	<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		
5,121.10	5,057.75	5,139.28	5,057.11	20.02	20.45	84.11	-748.45	-440.76	358.55	318.69	39.86	8.994		
5,200.00	5,136.65	5,215.25	5,132.16	20.21	20.56	-87.78	-737.11	-440.95	359.00	318.72	40.27	8.914		
5,300.00	5,236.65	5,304.55	5,217.15	20.42	20.62	-83.49	-710.02	-441.40	362.00	321.31	40.70	8.895		
5,400.00	5,336.62	5,383.36	5,287.35	20.63	20.62	-77.67	-674.37	-441.98	370.81	330.06	40.74	9.101		
5,500.00	5,435.05	5,456.96	5,347.36	20.77	20.58	-71.52	-631.88	-442.68	384.46	344.30	40.15	9.574		
5,600.00	5,528.49	5,527.78	5,398.91	20.83	20.52	-66.15	-583.40	-443.48	400.44	361.40	39.04	10.258		
5,700.00	5,613.50	5,600.00	5,444.21	20.81	20.44	-61.53	-527.24	-444.40	416.85	379.18	37.68	11.064		
5,800.00	5,686.96	5,663.85	5,477.46	20.76	20.36	-58.09	-472.79	-445.29	432.10	395.98	36.12	11.964		
5,900.00	5,746.18	5,730.07	5,504.64	20.70	20.27	-55.43	-412.47	-446.29	445.04	410.26	34.79	12.793		
6,000.00	5,788.96	5,800.00	5,524.80	20.64	20.19	-53.58	-345.57	-447.38	454.86	421.00	33.86	13.434		
6,100.00	5,813.76	5,860.61	5,534.90	20.63	20.13	-52.66	-285.85	-448.37	460.88	427.54	33.34	13.823		
6,200.00	5,820.00	5,929.81	5,538.00	20.68	20.09	-52.48	-216.77	-449.50	463.07	429.64	33.43	13.853		
6,300.00	5,820.00	6,029.79	5,538.00	20.82	20.11	-52.60	-116.80	-451.14	464.37	430.57	33.80	13.739		
6,400.00	5,820.00	6,129.78	5,538.00	21.07	20.24	-52.73	-16.83	-452.79	465.68	431.34	34.34	13.562		
6,500.00	5,820.00	6,229.77	5,538.00	21.41	20.49	-52.85	83.15	-454.43	466.99	431.95	35.04	13.328		
6,600.00	5,820.00	6,329.75	5,538.00	21.85	20.88	-52.97	183.12	-456.07	468.30	432.41	35.89	13.048		
6,700.00	5,820.00	6,429.74	5,538.00	22.38	21.38	-53.09	283.09	-457.71	469.61	432.72	36.89	12.731		
6,800.00	5,820.00	6,529.73	5,538.00	22.99	21.98	-53.21	383.07	-459.36	470.93	432.91	38.02	12.386		
6,900.00	5,820.00	6,629.71	5,538.00	23.68	22.68	-53.33	483.04	-461.00	472.24	432.97	39.28	12.024		
7,000.00	5,820.00	6,729.70	5,538.00	24.43	23.45	-53.45	583.01	-462.64	473.56	432.92	40.64	11.651		
7,100.00	5,820.00	6,829.69	5,538.00	25.26	24.29	-53.57	682.99	-464.29	474.88	432.77	42.12	11.275		
7,200.00	5,820.00	6,929.67	5,538.00	26.13	25.19	-53.68	782.96	-465.93	476.21	432.52	43.68	10.902		
7,300.00	5,820.00	7,029.66	5,538.00	27.06	26.14	-53.80	882.93	-467.57	477.53	432.20	45.33	10.534		
7,400.00	5,820.00	7,129.65	5,538.00	28.04	27.14	-53.92	982.90	-469.21	478.86	431.80	47.06	10.175		
7,500.00	5,820.00	7,229.63	5,538.00	29.06	28.18	-54.03	1,082.88	-470.86	480.19	431.33	48.86	9.828		
7,600.00	5,820.00	7,329.62	5,538.00	30.11	29.26	-54.15	1,182.85	-472.50	481.52	430.80	50.72	9.494		
7,700.00	5,820.00	7,429.60	5,538.00	31.20	30.37	-54.26	1,282.82	-474.14	482.85	430.21	52.64	9.174		
7,800.00	5,820.00	7,529.59	5,538.00	32.32	31.51	-54.38	1,382.80	-475.78	484.18	429.58	54.60	8.867		
7,900.00	5,820.00	7,629.58	5,538.00	33.47	32.68	-54.49	1,482.77	-477.43	485.52	428.90	56.62	8.575		
8,000.00	5,820.00	7,729.56	5,538.00	34.64	33.87	-54.60	1,582.74	-479.07	486.86	428.18	58.68	8.297		
8,100.00	5,820.00	7,829.55	5,538.00	35.83	35.08	-54.71	1,682.72	-480.71	488.20	427.42	60.78	8.033		
8,200.00	5,820.00	7,929.54	5,538.00	37.05	36.31	-54.82	1,782.69	-482.36	489.54	426.63	62.91	7.782		
8,300.00	5,820.00	8,029.52	5,538.00	38.28	37.56	-54.93	1,882.66	-484.00	490.89	425.81	65.08	7.543		
8,400.00	5,820.00	8,129.51	5,538.00	39.53	38.83	-55.04	1,982.63	-485.64	492.23	424.96	67.27	7.317		
8,500.00	5,820.00	8,229.50	5,538.00	40.79	40.11	-55.15	2,082.61	-487.28	493.58	424.08	69.50	7.102		
8,600.00	5,820.00	8,329.48	5,538.00	42.07	41.40	-55.26	2,182.58	-488.93	494.93	423.18	71.75	6.898		
8,700.00	5,820.00	8,429.47	5,538.00	43.36	42.70	-55.37	2,282.55	-490.57	496.28	422.26	74.02	6.705		
8,800.00	5,820.00	8,529.46	5,538.00	44.66	44.02	-55.48	2,382.53	-492.21	497.63	421.31	76.32	6.521		
8,900.00	5,820.00	8,629.44	5,538.00	45.97	45.34	-55.58	2,482.50	-493.85	498.99	420.35	78.63	6.346		
9,000.00	5,820.00	8,729.43	5,538.00	47.29	46.67	-55.69	2,582.47	-495.50	500.34	419.37	80.97	6.179		
9,100.00	5,820.00	8,829.42	5,538.00	48.62	48.01	-55.80	2,682.45	-497.14	501.70	418.38	83.32	6.021		
9,200.00	5,820.00	8,929.40	5,538.00	49.95	49.36	-55.90	2,782.42	-498.78	503.06	417.37	85.69	5.871		
9,300.00	5,820.00	9,029.39	5,538.00	51.30	50.72	-56.01	2,882.39	-500.42	504.42	416.34	88.08	5.727		
9,400.00	5,820.00	9,129.38	5,538.00	52.65	52.08	-56.11	2,982.37	-502.07	505.78	415.30	90.48	5.590		
9,500.00	5,820.00	9,229.36	5,538.00	54.01	53.45	-56.21	3,082.34	-503.71	507.15	414.25	92.90	5.459		
9,600.00	5,820.00	9,329.35	5,538.00	55.37	54.82	-56.32	3,182.31	-505.35	508.51	413.19	95.32	5.335		
9,700.00	5,820.00	9,429.33	5,538.00	56.74	56.20	-56.42	3,282.28	-507.00	509.88	412.12	97.77	5.215		
9,800.00	5,820.00	9,529.32	5,538.00	58.11	57.59	-56.52	3,382.26	-508.64	511.25	411.03	100.22	5.101		
9,900.00	5,820.00	9,629.31	5,538.00	59.49	58.97	-56.62	3,482.23	-510.28	512.62	409.94	102.68	4.992		
10,000.00	5,820.00	9,729.29	5,538.00	60.87	60.37	-56.72	3,582.20	-511.92	514.00	408.84	105.16	4.888		
10,100.00	5,820.00	9,829.28	5,538.00	62.26	61.76	-56.82	3,682.18	-513.57	515.37	407.73	107.65	4.788		
10,200.00	5,820.00	9,929.27	5,538.00	63.65	63.16	-56.92	3,782.15	-515.21	516.75	406.61	110.14	4.692		

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-1935
<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-1935	<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	5,820.00	10,029.25	5,538.00	65.04	64.56	-57.02	3,882.12	-516.85	518.12	405.48	112.65	4.600		
10,400.00	5,820.00	10,129.24	5,538.00	66.44	65.97	-57.12	3,982.10	-518.49	519.50	404.34	115.16	4.511		
10,500.00	5,820.00	10,229.23	5,538.00	67.84	67.38	-57.22	4,082.07	-520.14	520.88	403.20	117.69	4.426		
10,600.00	5,820.00	10,329.21	5,538.00	69.24	68.79	-57.32	4,182.04	-521.78	522.27	402.05	120.22	4.344		
10,700.00	5,820.00	10,429.20	5,538.00	70.65	70.20	-57.41	4,282.01	-523.42	523.65	400.89	122.76	4.266		
10,800.00	5,820.00	10,529.19	5,538.00	72.06	71.62	-57.51	4,381.99	-525.07	525.03	399.73	125.31	4.190		
10,900.00	5,820.00	10,629.17	5,538.00	73.47	73.04	-57.61	4,481.96	-526.71	526.42	398.56	127.86	4.117		
11,000.00	5,820.00	10,729.16	5,538.00	74.88	74.46	-57.70	4,581.93	-528.35	527.81	397.39	130.42	4.047		
11,100.00	5,820.00	10,829.15	5,538.00	76.30	75.88	-57.80	4,681.91	-529.99	529.20	396.21	132.99	3.979		
11,200.00	5,820.00	10,929.13	5,538.00	77.72	77.31	-57.89	4,781.88	-531.64	530.59	395.02	135.57	3.914		
11,300.00	5,820.00	11,029.12	5,538.00	79.14	78.73	-57.98	4,881.85	-533.28	531.98	393.83	138.15	3.851		
11,400.00	5,820.00	11,129.11	5,538.00	80.56	80.16	-58.08	4,981.83	-534.92	533.38	392.63	140.74	3.790		
11,500.00	5,820.00	11,229.09	5,538.00	81.98	81.59	-58.17	5,081.80	-536.56	534.77	391.43	143.34	3.731		
11,600.00	5,820.00	11,329.08	5,538.00	83.41	83.03	-58.26	5,181.77	-538.21	536.17	390.23	145.94	3.674		
11,700.00	5,820.00	11,429.06	5,538.00	84.84	84.46	-58.36	5,281.74	-539.85	537.57	389.02	148.55	3.619		
11,800.00	5,820.00	11,529.05	5,538.00	86.26	85.89	-58.45	5,381.72	-541.49	538.96	387.80	151.16	3.566		
11,900.00	5,820.00	11,629.04	5,538.00	87.69	87.33	-58.54	5,481.69	-543.14	540.37	386.59	153.78	3.514		
12,000.00	5,820.00	11,729.02	5,538.00	89.13	88.77	-58.63	5,581.66	-544.78	541.77	385.36	156.40	3.464		
12,100.00	5,820.00	11,829.01	5,538.00	90.56	90.20	-58.72	5,681.64	-546.42	543.17	384.14	159.03	3.415		
12,200.00	5,820.00	11,929.00	5,538.00	91.99	91.64	-58.81	5,781.61	-548.06	544.58	382.91	161.67	3.368		
12,300.00	5,820.00	12,028.98	5,538.00	93.43	93.09	-58.90	5,881.58	-549.71	545.98	381.67	164.31	3.323		
12,400.00	5,820.00	12,128.97	5,538.00	94.86	94.53	-58.99	5,981.56	-551.35	547.39	380.44	166.95	3.279		
12,500.00	5,820.00	12,228.96	5,538.00	96.30	95.97	-59.08	6,081.53	-552.99	548.80	379.20	169.60	3.236		
12,600.00	5,820.00	12,328.94	5,538.00	97.74	97.41	-59.16	6,181.50	-554.63	550.21	377.95	172.25	3.194		
12,700.00	5,820.00	12,428.93	5,538.00	99.18	98.86	-59.25	6,281.47	-556.28	551.62	376.71	174.91	3.154		
12,800.00	5,820.00	12,528.92	5,538.00	100.62	100.30	-59.34	6,381.45	-557.92	553.03	375.46	177.58	3.114		
12,900.00	5,820.00	12,628.90	5,538.00	102.06	101.75	-59.42	6,481.42	-559.56	554.45	374.20	180.24	3.076		
13,000.00	5,820.00	12,728.89	5,538.00	103.50	103.20	-59.51	6,581.39	-561.21	555.86	372.95	182.91	3.039		
13,100.00	5,820.00	12,828.88	5,538.00	104.94	104.65	-59.60	6,681.37	-562.85	557.28	371.69	185.59	3.003		
13,200.00	5,820.00	12,928.86	5,538.00	106.38	106.09	-59.68	6,781.34	-564.49	558.70	370.43	188.27	2.968		
13,300.00	5,820.00	13,028.85	5,538.00	107.83	107.54	-59.77	6,881.31	-566.13	560.11	369.16	190.95	2.933		
13,400.00	5,820.00	13,128.84	5,538.00	109.27	108.99	-59.85	6,981.29	-567.78	561.53	367.89	193.64	2.900		
13,500.00	5,820.00	13,228.82	5,538.00	110.72	110.44	-59.94	7,081.26	-569.42	562.96	366.62	196.33	2.867		
13,600.00	5,820.00	13,328.81	5,538.00	112.17	111.90	-60.02	7,181.23	-571.06	564.38	365.35	199.03	2.836		
13,700.00	5,820.00	13,428.80	5,538.00	113.61	113.35	-60.10	7,281.20	-572.70	565.80	364.08	201.73	2.805		
13,800.00	5,820.00	13,528.78	5,538.00	115.06	114.80	-60.18	7,381.18	-574.35	567.23	362.80	204.43	2.775		
13,900.00	5,820.00	13,628.77	5,538.00	116.51	116.25	-60.27	7,481.15	-575.99	568.65	361.52	207.13	2.745		
13,926.28	5,820.00	13,655.05	5,538.00	116.89	116.64	-60.29	7,507.43	-576.42	569.03	361.18	207.85	2.738 SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	399.73	399.71	1.11	1.11	83.86	-1.67	-30.44	30.25	28.03	2.21	13.659 ES		
500.00	499.84	499.46	499.30	1.41	1.41	84.13	-6.70	-31.78	31.02	28.22	2.80	11.087		
600.00	599.45	599.18	598.63	1.73	1.73	84.56	-15.07	-34.01	32.31	28.87	3.44	9.396		
700.00	698.70	698.89	697.60	2.06	2.06	85.10	-26.78	-37.12	34.12	29.99	4.13	8.261		
800.00	797.47	798.58	796.07	2.42	2.42	85.72	-41.81	-41.13	36.44	31.57	4.87	7.479		
900.00	895.96	898.40	894.16	2.82	2.82	84.51	-59.69	-45.89	39.31	33.65	5.66	6.946		
1,000.00	994.45	998.35	992.31	3.22	3.23	82.99	-77.94	-50.75	42.30	35.83	6.47	6.542		
1,100.00	1,092.94	1,098.30	1,090.46	3.63	3.65	81.67	-96.19	-55.61	45.30	38.02	7.28	6.221		
1,200.00	1,191.43	1,198.25	1,188.60	4.04	4.07	80.51	-114.44	-60.47	48.33	40.23	8.11	5.963		
1,300.00	1,289.92	1,298.20	1,286.75	4.46	4.50	79.49	-132.69	-65.33	51.38	42.45	8.93	5.751		
1,400.00	1,388.41	1,398.15	1,384.90	4.88	4.94	78.58	-150.94	-70.19	54.44	44.68	9.77	5.575		
1,500.00	1,486.90	1,498.10	1,483.05	5.30	5.37	77.77	-169.19	-75.05	57.51	46.92	10.60	5.427		
1,600.00	1,585.39	1,598.05	1,581.20	5.72	5.81	77.04	-187.44	-79.91	60.60	49.17	11.43	5.300		
1,700.00	1,683.88	1,698.00	1,679.35	6.15	6.24	76.39	-205.69	-84.77	63.69	51.42	12.27	5.192		
1,800.00	1,782.38	1,797.95	1,777.50	6.57	6.68	75.79	-223.94	-89.63	66.79	53.69	13.10	5.097		
1,900.00	1,880.87	1,897.90	1,875.65	7.00	7.12	75.25	-242.19	-94.49	69.90	55.96	13.94	5.014		
2,000.00	1,979.36	1,997.85	1,973.80	7.42	7.56	74.75	-260.44	-99.35	73.01	58.23	14.78	4.941		
2,100.00	2,077.85	2,097.80	2,071.94	7.85	8.00	74.30	-278.70	-104.21	76.13	60.52	15.61	4.876		
2,200.00	2,176.34	2,197.75	2,170.09	8.28	8.44	73.87	-296.95	-109.07	79.25	62.80	16.45	4.818		
2,300.00	2,274.83	2,297.70	2,268.24	8.70	8.88	73.49	-315.20	-113.93	82.38	65.09	17.29	4.766		
2,400.00	2,373.32	2,397.65	2,366.39	9.13	9.33	73.13	-333.45	-118.79	85.51	67.38	18.12	4.718		
2,500.00	2,471.81	2,497.59	2,464.54	9.56	9.77	72.79	-351.70	-123.65	88.64	69.68	18.96	4.675		
2,600.00	2,570.30	2,597.54	2,562.69	9.99	10.21	72.48	-369.95	-128.51	91.77	71.98	19.80	4.636		
2,700.00	2,668.79	2,697.49	2,660.84	10.42	10.65	72.19	-388.20	-133.37	94.91	74.28	20.63	4.600		
2,800.00	2,767.29	2,797.44	2,758.99	10.85	11.10	71.92	-406.45	-138.23	98.05	76.58	21.47	4.567		
2,900.00	2,865.78	2,897.39	2,857.14	11.28	11.54	71.66	-424.70	-143.09	101.19	78.89	22.30	4.537		
3,000.00	2,964.27	2,997.34	2,955.29	11.71	11.98	71.42	-442.95	-147.95	104.34	81.20	23.14	4.509		
3,100.00	3,062.76	3,097.29	3,053.43	12.14	12.43	71.20	-461.20	-152.82	107.48	83.51	23.98	4.483		
3,200.00	3,161.25	3,197.24	3,151.58	12.57	12.87	70.98	-479.45	-157.68	110.63	85.82	24.81	4.459		
3,300.00	3,259.74	3,297.19	3,249.73	13.00	13.32	70.78	-497.70	-162.54	113.78	88.13	25.65	4.436		
3,400.00	3,358.23	3,397.14	3,347.88	13.43	13.76	70.59	-515.95	-167.40	116.93	90.45	26.48	4.415		
3,500.00	3,456.72	3,497.09	3,446.03	13.86	14.20	70.41	-534.21	-172.26	120.08	92.76	27.32	4.396		
3,600.00	3,555.21	3,597.04	3,544.18	14.29	14.65	70.24	-552.46	-177.12	123.23	95.08	28.15	4.377		
3,700.00	3,653.70	3,696.99	3,642.33	14.72	15.09	70.08	-570.71	-181.98	126.39	97.40	28.99	4.360		
3,800.00	3,752.20	3,796.94	3,740.48	15.15	15.54	69.92	-588.96	-186.84	129.54	99.72	29.83	4.343		
3,900.00	3,850.69	3,896.89	3,838.63	15.58	15.98	69.77	-607.21	-191.70	132.70	102.04	30.66	4.328		
4,000.00	3,949.18	3,996.84	3,936.77	16.01	16.43	69.63	-625.46	-196.56	135.85	104.36	31.50	4.313		
4,100.00	4,047.67	4,096.79	4,034.92	16.44	16.87	69.50	-643.71	-201.42	139.01	106.68	32.33	4.300		
4,200.00	4,146.16	4,196.74	4,133.07	16.87	17.32	69.37	-661.96	-206.28	142.17	109.00	33.17	4.287		
4,300.00	4,244.65	4,296.69	4,231.22	17.30	17.76	69.25	-680.21	-211.14	145.33	111.33	34.00	4.274		
4,400.00	4,343.14	4,396.64	4,329.37	17.73	18.20	69.13	-698.46	-216.00	148.49	113.65	34.84	4.262		
4,500.00	4,441.63	4,498.85	4,429.98	18.16	18.58	69.46	-715.85	-220.63	151.01	115.35	35.65	4.236		
4,600.00	4,540.12	4,601.34	4,531.44	18.59	18.85	70.97	-729.83	-224.35	151.86	115.40	36.46	4.165		
4,700.00	4,638.65	4,703.50	4,633.03	18.99	19.10	73.62	-740.26	-227.13	151.34	114.04	37.30	4.058		
4,800.00	4,737.61	4,805.37	4,734.63	19.25	19.34	76.49	-747.18	-228.97	150.44	112.46	37.98	3.961		
4,900.00	4,837.01	4,906.97	4,836.17	19.50	19.56	79.34	-750.59	-229.88	149.39	110.77	38.62	3.868		
5,000.00	4,936.74	5,007.54	4,936.74	19.74	19.81	82.00	-750.99	-229.99	148.31	109.08	39.23	3.781		
5,100.00	5,036.65	5,107.46	5,036.65	19.96	20.01	83.49	-750.99	-229.99	147.82	108.09	39.73	3.721		

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-1935
<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-1935	<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		
5,176.54	5,113.19	5,183.93	5,113.11	20.15	20.17	84.18	-750.23	-229.99	147.71	107.60	40.11	3.683		
5,200.00	5,136.65	5,207.25	5,136.37	20.21	20.21	-89.01	-748.45	-230.00	147.77	107.54	40.23	3.673		
5,300.00	5,236.65	5,303.29	5,230.53	20.42	20.33	-82.01	-730.25	-230.03	149.36	108.67	40.68	3.671		
5,400.00	5,336.62	5,390.62	5,311.95	20.63	20.37	-70.51	-698.97	-230.10	158.22	117.95	40.28	3.928		
5,500.00	5,435.05	5,472.45	5,382.51	20.77	20.35	-59.73	-657.69	-230.18	174.08	135.60	38.48	4.524		
5,600.00	5,528.49	5,550.00	5,442.65	20.83	20.31	-51.53	-608.84	-230.28	192.83	157.06	35.77	5.391		
5,700.00	5,613.50	5,626.96	5,494.51	20.81	20.24	-45.38	-552.08	-230.39	211.68	178.85	32.83	6.447		
5,800.00	5,686.96	5,700.00	5,535.50	20.76	20.18	-41.06	-491.70	-230.52	228.75	198.90	29.85	7.664		
5,900.00	5,746.18	5,773.78	5,567.93	20.70	20.12	-38.01	-425.49	-230.65	242.81	215.42	27.39	8.865		
6,000.00	5,788.96	5,850.00	5,591.27	20.64	20.07	-36.02	-353.01	-230.80	253.14	227.43	25.71	9.846		
6,100.00	5,813.76	5,916.71	5,602.83	20.63	20.05	-35.05	-287.35	-230.93	259.09	234.30	24.79	10.452		
6,200.00	5,820.00	5,993.14	5,606.00	20.68	20.06	-34.82	-211.04	-231.09	260.67	235.66	25.01	10.423		
6,300.00	5,820.00	6,093.14	5,606.00	20.82	20.17	-34.85	-111.04	-231.29	260.78	235.39	25.40	10.268		
6,400.00	5,820.00	6,193.14	5,606.00	21.07	20.39	-34.89	-11.04	-231.49	260.90	234.98	25.92	10.066		
6,500.00	5,820.00	6,293.14	5,606.00	21.41	20.72	-34.93	88.96	-231.69	261.02	234.45	26.57	9.825		
6,600.00	5,820.00	6,393.14	5,606.00	21.85	21.15	-34.96	188.96	-231.90	261.13	233.80	27.33	9.554		
6,700.00	5,820.00	6,493.14	5,606.00	22.38	21.68	-35.00	288.96	-232.10	261.25	233.04	28.21	9.262		
6,800.00	5,820.00	6,593.14	5,606.00	22.99	22.29	-35.04	388.96	-232.30	261.37	232.19	29.18	8.958		
6,900.00	5,820.00	6,693.14	5,606.00	23.68	22.99	-35.07	488.96	-232.51	261.48	231.24	30.24	8.647		
7,000.00	5,820.00	6,793.14	5,606.00	24.43	23.76	-35.11	588.96	-232.71	261.60	230.21	31.39	8.335		
7,100.00	5,820.00	6,893.14	5,606.00	25.26	24.60	-35.15	688.96	-232.91	261.71	229.11	32.60	8.027		
7,200.00	5,820.00	6,993.14	5,606.00	26.13	25.49	-35.18	788.96	-233.11	261.83	227.95	33.89	7.727		
7,300.00	5,820.00	7,093.14	5,606.00	27.06	26.44	-35.22	888.96	-233.32	261.95	226.72	35.23	7.436		
7,400.00	5,820.00	7,193.14	5,606.00	28.04	27.43	-35.26	988.96	-233.52	262.07	225.44	36.62	7.156		
7,500.00	5,820.00	7,293.14	5,606.00	29.06	28.46	-35.29	1,088.96	-233.72	262.18	224.12	38.07	6.887		
7,600.00	5,820.00	7,393.14	5,606.00	30.11	29.54	-35.33	1,188.96	-233.93	262.30	222.75	39.55	6.632		
7,700.00	5,820.00	7,493.14	5,606.00	31.20	30.64	-35.36	1,288.96	-234.13	262.42	221.34	41.08	6.389		
7,800.00	5,820.00	7,593.14	5,606.00	32.32	31.77	-35.40	1,388.95	-234.33	262.53	219.90	42.63	6.158		
7,900.00	5,820.00	7,693.14	5,606.00	33.47	32.94	-35.44	1,488.95	-234.53	262.65	218.43	44.22	5.939		
8,000.00	5,820.00	7,793.14	5,606.00	34.64	34.12	-35.47	1,588.95	-234.74	262.77	216.93	45.84	5.732		
8,100.00	5,820.00	7,893.14	5,606.00	35.83	35.33	-35.51	1,688.95	-234.94	262.89	215.41	47.48	5.537		
8,200.00	5,820.00	7,993.14	5,606.00	37.05	36.55	-35.54	1,788.95	-235.14	263.01	213.86	49.15	5.351		
8,300.00	5,820.00	8,093.14	5,606.00	38.28	37.80	-35.58	1,888.95	-235.35	263.12	212.29	50.83	5.176		
8,400.00	5,820.00	8,193.14	5,606.00	39.53	39.06	-35.62	1,988.95	-235.55	263.24	210.70	52.54	5.010		
8,500.00	5,820.00	8,293.14	5,606.00	40.79	40.33	-35.65	2,088.95	-235.75	263.36	209.09	54.27	4.853		
8,600.00	5,820.00	8,393.14	5,606.00	42.07	41.62	-35.69	2,188.95	-235.95	263.48	207.47	56.01	4.704		
8,700.00	5,820.00	8,493.14	5,606.00	43.36	42.91	-35.72	2,288.95	-236.16	263.60	205.83	57.76	4.563		
8,800.00	5,820.00	8,593.14	5,606.00	44.66	44.22	-35.76	2,388.95	-236.36	263.71	204.18	59.53	4.430		
8,900.00	5,820.00	8,693.14	5,606.00	45.97	45.54	-35.79	2,488.95	-236.56	263.83	202.52	61.32	4.303		
9,000.00	5,820.00	8,793.14	5,606.00	47.29	46.87	-35.83	2,588.95	-236.76	263.95	200.84	63.11	4.182		
9,100.00	5,820.00	8,893.14	5,606.00	48.62	48.21	-35.87	2,688.95	-236.97	264.07	199.15	64.92	4.068		
9,200.00	5,820.00	8,993.14	5,606.00	49.95	49.55	-35.90	2,788.95	-237.17	264.19	197.45	66.73	3.959		
9,300.00	5,820.00	9,093.14	5,606.00	51.30	50.90	-35.94	2,888.95	-237.37	264.31	195.75	68.56	3.855		
9,400.00	5,820.00	9,193.14	5,606.00	52.65	52.26	-35.97	2,988.95	-237.58	264.43	194.03	70.40	3.756		
9,500.00	5,820.00	9,293.14	5,606.00	54.01	53.63	-36.01	3,088.95	-237.78	264.55	192.30	72.24	3.662		
9,600.00	5,820.00	9,393.14	5,606.00	55.37	55.00	-36.04	3,188.95	-237.98	264.67	190.57	74.10	3.572		
9,700.00	5,820.00	9,493.14	5,606.00	56.74	56.37	-36.08	3,288.95	-238.18	264.79	188.83	75.96	3.486		
9,800.00	5,820.00	9,593.14	5,606.00	58.11	57.75	-36.11	3,388.95	-238.39	264.90	187.08	77.83	3.404		
9,900.00	5,820.00	9,693.14	5,606.00	59.49	59.13	-36.15	3,488.95	-238.59	265.02	185.32	79.71	3.325		
10,000.00	5,820.00	9,793.14	5,606.00	60.87	60.52	-36.19	3,588.95	-238.79	265.14	183.56	81.59	3.250		
10,100.00	5,820.00	9,893.14	5,606.00	62.26	61.91	-36.22	3,688.95	-239.00	265.26	181.79	83.48	3.178		
10,200.00	5,820.00	9,993.14	5,606.00	63.65	63.31	-36.26	3,788.94	-239.20	265.38	180.01	85.37	3.108		

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-1935
<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-1935	<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	5,820.00	10,093.13	5,606.00	65.04	64.71	-36.29	3,888.94	-239.40	265.50	178.23	87.28	3.042		
10,400.00	5,820.00	10,193.13	5,606.00	66.44	66.11	-36.33	3,988.94	-239.60	265.62	176.44	89.18	2.978		
10,500.00	5,820.00	10,293.13	5,606.00	67.84	67.52	-36.36	4,088.94	-239.81	265.74	174.65	91.10	2.917		
10,600.00	5,820.00	10,393.13	5,606.00	69.24	68.92	-36.40	4,188.94	-240.01	265.86	172.85	93.02	2.858		
10,700.00	5,820.00	10,493.13	5,606.00	70.65	70.33	-36.43	4,288.94	-240.21	265.98	171.04	94.94	2.802		
10,800.00	5,820.00	10,593.13	5,606.00	72.06	71.75	-36.47	4,388.94	-240.42	266.11	169.24	96.87	2.747		
10,900.00	5,820.00	10,693.13	5,606.00	73.47	73.16	-36.50	4,488.94	-240.62	266.23	167.42	98.80	2.695		
11,000.00	5,820.00	10,793.13	5,606.00	74.88	74.58	-36.54	4,588.94	-240.82	266.35	165.61	100.74	2.644		
11,100.00	5,820.00	10,893.13	5,606.00	76.30	76.00	-36.57	4,688.94	-241.02	266.47	163.78	102.68	2.595		
11,200.00	5,820.00	10,993.13	5,606.00	77.72	77.42	-36.61	4,788.94	-241.23	266.59	161.96	104.63	2.548		
11,300.00	5,820.00	11,093.13	5,606.00	79.14	78.84	-36.64	4,888.94	-241.43	266.71	160.13	106.58	2.502		
11,400.00	5,820.00	11,193.13	5,606.00	80.56	80.27	-36.68	4,988.94	-241.63	266.83	158.29	108.54	2.458		
11,500.00	5,820.00	11,293.13	5,606.00	81.98	81.70	-36.71	5,088.94	-241.84	266.95	156.46	110.50	2.416		
11,600.00	5,820.00	11,393.13	5,606.00	83.41	83.12	-36.75	5,188.94	-242.04	267.07	154.61	112.46	2.375		
11,700.00	5,820.00	11,493.13	5,606.00	84.84	84.55	-36.78	5,288.94	-242.24	267.19	152.77	114.43	2.335		
11,800.00	5,820.00	11,593.13	5,606.00	86.26	85.99	-36.82	5,388.94	-242.44	267.32	150.92	116.40	2.297		
11,900.00	5,820.00	11,693.13	5,606.00	87.69	87.42	-36.85	5,488.94	-242.65	267.44	149.07	118.37	2.259		
12,000.00	5,820.00	11,793.13	5,606.00	89.13	88.85	-36.89	5,588.94	-242.85	267.56	147.21	120.35	2.223		
12,100.00	5,820.00	11,893.13	5,606.00	90.56	90.29	-36.92	5,688.94	-243.05	267.68	145.35	122.33	2.188		
12,200.00	5,820.00	11,993.13	5,606.00	91.99	91.72	-36.96	5,788.94	-243.26	267.80	143.49	124.32	2.154		
12,300.00	5,820.00	12,093.13	5,606.00	93.43	93.16	-36.99	5,888.94	-243.46	267.92	141.62	126.31	2.121		
12,400.00	5,820.00	12,193.13	5,606.00	94.86	94.60	-37.03	5,988.94	-243.66	268.05	139.75	128.30	2.089		
12,500.00	5,820.00	12,293.13	5,606.00	96.30	96.04	-37.06	6,088.94	-243.86	268.17	137.88	130.29	2.058		
12,600.00	5,820.00	12,393.13	5,606.00	97.74	97.48	-37.09	6,188.94	-244.07	268.29	136.00	132.29	2.028		
12,700.00	5,820.00	12,493.13	5,606.00	99.18	98.92	-37.13	6,288.93	-244.27	268.41	134.12	134.29	1.999		
12,800.00	5,820.00	12,593.13	5,606.00	100.62	100.36	-37.16	6,388.93	-244.47	268.54	132.24	136.30	1.970		
12,900.00	5,820.00	12,693.13	5,606.00	102.06	101.81	-37.20	6,488.93	-244.68	268.66	130.35	138.31	1.942		
13,000.00	5,820.00	12,793.13	5,606.00	103.50	103.25	-37.23	6,588.93	-244.88	268.78	128.46	140.32	1.916		
13,100.00	5,820.00	12,893.13	5,606.00	104.94	104.69	-37.27	6,688.93	-245.08	268.90	126.57	142.33	1.889		
13,200.00	5,820.00	12,993.13	5,606.00	106.38	106.14	-37.30	6,788.93	-245.28	269.03	124.68	144.35	1.864		
13,300.00	5,820.00	13,093.13	5,606.00	107.83	107.59	-37.34	6,888.93	-245.49	269.15	122.78	146.37	1.839		
13,400.00	5,820.00	13,193.13	5,606.00	109.27	109.03	-37.37	6,988.93	-245.69	269.27	120.88	148.39	1.815		
13,500.00	5,820.00	13,293.13	5,606.00	110.72	110.48	-37.40	7,088.93	-245.89	269.40	118.98	150.42	1.791		
13,600.00	5,820.00	13,393.13	5,606.00	112.17	111.93	-37.44	7,188.93	-246.10	269.52	117.07	152.45	1.768		
13,700.00	5,820.00	13,493.13	5,606.00	113.61	113.38	-37.47	7,288.93	-246.30	269.64	115.16	154.48	1.746		
13,800.00	5,820.00	13,593.13	5,606.00	115.06	114.83	-37.51	7,388.93	-246.50	269.77	113.25	156.51	1.724		
13,900.00	5,820.00	13,693.13	5,606.00	116.51	116.28	-37.54	7,488.93	-246.70	269.89	111.34	158.55	1.702		
13,926.28	5,820.00	13,719.41	5,606.00	116.89	116.63	-37.55	7,515.21	-246.76	269.92	110.87	159.05	1.697 SF		





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	399.93	399.91	1.11	1.11	-96.25	-1.73	30.11	30.30	28.09	2.21	13.708 ES		
500.00	499.84	499.85	499.68	1.41	1.41	-96.21	-6.94	30.48	31.24	28.45	2.79	11.211		
600.00	599.45	599.75	599.21	1.73	1.73	-96.14	-15.62	31.09	32.80	29.38	3.42	9.586		
700.00	698.70	699.65	698.35	2.06	2.06	-96.05	-27.75	31.94	34.98	30.87	4.11	8.513		
800.00	797.47	799.51	796.99	2.42	2.42	-95.94	-43.32	33.04	37.78	32.93	4.85	7.788		
900.00	895.96	899.42	895.18	2.82	2.82	-94.33	-61.66	34.33	40.98	35.34	5.64	7.267		
1,000.00	994.45	999.36	993.37	3.22	3.23	-92.63	-80.24	35.64	44.24	37.79	6.45	6.857		
1,100.00	1,092.94	1,099.30	1,091.56	3.63	3.65	-91.17	-98.83	36.95	47.53	40.25	7.28	6.531		
1,200.00	1,191.43	1,199.24	1,189.75	4.04	4.07	-89.89	-117.41	38.26	50.84	42.73	8.11	6.269		
1,300.00	1,289.92	1,299.17	1,287.93	4.46	4.50	-88.78	-136.00	39.57	54.18	45.23	8.95	6.054		
1,400.00	1,388.41	1,399.11	1,386.12	4.88	4.93	-87.79	-154.58	40.88	57.54	47.75	9.79	5.876		
1,500.00	1,486.90	1,499.05	1,484.31	5.30	5.36	-86.91	-173.17	42.19	60.91	50.27	10.64	5.725		
1,600.00	1,585.39	1,598.99	1,582.49	5.72	5.79	-86.12	-191.75	43.50	64.30	52.81	11.49	5.598		
1,700.00	1,683.88	1,698.93	1,680.68	6.15	6.23	-85.42	-210.34	44.81	67.69	55.36	12.34	5.488		
1,800.00	1,782.38	1,798.87	1,778.87	6.57	6.66	-84.78	-228.92	46.11	71.10	57.91	13.19	5.392		
1,900.00	1,880.87	1,898.81	1,877.06	7.00	7.10	-84.20	-247.51	47.42	74.51	60.48	14.04	5.309		
2,000.00	1,979.36	1,998.75	1,975.24	7.42	7.54	-83.67	-266.09	48.73	77.93	63.05	14.89	5.235		
2,100.00	2,077.85	2,098.69	2,073.43	7.85	7.98	-83.18	-284.68	50.04	81.36	65.62	15.74	5.170		
2,200.00	2,176.34	2,198.63	2,171.62	8.28	8.42	-82.73	-303.26	51.35	84.79	68.20	16.59	5.111		
2,300.00	2,274.83	2,298.56	2,269.80	8.70	8.86	-82.32	-321.85	52.66	88.23	70.79	17.44	5.059		
2,400.00	2,373.32	2,398.50	2,367.99	9.13	9.29	-81.94	-340.43	53.97	91.67	73.38	18.29	5.011		
2,500.00	2,471.81	2,498.44	2,466.18	9.56	9.73	-81.59	-359.02	55.28	95.12	75.97	19.14	4.968		
2,600.00	2,570.30	2,598.38	2,564.36	9.99	10.18	-81.26	-377.60	56.59	98.56	78.57	20.00	4.929		
2,700.00	2,668.79	2,698.32	2,662.55	10.42	10.62	-80.95	-396.19	57.90	102.01	81.17	20.85	4.893		
2,800.00	2,767.29	2,798.26	2,760.74	10.85	11.06	-80.67	-414.77	59.21	105.47	83.77	21.70	4.860		
2,900.00	2,865.78	2,898.20	2,858.93	11.28	11.50	-80.40	-433.36	60.52	108.92	86.37	22.55	4.830		
3,000.00	2,964.27	2,998.14	2,957.11	11.71	11.94	-80.15	-451.94	61.82	112.38	88.98	23.40	4.802		
3,100.00	3,062.76	3,098.08	3,055.30	12.14	12.38	-79.91	-470.53	63.13	115.84	91.59	24.26	4.776		
3,200.00	3,161.25	3,198.02	3,153.49	12.57	12.82	-79.69	-489.11	64.44	119.31	94.20	25.11	4.752		
3,300.00	3,259.74	3,297.95	3,251.67	13.00	13.26	-79.48	-507.70	65.75	122.77	96.81	25.96	4.729		
3,400.00	3,358.23	3,397.89	3,349.86	13.43	13.71	-79.28	-526.28	67.06	126.24	99.43	26.81	4.709		
3,500.00	3,456.72	3,497.83	3,448.05	13.86	14.15	-79.09	-544.87	68.37	129.70	102.04	27.66	4.689		
3,600.00	3,555.21	3,597.77	3,546.23	14.29	14.59	-78.91	-563.45	69.68	133.17	104.66	28.51	4.671		
3,700.00	3,653.70	3,697.71	3,644.42	14.72	15.03	-78.74	-582.04	70.99	136.64	107.28	29.36	4.653		
3,800.00	3,752.20	3,797.65	3,742.61	15.15	15.47	-78.58	-600.62	72.30	140.11	109.90	30.22	4.637		
3,900.00	3,850.69	3,897.59	3,840.80	15.58	15.92	-78.43	-619.21	73.61	143.58	112.52	31.07	4.622		
4,000.00	3,949.18	3,997.53	3,938.98	16.01	16.36	-78.28	-637.79	74.92	147.06	115.14	31.92	4.607		
4,100.00	4,047.67	4,097.47	4,037.17	16.44	16.80	-78.15	-656.38	76.22	150.53	117.76	32.77	4.594		
4,200.00	4,146.16	4,197.41	4,135.36	16.87	17.24	-78.01	-674.96	77.53	154.00	120.38	33.62	4.581		
4,300.00	4,244.65	4,297.34	4,233.54	17.30	17.68	-77.89	-693.55	78.84	157.48	123.01	34.47	4.568		
4,400.00	4,343.14	4,398.36	4,332.87	17.73	18.09	-77.91	-711.89	80.13	160.79	125.49	35.30	4.555		
4,500.00	4,441.63	4,500.43	4,433.76	18.16	18.36	-78.97	-727.31	81.22	162.95	126.89	36.06	4.519		
4,600.00	4,540.12	4,602.23	4,534.87	18.59	18.62	-81.18	-739.10	82.05	163.97	127.12	36.85	4.450		
4,700.00	4,638.65	4,703.54	4,633.83	18.99	18.86	-84.47	-747.27	82.63	164.26	126.63	37.63	4.366		
4,800.00	4,737.61	4,804.45	4,736.63	19.25	19.09	-87.96	-751.87	82.95	164.42	126.20	38.22	4.302		
4,900.00	4,837.01	4,904.84	4,837.01	19.50	19.34	-91.39	-752.99	83.03	164.56	125.79	38.78	4.244		
5,000.00	4,936.74	5,004.56	4,936.74	19.74	19.55	-93.96	-752.99	83.03	164.91	125.67	39.24	4.203		
5,100.00	5,036.65	5,104.57	5,036.74	19.96	19.75	-95.45	-752.62	83.03	165.22	125.55	39.67	4.165		

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



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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-1903 - Hz - APD		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis		Distance								Warning		
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
5,200.00	5,136.65	5,202.87	5,134.04	20.21	19.90	86.08	-739.68	83.03	165.69	125.68	40.01	4.142				
5,300.00	5,236.65	5,293.41	5,220.06	20.42	19.96	76.66	-711.79	83.03	170.67	131.00	39.67	4.302				
5,400.00	5,336.62	5,373.01	5,290.71	20.63	19.96	64.89	-675.30	83.03	186.95	149.09	37.86	4.938				
5,500.00	5,435.05	5,450.00	5,353.00	20.77	19.92	53.88	-630.17	83.03	211.21	176.10	35.11	6.016				
5,600.00	5,528.49	5,518.39	5,402.23	20.83	19.88	46.14	-582.76	83.03	237.65	205.92	31.73	7.489				
5,700.00	5,613.50	5,587.48	5,445.22	20.81	19.82	40.35	-528.75	83.03	263.12	234.59	28.54	9.220				
5,800.00	5,686.96	5,650.00	5,477.67	20.76	19.77	36.40	-475.35	83.03	285.67	260.24	25.42	11.236				
5,900.00	5,746.18	5,721.37	5,506.59	20.70	19.74	33.43	-410.16	83.03	303.84	280.56	23.29	13.048				
6,000.00	5,788.96	5,786.97	5,525.09	20.64	19.72	31.61	-347.27	83.03	317.07	295.34	21.73	14.590				
6,100.00	5,813.76	5,850.00	5,535.29	20.63	19.72	30.64	-285.11	83.03	324.81	303.60	21.21	15.314				
6,200.00	5,820.00	5,924.47	5,538.00	20.68	19.78	30.37	-210.74	83.03	326.87	305.23	21.64	15.108				
6,300.00	5,820.00	6,024.47	5,538.00	20.82	19.92	30.37	-110.74	83.03	326.87	304.85	22.02	14.845				
6,400.00	5,820.00	6,124.47	5,538.00	21.07	20.18	30.37	-10.74	83.03	326.87	304.33	22.53	14.506				
6,500.00	5,820.00	6,224.47	5,538.00	21.41	20.54	30.37	89.26	83.03	326.87	303.70	23.17	14.108				
6,600.00	5,820.00	6,324.47	5,538.00	21.85	20.99	30.37	189.26	83.03	326.87	302.95	23.92	13.666				
6,700.00	5,820.00	6,424.47	5,538.00	22.38	21.54	30.37	289.26	83.03	326.87	302.10	24.77	13.196				
6,800.00	5,820.00	6,524.47	5,538.00	22.99	22.17	30.37	389.26	83.03	326.87	301.15	25.71	12.712				
6,900.00	5,820.00	6,624.47	5,538.00	23.68	22.88	30.37	489.26	83.03	326.87	300.13	26.74	12.224				
7,000.00	5,820.00	6,724.47	5,538.00	24.43	23.66	30.37	589.26	83.03	326.87	299.03	27.84	11.741				
7,100.00	5,820.00	6,824.47	5,538.00	25.26	24.50	30.37	689.26	83.03	326.87	297.86	29.00	11.270				
7,200.00	5,820.00	6,924.47	5,538.00	26.13	25.40	30.37	789.26	83.03	326.87	296.64	30.23	10.814				
7,300.00	5,820.00	7,024.47	5,538.00	27.06	26.35	30.37	889.26	83.03	326.87	295.37	31.50	10.377				
7,400.00	5,820.00	7,124.47	5,538.00	28.04	27.35	30.37	989.26	83.03	326.87	294.05	32.82	9.960				
7,500.00	5,820.00	7,224.47	5,538.00	29.06	28.39	30.37	1,089.26	83.03	326.87	292.69	34.17	9.565				
7,600.00	5,820.00	7,324.47	5,538.00	30.11	29.46	30.37	1,189.26	83.03	326.87	291.30	35.57	9.190				
7,700.00	5,820.00	7,424.47	5,538.00	31.20	30.57	30.37	1,289.26	83.03	326.87	289.87	36.99	8.836				
7,800.00	5,820.00	7,524.47	5,538.00	32.32	31.71	30.37	1,389.26	83.03	326.87	288.42	38.44	8.503				
7,900.00	5,820.00	7,624.47	5,538.00	33.47	32.87	30.37	1,489.26	83.03	326.87	286.95	39.92	8.188				
8,000.00	5,820.00	7,724.47	5,538.00	34.64	34.06	30.37	1,589.26	83.03	326.87	285.45	41.42	7.892				
8,100.00	5,820.00	7,824.47	5,538.00	35.83	35.27	30.37	1,689.26	83.03	326.87	283.93	42.94	7.613				
8,200.00	5,820.00	7,924.47	5,538.00	37.05	36.50	30.37	1,789.26	83.03	326.87	282.39	44.47	7.350				
8,300.00	5,820.00	8,024.47	5,538.00	38.28	37.75	30.37	1,889.26	83.03	326.87	280.84	46.02	7.102				
8,400.00	5,820.00	8,124.47	5,538.00	39.53	39.01	30.37	1,989.26	83.03	326.87	279.28	47.59	6.868				
8,500.00	5,820.00	8,224.47	5,538.00	40.79	40.29	30.37	2,089.26	83.03	326.87	277.70	49.17	6.648				
8,600.00	5,820.00	8,324.47	5,538.00	42.07	41.58	30.37	2,189.26	83.03	326.87	276.10	50.76	6.439				
8,700.00	5,820.00	8,424.47	5,538.00	43.36	42.88	30.37	2,289.26	83.03	326.87	274.50	52.36	6.242				
8,800.00	5,820.00	8,524.47	5,538.00	44.66	44.19	30.37	2,389.26	83.03	326.87	272.89	53.97	6.056				
8,900.00	5,820.00	8,624.47	5,538.00	45.97	45.51	30.37	2,489.26	83.03	326.87	271.27	55.59	5.879				
9,000.00	5,820.00	8,724.47	5,538.00	47.29	46.84	30.37	2,589.26	83.03	326.86	269.64	57.22	5.712				
9,100.00	5,820.00	8,824.47	5,538.00	48.62	48.18	30.37	2,689.26	83.03	326.86	268.01	58.86	5.553				
9,200.00	5,820.00	8,924.47	5,538.00	49.95	49.53	30.37	2,789.26	83.03	326.86	266.36	60.50	5.403				
9,300.00	5,820.00	9,024.47	5,538.00	51.30	50.88	30.37	2,889.26	83.03	326.86	264.71	62.15	5.259				
9,400.00	5,820.00	9,124.47	5,538.00	52.65	52.24	30.37	2,989.26	83.03	326.86	263.06	63.81	5.123				
9,500.00	5,820.00	9,224.47	5,538.00	54.01	53.61	30.37	3,089.26	83.03	326.86	261.40	65.47	4.993				
9,600.00	5,820.00	9,324.47	5,538.00	55.37	54.98	30.37	3,189.26	83.03	326.86	259.73	67.13	4.869				
9,700.00	5,820.00	9,424.47	5,538.00	56.74	56.35	30.37	3,289.26	83.03	326.86	258.06	68.80	4.751				
9,800.00	5,820.00	9,524.47	5,538.00	58.11	57.73	30.37	3,389.26	83.03	326.86	256.39	70.48	4.638				
9,900.00	5,820.00	9,624.47	5,538.00	59.49	59.12	30.37	3,489.26	83.03	326.86	254.71	72.16	4.530				
10,000.00	5,820.00	9,724.47	5,538.00	60.87	60.51	30.37	3,589.26	83.03	326.86	253.03	73.84	4.427				
10,100.00	5,820.00	9,824.47	5,538.00	62.26	61.90	30.37	3,689.26	83.03	326.86	251.34	75.52	4.328				
10,200.00	5,820.00	9,924.47	5,538.00	63.65	63.30	30.37	3,789.26	83.03	326.86	249.65	77.21	4.233				
10,300.00	5,820.00	10,024.47	5,538.00	65.04	64.70	30.37	3,889.26	83.03	326.86	247.96	78.90	4.143				

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-1935
<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-1935	<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-1903 - Hz - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis		Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
10,400.00	5,820.00	10,124.47	5,538.00	66.44	66.10	30.37	3,989.26	83.03	326.86	246.26	80.60	4.055					
10,500.00	5,820.00	10,224.47	5,538.00	67.84	67.51	30.37	4,089.26	83.03	326.86	244.57	82.30	3.972					
10,600.00	5,820.00	10,324.47	5,538.00	69.24	68.92	30.37	4,189.26	83.02	326.86	242.87	84.00	3.891					
10,700.00	5,820.00	10,424.47	5,538.00	70.65	70.33	30.37	4,289.26	83.02	326.86	241.16	85.70	3.814					
10,800.00	5,820.00	10,524.47	5,538.00	72.06	71.74	30.37	4,389.26	83.02	326.86	239.46	87.40	3.740					
10,900.00	5,820.00	10,624.47	5,538.00	73.47	73.16	30.37	4,489.26	83.02	326.86	237.75	89.11	3.668					
11,000.00	5,820.00	10,724.47	5,538.00	74.88	74.58	30.37	4,589.26	83.02	326.86	236.04	90.82	3.599					
11,100.00	5,820.00	10,824.47	5,538.00	76.30	76.00	30.37	4,689.26	83.02	326.86	234.33	92.53	3.532					
11,200.00	5,820.00	10,924.47	5,538.00	77.72	77.42	30.37	4,789.26	83.02	326.86	232.62	94.24	3.468					
11,300.00	5,820.00	11,024.47	5,538.00	79.14	78.84	30.37	4,889.26	83.02	326.86	230.91	95.96	3.406					
11,400.00	5,820.00	11,124.47	5,538.00	80.56	80.27	30.37	4,989.26	83.02	326.86	229.19	97.67	3.347					
11,500.00	5,820.00	11,224.47	5,538.00	81.98	81.69	30.37	5,089.26	83.02	326.86	227.47	99.39	3.289					
11,600.00	5,820.00	11,324.47	5,538.00	83.41	83.12	30.37	5,189.26	83.02	326.86	225.76	101.11	3.233					
11,700.00	5,820.00	11,424.47	5,538.00	84.84	84.55	30.37	5,289.26	83.02	326.86	224.04	102.83	3.179					
11,800.00	5,820.00	11,524.47	5,538.00	86.26	85.99	30.37	5,389.26	83.02	326.86	222.31	104.55	3.126					
11,900.00	5,820.00	11,624.47	5,538.00	87.69	87.42	30.37	5,489.26	83.02	326.86	220.59	106.27	3.076					
12,000.00	5,820.00	11,724.47	5,538.00	89.13	88.85	30.37	5,589.26	83.02	326.86	218.87	108.00	3.027					
12,100.00	5,820.00	11,824.47	5,538.00	90.56	90.29	30.37	5,689.26	83.02	326.86	217.14	109.72	2.979					
12,200.00	5,820.00	11,924.47	5,538.00	91.99	91.73	30.37	5,789.26	83.02	326.86	215.42	111.45	2.933					
12,300.00	5,820.00	12,024.47	5,538.00	93.43	93.16	30.37	5,889.26	83.02	326.86	213.69	113.17	2.888					
12,400.00	5,820.00	12,124.47	5,538.00	94.86	94.60	30.37	5,989.26	83.02	326.86	211.96	114.90	2.845					
12,500.00	5,820.00	12,224.47	5,538.00	96.30	96.04	30.37	6,089.26	83.02	326.86	210.23	116.63	2.803					
12,600.00	5,820.00	12,324.47	5,538.00	97.74	97.48	30.37	6,189.26	83.02	326.86	208.51	118.36	2.762					
12,700.00	5,820.00	12,424.47	5,538.00	99.18	98.92	30.37	6,289.26	83.02	326.86	206.77	120.09	2.722					
12,800.00	5,820.00	12,524.47	5,538.00	100.62	100.37	30.37	6,389.26	83.02	326.86	205.04	121.82	2.683					
12,900.00	5,820.00	12,624.47	5,538.00	102.06	101.81	30.37	6,489.26	83.02	326.86	203.31	123.55	2.646					
13,000.00	5,820.00	12,724.47	5,538.00	103.50	103.25	30.37	6,589.26	83.02	326.86	201.58	125.28	2.609					
13,100.00	5,820.00	12,824.47	5,538.00	104.94	104.70	30.37	6,689.26	83.02	326.86	199.85	127.02	2.573					
13,200.00	5,820.00	12,924.47	5,538.00	106.38	106.15	30.37	6,789.26	83.02	326.86	198.11	128.75	2.539					
13,300.00	5,820.00	13,024.47	5,538.00	107.83	107.59	30.37	6,889.26	83.02	326.86	196.38	130.49	2.505					
13,400.00	5,820.00	13,124.47	5,538.00	109.27	109.04	30.37	6,989.26	83.02	326.86	194.64	132.22	2.472					
13,500.00	5,820.00	13,224.47	5,538.00	110.72	110.49	30.37	7,089.26	83.02	326.86	192.90	133.96	2.440					
13,600.00	5,820.00	13,324.47	5,538.00	112.17	111.93	30.37	7,189.26	83.02	326.86	191.17	135.70	2.409					
13,700.00	5,820.00	13,424.47	5,538.00	113.61	113.38	30.37	7,289.26	83.02	326.86	189.43	137.43	2.378					
13,800.00	5,820.00	13,524.47	5,538.00	115.06	114.83	30.37	7,389.26	83.02	326.86	187.69	139.17	2.349					
13,900.00	5,820.00	13,624.47	5,538.00	116.51	116.28	30.37	7,489.26	83.02	326.86	185.96	140.91	2.320					
13,924.11	5,820.00	13,648.58	5,538.00	116.86	116.63	30.37	7,513.37	83.02	326.86	185.54	141.33	2.313					
13,926.28	5,820.00	13,650.75	5,538.00	116.89	116.66	30.37	7,515.55	83.02	326.86	185.50	141.36	2.312 SF					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.01	-0.01	89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	90.01	-0.01	89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	90.01	-0.01	89.97	89.97	89.03	0.94	95.644		
300.00	300.00	300.00	300.00	0.81	0.81	90.01	-0.01	89.97	89.97	88.35	1.61	55.709 CC, ES		
400.00	399.98	398.77	398.75	1.11	1.11	-96.32	-1.58	90.64	90.84	88.62	2.22	40.932		
500.00	499.84	497.50	497.34	1.41	1.41	-96.54	-6.27	92.64	93.44	90.62	2.81	33.199		
600.00	599.45	596.14	595.61	1.73	1.72	-96.87	-14.07	95.98	97.78	94.31	3.47	28.210		
700.00	698.70	694.65	693.40	2.06	2.05	-97.29	-24.97	100.64	103.85	99.68	4.16	24.938		
800.00	797.47	792.98	790.55	2.42	2.41	-97.75	-38.92	106.60	111.64	106.73	4.91	22.744		
900.00	895.96	891.29	887.10	2.82	2.80	-97.58	-55.90	113.87	120.90	115.21	5.69	21.241		
1,000.00	994.45	990.80	984.58	3.22	3.22	-96.88	-74.28	121.73	130.65	124.16	6.49	20.141		
1,100.00	1,092.94	1,090.31	1,082.07	3.63	3.64	-96.28	-92.66	129.59	140.42	133.12	7.30	19.241		
1,200.00	1,191.43	1,189.82	1,179.55	4.04	4.08	-95.76	-111.05	137.45	150.20	142.08	8.12	18.498		
1,300.00	1,289.92	1,289.33	1,277.03	4.46	4.51	-95.31	-129.43	145.31	159.99	151.04	8.95	17.874		
1,400.00	1,388.41	1,388.85	1,374.51	4.88	4.95	-94.90	-147.82	153.17	169.79	160.00	9.79	17.347		
1,500.00	1,486.90	1,488.36	1,472.00	5.30	5.40	-94.54	-166.20	161.04	179.60	168.97	10.63	16.896		
1,600.00	1,585.39	1,587.87	1,569.48	5.72	5.84	-94.22	-184.58	168.90	189.41	177.94	11.47	16.507		
1,700.00	1,683.88	1,687.38	1,666.96	6.15	6.29	-93.93	-202.97	176.76	199.23	186.91	12.32	16.168		
1,800.00	1,782.38	1,786.89	1,764.44	6.57	6.74	-93.66	-221.35	184.62	209.06	195.89	13.17	15.871		
1,900.00	1,880.87	1,886.40	1,861.93	7.00	7.18	-93.43	-239.74	192.48	218.89	204.86	14.02	15.607		
2,000.00	1,979.36	1,985.92	1,959.41	7.42	7.63	-93.21	-258.12	200.34	228.72	213.84	14.88	15.373		
2,100.00	2,077.85	2,085.43	2,056.89	7.85	8.08	-93.00	-276.50	208.20	238.55	222.82	15.73	15.163		
2,200.00	2,176.34	2,184.94	2,154.37	8.28	8.54	-92.82	-294.89	216.07	248.39	231.80	16.59	14.974		
2,300.00	2,274.83	2,284.45	2,251.86	8.70	8.99	-92.65	-313.27	223.93	258.23	240.78	17.45	14.802		
2,400.00	2,373.32	2,383.96	2,349.34	9.13	9.44	-92.49	-331.65	231.79	268.07	249.77	18.30	14.647		
2,500.00	2,471.81	2,483.48	2,446.82	9.56	9.89	-92.34	-350.04	239.65	277.92	258.76	19.16	14.504		
2,600.00	2,570.30	2,582.99	2,544.30	9.99	10.34	-92.21	-368.42	247.51	287.76	267.74	20.02	14.374		
2,700.00	2,668.79	2,682.50	2,641.79	10.42	10.80	-92.08	-386.81	255.37	297.61	276.73	20.88	14.254		
2,800.00	2,767.29	2,782.01	2,739.27	10.85	11.25	-91.96	-405.19	263.24	307.46	285.72	21.74	14.144		
2,900.00	2,865.78	2,881.52	2,836.75	11.28	11.70	-91.84	-423.57	271.10	317.31	294.71	22.60	14.042		
3,000.00	2,964.27	2,981.04	2,934.23	11.71	12.16	-91.74	-441.96	278.96	327.16	303.70	23.46	13.947		
3,100.00	3,062.76	3,080.55	3,031.72	12.14	12.61	-91.64	-460.34	286.82	337.01	312.69	24.32	13.858		
3,200.00	3,161.25	3,180.06	3,129.20	12.57	13.06	-91.55	-478.73	294.68	346.86	321.68	25.18	13.776		
3,300.00	3,259.74	3,279.57	3,226.68	13.00	13.52	-91.46	-497.11	302.54	356.72	330.68	26.04	13.699		
3,400.00	3,358.23	3,379.08	3,324.16	13.43	13.97	-91.37	-515.49	310.40	366.57	339.67	26.90	13.626		
3,500.00	3,456.72	3,478.59	3,421.65	13.86	14.42	-91.29	-533.88	318.27	376.43	348.66	27.76	13.559		
3,600.00	3,555.21	3,578.11	3,519.13	14.29	14.88	-91.22	-552.26	326.13	386.28	357.66	28.62	13.495		
3,700.00	3,653.70	3,677.62	3,616.61	14.72	15.33	-91.15	-570.64	333.99	396.14	366.65	29.49	13.435		
3,800.00	3,752.20	3,777.13	3,714.09	15.15	15.79	-91.08	-589.03	341.85	405.99	375.65	30.35	13.378		
3,900.00	3,850.69	3,876.64	3,811.58	15.58	16.24	-91.01	-607.41	349.71	415.85	384.64	31.21	13.324		
4,000.00	3,949.18	3,976.15	3,909.06	16.01	16.70	-90.95	-625.80	357.57	425.71	393.64	32.07	13.273		
4,100.00	4,047.67	4,075.67	4,006.54	16.44	17.15	-90.89	-644.18	365.44	435.57	402.63	32.93	13.225		
4,200.00	4,146.16	4,175.18	4,104.02	16.87	17.61	-90.84	-662.56	373.30	445.43	411.63	33.80	13.180		
4,300.00	4,244.65	4,274.69	4,201.51	17.30	18.06	-90.78	-680.95	381.16	455.29	420.63	34.66	13.136		
4,400.00	4,343.14	4,374.20	4,298.99	17.73	18.52	-90.73	-699.33	389.02	465.15	429.63	35.52	13.095		
4,500.00	4,441.63	4,481.24	4,404.16	18.16	18.85	-90.65	-717.64	396.85	474.30	438.00	36.30	13.065		
4,600.00	4,540.12	4,589.31	4,511.00	18.59	19.14	-91.39	-732.47	403.19	481.72	444.66	37.06	12.999		
4,700.00	4,638.65	4,697.22	4,618.23	18.99	19.42	-92.35	-743.57	407.94	487.46	449.68	37.78	12.903		
4,800.00	4,737.61	4,804.99	4,725.70	19.25	19.67	-93.40	-750.94	411.09	491.51	453.18	38.33	12.823		
4,900.00	4,837.01	4,912.62	4,833.25	19.50	19.91	-94.39	-754.58	412.65	493.85	455.00	38.85	12.711		
5,000.00	4,936.74	5,016.11	4,936.74	19.74	20.16	-95.25	-755.01	412.83	494.65	455.29	39.36	12.567		
5,100.00	5,036.65	5,116.03	5,036.65	19.96	20.37	-95.71	-755.01	412.83	495.03	455.22	39.81	12.434		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)						
5,200.00	5,136.65	5,216.25	5,136.79	20.21	20.57	90.17	-752.43	412.83	495.08	454.81	40.28	12.292		
5,212.89	5,149.53	5,229.07	5,149.53	20.24	20.59	90.00	-751.00	412.83	495.08	454.75	40.33	12.276		
5,300.00	5,236.65	5,313.03	5,231.65	20.42	20.69	88.03	-733.95	412.83	495.40	454.73	40.67	12.182		
5,400.00	5,336.62	5,400.00	5,312.68	20.63	20.73	84.39	-702.63	412.83	497.88	456.95	40.94	12.162		
5,500.00	5,435.05	5,483.13	5,384.24	20.77	20.71	80.46	-660.50	412.83	502.92	462.01	40.91	12.293		
5,600.00	5,528.49	5,561.95	5,445.10	20.83	20.66	76.92	-610.53	412.83	509.57	468.99	40.58	12.558		
5,700.00	5,613.50	5,638.17	5,496.14	20.81	20.59	73.82	-554.02	412.83	516.94	476.93	40.01	12.921		
5,800.00	5,686.96	5,712.45	5,537.44	20.76	20.51	71.22	-492.36	412.83	524.17	484.85	39.31	13.333		
5,900.00	5,746.18	5,785.29	5,569.02	20.70	20.43	69.18	-426.79	412.83	530.53	491.89	38.64	13.730		
6,000.00	5,788.96	5,857.13	5,590.93	20.64	20.37	67.72	-358.43	412.83	535.44	497.32	38.12	14.047		
6,100.00	5,813.76	5,928.34	5,603.16	20.63	20.32	66.87	-288.33	412.83	538.46	500.61	37.86	14.224		
6,200.00	5,820.00	6,006.03	5,606.00	20.68	20.29	66.62	-210.74	412.83	539.35	501.45	37.90	14.229		
6,300.00	5,820.00	6,106.03	5,606.00	20.82	20.35	66.62	-110.74	412.83	539.35	501.14	38.21	14.117		
6,400.00	5,820.00	6,206.03	5,606.00	21.07	20.52	66.62	-10.74	412.83	539.35	500.65	38.70	13.937		
6,500.00	5,820.00	6,306.03	5,606.00	21.41	20.81	66.62	89.26	412.83	539.35	499.97	39.38	13.697		
6,600.00	5,820.00	6,406.03	5,606.00	21.85	21.22	66.62	189.26	412.83	539.35	499.12	40.23	13.407		
6,700.00	5,820.00	6,506.03	5,606.00	22.38	21.73	66.62	289.26	412.83	539.35	498.10	41.25	13.076		
6,800.00	5,820.00	6,606.03	5,606.00	22.99	22.34	66.62	389.26	412.83	539.35	496.93	42.42	12.716		
6,900.00	5,820.00	6,706.03	5,606.00	23.68	23.03	66.62	489.27	412.83	539.35	495.62	43.73	12.334		
7,000.00	5,820.00	6,806.03	5,606.00	24.43	23.80	66.62	589.27	412.83	539.35	494.18	45.17	11.942		
7,100.00	5,820.00	6,906.03	5,606.00	25.26	24.63	66.62	689.27	412.83	539.35	492.63	46.72	11.544		
7,200.00	5,820.00	7,006.03	5,606.00	26.13	25.52	66.62	789.27	412.82	539.35	490.97	48.38	11.148		
7,300.00	5,820.00	7,106.03	5,606.00	27.06	26.47	66.62	889.27	412.82	539.35	489.21	50.13	10.758		
7,400.00	5,820.00	7,206.03	5,606.00	28.04	27.46	66.62	989.27	412.82	539.35	487.37	51.97	10.377		
7,500.00	5,820.00	7,306.03	5,606.00	29.06	28.49	66.62	1,089.27	412.82	539.35	485.46	53.89	10.008		
7,600.00	5,820.00	7,406.03	5,606.00	30.11	29.56	66.62	1,189.27	412.82	539.35	483.47	55.87	9.653		
7,700.00	5,820.00	7,506.03	5,606.00	31.20	30.66	66.62	1,289.27	412.82	539.35	481.43	57.92	9.312		
7,800.00	5,820.00	7,606.03	5,606.00	32.32	31.79	66.62	1,389.27	412.82	539.35	479.32	60.02	8.986		
7,900.00	5,820.00	7,706.03	5,606.00	33.47	32.95	66.62	1,489.27	412.82	539.35	477.17	62.17	8.675		
8,000.00	5,820.00	7,806.03	5,606.00	34.64	34.13	66.62	1,589.27	412.82	539.35	474.98	64.37	8.379		
8,100.00	5,820.00	7,906.03	5,606.00	35.83	35.33	66.62	1,689.27	412.82	539.34	472.74	66.60	8.098		
8,200.00	5,820.00	8,006.03	5,606.00	37.05	36.56	66.62	1,789.27	412.82	539.34	470.47	68.87	7.831		
8,300.00	5,820.00	8,106.03	5,606.00	38.28	37.80	66.62	1,889.27	412.82	539.34	468.17	71.18	7.577		
8,400.00	5,820.00	8,206.03	5,606.00	39.53	39.05	66.62	1,989.27	412.82	539.34	465.83	73.51	7.337		
8,500.00	5,820.00	8,306.03	5,606.00	40.79	40.32	66.62	2,089.27	412.82	539.34	463.47	75.87	7.108		
8,600.00	5,820.00	8,406.03	5,606.00	42.07	41.61	66.62	2,189.27	412.82	539.34	461.08	78.26	6.892		
8,700.00	5,820.00	8,506.03	5,606.00	43.36	42.90	66.62	2,289.27	412.82	539.34	458.67	80.67	6.686		
8,800.00	5,820.00	8,606.03	5,606.00	44.66	44.21	66.62	2,389.27	412.82	539.34	456.25	83.10	6.491		
8,900.00	5,820.00	8,706.03	5,606.00	45.97	45.53	66.62	2,489.27	412.82	539.34	453.80	85.54	6.305		
9,000.00	5,820.00	8,806.03	5,606.00	47.29	46.85	66.62	2,589.27	412.82	539.34	451.33	88.01	6.128		
9,100.00	5,820.00	8,906.03	5,606.00	48.62	48.19	66.62	2,689.27	412.82	539.34	448.85	90.49	5.960		
9,200.00	5,820.00	9,006.03	5,606.00	49.95	49.53	66.62	2,789.27	412.82	539.34	446.36	92.98	5.800		
9,300.00	5,820.00	9,106.03	5,606.00	51.30	50.88	66.62	2,889.27	412.82	539.34	443.85	95.49	5.648		
9,400.00	5,820.00	9,206.03	5,606.00	52.65	52.23	66.62	2,989.27	412.82	539.34	441.33	98.01	5.503		
9,500.00	5,820.00	9,306.03	5,606.00	54.01	53.60	66.62	3,089.27	412.82	539.34	438.80	100.54	5.364		
9,600.00	5,820.00	9,406.03	5,606.00	55.37	54.96	66.62	3,189.27	412.82	539.34	436.26	103.09	5.232		
9,700.00	5,820.00	9,506.03	5,606.00	56.74	56.34	66.62	3,289.27	412.82	539.34	433.70	105.64	5.106		
9,800.00	5,820.00	9,606.03	5,606.00	58.11	57.71	66.62	3,389.27	412.82	539.34	431.14	108.20	4.985		
9,900.00	5,820.00	9,706.03	5,606.00	59.49	59.10	66.62	3,489.27	412.82	539.34	428.57	110.77	4.869		
10,000.00	5,820.00	9,806.03	5,606.00	60.87	60.48	66.62	3,589.27	412.82	539.34	425.99	113.34	4.758		
10,100.00	5,820.00	9,906.03	5,606.00	62.26	61.87	66.62	3,689.27	412.81	539.34	423.41	115.93	4.652		
10,200.00	5,820.00	10,006.03	5,606.00	63.65	63.27	66.62	3,789.27	412.81	539.34	420.82	118.52	4.551		

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-1935
<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-1935	<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	5,820.00	10,106.03	5,606.00	65.04	64.66	66.62	3,889.27	412.81	539.34	418.22	121.12	4.453		
10,400.00	5,820.00	10,206.03	5,606.00	66.44	66.06	66.62	3,989.27	412.81	539.34	415.61	123.72	4.359		
10,500.00	5,820.00	10,306.03	5,606.00	67.84	67.47	66.62	4,089.27	412.81	539.34	413.00	126.33	4.269		
10,600.00	5,820.00	10,406.03	5,606.00	69.24	68.87	66.62	4,189.27	412.81	539.34	410.39	128.95	4.183		
10,700.00	5,820.00	10,506.03	5,606.00	70.65	70.28	66.62	4,289.27	412.81	539.34	407.77	131.57	4.099		
10,800.00	5,820.00	10,606.03	5,606.00	72.06	71.69	66.62	4,389.27	412.81	539.34	405.14	134.19	4.019		
10,900.00	5,820.00	10,706.03	5,606.00	73.47	73.11	66.62	4,489.27	412.81	539.34	402.51	136.82	3.942		
11,000.00	5,820.00	10,806.03	5,606.00	74.88	74.52	66.62	4,589.27	412.81	539.34	399.88	139.46	3.867		
11,100.00	5,820.00	10,906.03	5,606.00	76.30	75.94	66.62	4,689.27	412.81	539.34	397.24	142.09	3.796		
11,200.00	5,820.00	11,006.03	5,606.00	77.72	77.36	66.62	4,789.27	412.81	539.34	394.60	144.73	3.726		
11,300.00	5,820.00	11,106.03	5,606.00	79.14	78.78	66.62	4,889.27	412.81	539.34	391.96	147.38	3.660		
11,400.00	5,820.00	11,206.03	5,606.00	80.56	80.21	66.62	4,989.27	412.81	539.34	389.31	150.03	3.595		
11,500.00	5,820.00	11,306.03	5,606.00	81.98	81.63	66.62	5,089.27	412.81	539.33	386.66	152.68	3.533		
11,600.00	5,820.00	11,406.03	5,606.00	83.41	83.06	66.62	5,189.27	412.81	539.33	384.00	155.33	3.472		
11,700.00	5,820.00	11,506.03	5,606.00	84.84	84.49	66.62	5,289.27	412.81	539.33	381.35	157.99	3.414		
11,800.00	5,820.00	11,606.03	5,606.00	86.26	85.92	66.62	5,389.27	412.81	539.33	378.69	160.65	3.357		
11,900.00	5,820.00	11,706.03	5,606.00	87.69	87.35	66.62	5,489.27	412.81	539.33	376.02	163.31	3.303		
12,000.00	5,820.00	11,806.03	5,606.00	89.13	88.78	66.62	5,589.27	412.81	539.33	373.36	165.97	3.249		
12,100.00	5,820.00	11,906.03	5,606.00	90.56	90.22	66.62	5,689.27	412.81	539.33	370.69	168.64	3.198		
12,200.00	5,820.00	12,006.03	5,606.00	91.99	91.65	66.62	5,789.27	412.81	539.33	368.02	171.31	3.148		
12,300.00	5,820.00	12,106.03	5,606.00	93.43	93.09	66.62	5,889.27	412.81	539.33	365.35	173.98	3.100		
12,400.00	5,820.00	12,206.03	5,606.00	94.86	94.53	66.62	5,989.27	412.81	539.33	362.68	176.66	3.053		
12,500.00	5,820.00	12,306.03	5,606.00	96.30	95.97	66.62	6,089.27	412.81	539.33	360.00	179.33	3.007		
12,600.00	5,820.00	12,406.03	5,606.00	97.74	97.40	66.62	6,189.27	412.81	539.33	357.32	182.01	2.963		
12,700.00	5,820.00	12,506.03	5,606.00	99.18	98.85	66.62	6,289.27	412.81	539.33	354.64	184.69	2.920		
12,800.00	5,820.00	12,606.03	5,606.00	100.62	100.29	66.62	6,389.27	412.81	539.33	351.96	187.37	2.878		
12,900.00	5,820.00	12,706.03	5,606.00	102.06	101.73	66.62	6,489.27	412.80	539.33	349.28	190.05	2.838		
13,000.00	5,820.00	12,806.03	5,606.00	103.50	103.17	66.62	6,589.27	412.80	539.33	346.60	192.73	2.798		
13,100.00	5,820.00	12,906.03	5,606.00	104.94	104.62	66.62	6,689.27	412.80	539.33	343.91	195.42	2.760		
13,200.00	5,820.00	13,006.03	5,606.00	106.38	106.06	66.62	6,789.27	412.80	539.33	341.22	198.11	2.722		
13,300.00	5,820.00	13,106.03	5,606.00	107.83	107.51	66.62	6,889.27	412.80	539.33	338.53	200.79	2.686		
13,400.00	5,820.00	13,206.03	5,606.00	109.27	108.95	66.62	6,989.27	412.80	539.33	335.84	203.48	2.650		
13,500.00	5,820.00	13,306.03	5,606.00	110.72	110.40	66.62	7,089.27	412.80	539.33	333.15	206.18	2.616		
13,600.00	5,820.00	13,406.03	5,606.00	112.17	111.85	66.62	7,189.27	412.80	539.33	330.46	208.87	2.582		
13,700.00	5,820.00	13,506.03	5,606.00	113.61	113.29	66.62	7,289.27	412.80	539.33	327.77	211.56	2.549		
13,800.00	5,820.00	13,606.03	5,606.00	115.06	114.74	66.62	7,389.27	412.80	539.33	325.07	214.25	2.517		
13,900.00	5,820.00	13,706.03	5,606.00	116.51	116.18	66.62	7,489.27	412.80	539.33	322.39	216.94	2.486		
13,926.28	5,820.00	13,732.32	5,606.00	116.89	116.52	66.62	7,515.55	412.80	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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-90.00	0.00	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	399.28	399.26	1.11	1.11	83.84	-1.62	-60.57	60.38	58.17	2.22	27.234 ES		
500.00	499.84	498.56	498.40	1.41	1.41	84.12	-6.46	-62.34	61.60	58.80	2.81	21.947		
600.00	599.45	597.81	597.28	1.73	1.73	84.55	-14.52	-65.30	63.63	60.18	3.45	18.427		
700.00	698.70	697.04	695.77	2.06	2.06	85.10	-25.79	-69.42	66.48	62.33	4.15	16.027		
800.00	797.47	796.23	793.75	2.42	2.42	85.74	-40.26	-74.72	70.14	65.25	4.89	14.342		
900.00	895.96	895.77	891.58	2.82	2.81	85.50	-57.51	-81.04	74.60	68.93	5.67	13.156		
1,000.00	994.45	995.66	989.68	3.22	3.22	85.02	-75.18	-87.51	79.19	72.72	6.47	12.242		
1,100.00	1,092.94	1,095.56	1,087.79	3.63	3.64	84.60	-92.85	-93.98	83.77	76.49	7.28	11.506		
1,200.00	1,191.43	1,195.45	1,185.89	4.04	4.07	84.22	-110.52	-100.45	88.36	80.26	8.10	10.905		
1,300.00	1,289.92	1,295.34	1,284.00	4.46	4.49	83.88	-128.20	-106.92	92.96	84.02	8.93	10.406		
1,400.00	1,388.41	1,395.24	1,382.10	4.88	4.93	83.56	-145.87	-113.39	97.55	87.79	9.77	9.987		
1,500.00	1,486.90	1,495.13	1,480.21	5.30	5.36	83.28	-163.54	-119.86	102.15	91.55	10.61	9.631		
1,600.00	1,585.39	1,595.02	1,578.31	5.72	5.79	83.02	-181.21	-126.33	106.76	95.31	11.45	9.324		
1,700.00	1,683.88	1,694.91	1,676.42	6.15	6.23	82.79	-198.88	-132.80	111.36	99.07	12.29	9.058		
1,800.00	1,782.38	1,794.81	1,774.52	6.57	6.67	82.57	-216.55	-139.27	115.97	102.83	13.14	8.826		
1,900.00	1,880.87	1,894.70	1,872.62	7.00	7.11	82.37	-234.22	-145.74	120.57	106.59	13.99	8.620		
2,000.00	1,979.36	1,994.59	1,970.73	7.42	7.55	82.18	-251.89	-152.22	125.18	110.35	14.84	8.437		
2,100.00	2,077.85	2,094.49	2,068.83	7.85	7.99	82.01	-269.56	-158.69	129.79	114.11	15.69	8.274		
2,200.00	2,176.34	2,194.38	2,166.94	8.28	8.43	81.84	-287.23	-165.16	134.41	117.87	16.54	8.127		
2,300.00	2,274.83	2,294.27	2,265.04	8.70	8.87	81.69	-304.90	-171.63	139.02	121.63	17.39	7.995		
2,400.00	2,373.32	2,394.16	2,363.15	9.13	9.31	81.55	-322.57	-178.10	143.63	125.39	18.24	7.874		
2,500.00	2,471.81	2,494.06	2,461.25	9.56	9.75	81.42	-340.24	-184.57	148.24	129.15	19.09	7.764		
2,600.00	2,570.30	2,593.95	2,559.36	9.99	10.19	81.30	-357.91	-191.04	152.86	132.91	19.95	7.663		
2,700.00	2,668.79	2,693.84	2,657.46	10.42	10.64	81.18	-375.58	-197.51	157.47	136.67	20.80	7.571		
2,800.00	2,767.29	2,793.74	2,755.56	10.85	11.08	81.07	-393.25	-203.98	162.09	140.44	21.65	7.486		
2,900.00	2,865.78	2,893.63	2,853.67	11.28	11.52	80.96	-410.92	-210.45	166.71	144.20	22.51	7.407		
3,000.00	2,964.27	2,993.52	2,951.77	11.71	11.96	80.86	-428.59	-216.92	171.32	147.96	23.36	7.334		
3,100.00	3,062.76	3,093.42	3,049.88	12.14	12.41	80.77	-446.26	-223.39	175.94	151.73	24.22	7.266		
3,200.00	3,161.25	3,193.31	3,147.98	12.57	12.85	80.68	-463.94	-229.86	180.56	155.49	25.07	7.202		
3,300.00	3,259.74	3,293.20	3,246.09	13.00	13.29	80.60	-481.61	-236.33	185.18	159.25	25.93	7.143		
3,400.00	3,358.23	3,393.09	3,344.19	13.43	13.74	80.52	-499.28	-242.80	189.80	163.02	26.78	7.087		
3,500.00	3,456.72	3,492.99	3,442.30	13.86	14.18	80.44	-516.95	-249.27	194.42	166.78	27.64	7.035		
3,600.00	3,555.21	3,592.88	3,540.40	14.29	14.62	80.37	-534.62	-255.75	199.04	170.55	28.49	6.986		
3,700.00	3,653.70	3,692.77	3,638.50	14.72	15.07	80.30	-552.29	-262.22	203.66	174.31	29.35	6.940		
3,800.00	3,752.20	3,792.67	3,736.61	15.15	15.51	80.23	-569.96	-268.69	208.28	178.08	30.20	6.896		
3,900.00	3,850.69	3,892.56	3,834.71	15.58	15.96	80.17	-587.63	-275.16	212.90	181.84	31.06	6.855		
4,000.00	3,949.18	3,992.45	3,932.82	16.01	16.40	80.11	-605.30	-281.63	217.52	185.61	31.91	6.816		
4,100.00	4,047.67	4,092.34	4,030.92	16.44	16.84	80.05	-622.97	-288.10	222.14	189.37	32.77	6.779		
4,200.00	4,146.16	4,192.24	4,129.03	16.87	17.29	79.99	-640.64	-294.57	226.76	193.14	33.62	6.744		
4,300.00	4,244.65	4,292.13	4,227.13	17.30	17.73	79.94	-658.31	-301.04	231.38	196.90	34.48	6.711		
4,400.00	4,343.14	4,392.02	4,325.24	17.73	18.18	79.89	-675.98	-307.51	236.00	200.67	35.33	6.679		
4,500.00	4,441.63	4,491.92	4,423.34	18.16	18.62	79.84	-693.65	-313.98	240.62	204.43	36.19	6.649		
4,600.00	4,540.12	4,593.52	4,523.21	18.59	19.03	79.88	-711.23	-320.42	245.08	208.06	37.02	6.620		
4,700.00	4,638.65	4,696.98	4,625.43	18.99	19.31	80.57	-726.14	-325.88	248.33	210.59	37.74	6.579		
4,800.00	4,737.61	4,800.38	4,728.10	19.25	19.57	81.41	-737.57	-330.06	250.66	212.35	38.31	6.543		
4,900.00	4,837.01	4,903.71	4,831.08	19.50	19.81	82.20	-745.51	-332.97	252.18	213.34	38.84	6.492		
5,000.00	4,936.74	5,006.96	4,934.22	19.74	20.05	82.93	-749.96	-334.60	252.89	213.54	39.34	6.427		
5,100.00	5,036.65	5,109.40	5,036.65	19.96	20.30	83.60	-751.00	-334.98	252.80	212.96	39.85	6.344		

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-1935
<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-1935	<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		
5,199.99	5,136.63	5,209.38	5,136.63	20.21	20.50	-89.91	-751.00	-334.98	252.69	212.37	40.32	6.267		
5,200.00	5,136.65	5,209.40	5,136.65	20.21	20.50	-90.00	-751.00	-334.98	252.73	212.41	40.32	6.269		
5,207.96	5,144.61	5,217.36	5,144.61	20.23	20.52	-90.00	-751.00	-334.98	252.73	212.38	40.35	6.263		
5,300.00	5,236.65	5,309.28	5,236.53	20.42	20.71	-89.89	-750.51	-334.98	252.74	211.99	40.74	6.203		
5,400.00	5,336.62	5,406.95	5,333.14	20.63	20.86	-87.13	-737.20	-335.11	253.19	211.97	41.22	6.142		
5,500.00	5,435.05	5,501.61	5,422.82	20.77	20.93	-83.71	-707.32	-335.39	254.72	213.23	41.49	6.140		
5,600.00	5,528.49	5,593.94	5,503.70	20.83	20.92	-80.58	-663.03	-335.80	257.11	215.65	41.46	6.202		
5,700.00	5,613.50	5,684.33	5,574.10	20.81	20.87	-77.84	-606.53	-336.33	260.03	218.88	41.15	6.319		
5,800.00	5,686.96	5,773.14	5,632.75	20.76	20.79	-75.56	-539.99	-336.95	263.13	222.47	40.66	6.471		
5,900.00	5,746.18	5,860.74	5,678.72	20.70	20.71	-73.80	-465.54	-337.64	266.06	225.95	40.11	6.633		
6,000.00	5,788.96	5,950.00	5,712.07	20.64	20.63	-72.54	-382.87	-338.41	268.55	228.88	39.68	6.769		
6,100.00	5,813.76	6,033.67	5,730.11	20.63	20.57	-71.88	-301.26	-339.17	270.35	230.96	39.40	6.862		
6,200.00	5,820.00	6,122.02	5,735.00	20.68	20.56	-71.75	-213.14	-339.99	271.41	231.97	39.44	6.881		
6,300.00	5,820.00	6,222.01	5,735.00	20.82	20.63	-71.81	-113.15	-340.93	272.29	232.54	39.75	6.850		
6,400.00	5,820.00	6,322.01	5,735.00	21.07	20.81	-71.87	-13.16	-341.86	273.18	232.92	40.26	6.786		
6,500.00	5,820.00	6,422.00	5,735.00	21.41	21.11	-71.93	86.83	-342.79	274.07	233.12	40.95	6.693		
6,600.00	5,820.00	6,522.00	5,735.00	21.85	21.51	-71.99	186.83	-343.72	274.95	233.13	41.82	6.575		
6,700.00	5,820.00	6,622.00	5,735.00	22.38	22.02	-72.05	286.82	-344.65	275.84	232.98	42.86	6.436		
6,800.00	5,820.00	6,721.99	5,735.00	22.99	22.62	-72.11	386.81	-345.59	276.72	232.67	44.06	6.281		
6,900.00	5,820.00	6,821.99	5,735.00	23.68	23.31	-72.17	486.80	-346.52	277.61	232.21	45.40	6.115		
7,000.00	5,820.00	6,921.98	5,735.00	24.43	24.06	-72.23	586.79	-347.45	278.50	231.62	46.88	5.941		
7,100.00	5,820.00	7,021.98	5,735.00	25.26	24.89	-72.29	686.78	-348.38	279.39	230.92	48.47	5.764		
7,200.00	5,820.00	7,121.97	5,735.00	26.13	25.77	-72.34	786.77	-349.31	280.27	230.10	50.18	5.586		
7,300.00	5,820.00	7,221.97	5,735.00	27.06	26.71	-72.40	886.77	-350.25	281.16	229.18	51.98	5.409		
7,400.00	5,820.00	7,321.97	5,735.00	28.04	27.69	-72.46	986.76	-351.18	282.05	228.18	53.87	5.235		
7,500.00	5,820.00	7,421.96	5,735.00	29.06	28.72	-72.52	1,086.75	-352.11	282.94	227.09	55.85	5.066		
7,600.00	5,820.00	7,521.96	5,735.00	30.11	29.78	-72.57	1,186.74	-353.04	283.83	225.93	57.90	4.902		
7,700.00	5,820.00	7,621.95	5,735.00	31.20	30.88	-72.63	1,286.73	-353.97	284.72	224.71	60.01	4.745		
7,800.00	5,820.00	7,721.95	5,735.00	32.32	32.00	-72.69	1,386.72	-354.91	285.61	223.43	62.18	4.593		
7,900.00	5,820.00	7,821.94	5,735.00	33.47	33.16	-72.74	1,486.71	-355.84	286.50	222.10	64.40	4.449		
8,000.00	5,820.00	7,921.94	5,735.00	34.64	34.33	-72.80	1,586.70	-356.77	287.39	220.72	66.67	4.310		
8,100.00	5,820.00	8,021.94	5,735.00	35.83	35.53	-72.85	1,686.70	-357.70	288.28	219.29	68.99	4.179		
8,200.00	5,820.00	8,121.93	5,735.00	37.05	36.75	-72.91	1,786.69	-358.63	289.17	217.83	71.34	4.053		
8,300.00	5,820.00	8,221.93	5,735.00	38.28	37.99	-72.96	1,886.68	-359.57	290.06	216.33	73.73	3.934		
8,400.00	5,820.00	8,321.92	5,735.00	39.53	39.24	-73.01	1,986.67	-360.50	290.95	214.80	76.15	3.821		
8,500.00	5,820.00	8,421.92	5,735.00	40.79	40.51	-73.07	2,086.66	-361.43	291.84	213.24	78.60	3.713		
8,600.00	5,820.00	8,521.91	5,735.00	42.07	41.79	-73.12	2,186.65	-362.36	292.74	211.65	81.08	3.610		
8,700.00	5,820.00	8,621.91	5,735.00	43.36	43.09	-73.17	2,286.64	-363.29	293.63	210.04	83.58	3.513		
8,800.00	5,820.00	8,721.91	5,735.00	44.66	44.39	-73.22	2,386.64	-364.23	294.52	208.41	86.11	3.420		
8,900.00	5,820.00	8,821.90	5,735.00	45.97	45.71	-73.28	2,486.63	-365.16	295.41	206.76	88.66	3.332		
9,000.00	5,820.00	8,921.90	5,735.00	47.29	47.03	-73.33	2,586.62	-366.09	296.30	205.08	91.22	3.248		
9,100.00	5,820.00	9,021.89	5,735.00	48.62	48.37	-73.38	2,686.61	-367.02	297.20	203.39	93.80	3.168		
9,200.00	5,820.00	9,121.89	5,735.00	49.95	49.71	-73.43	2,786.60	-367.95	298.09	201.69	96.40	3.092		
9,300.00	5,820.00	9,221.88	5,735.00	51.30	51.06	-73.48	2,886.59	-368.89	298.98	199.97	99.02	3.020		
9,400.00	5,820.00	9,321.88	5,735.00	52.65	52.41	-73.53	2,986.58	-369.82	299.88	198.23	101.65	2.950		
9,500.00	5,820.00	9,421.87	5,735.00	54.01	53.77	-73.58	3,086.57	-370.75	300.77	196.48	104.29	2.884		
9,600.00	5,820.00	9,521.87	5,735.00	55.37	55.14	-73.63	3,186.57	-371.68	301.67	194.72	106.94	2.821		
9,700.00	5,820.00	9,621.87	5,735.00	56.74	56.51	-73.68	3,286.56	-372.61	302.56	192.95	109.61	2.760		
9,800.00	5,820.00	9,721.86	5,735.00	58.11	57.89	-73.73	3,386.55	-373.55	303.46	191.17	112.28	2.703		
9,900.00	5,820.00	9,821.86	5,735.00	59.49	59.27	-73.78	3,486.54	-374.48	304.35	189.38	114.97	2.647		
10,000.00	5,820.00	9,921.85	5,735.00	60.87	60.66	-73.83	3,586.53	-375.41	305.25	187.58	117.66	2.594		
10,100.00	5,820.00	10,021.85	5,735.00	62.26	62.05	-73.88	3,686.52	-376.34	306.14	185.77	120.37	2.543		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,200.00	5,820.00	10,121.84	5,735.00	63.65	63.44	-73.93	3,786.51	-377.27	307.04	183.96	123.08	2.495		
10,300.00	5,820.00	10,221.84	5,735.00	65.04	64.84	-73.98	3,886.50	-378.21	307.93	182.13	125.80	2.448		
10,400.00	5,820.00	10,321.84	5,735.00	66.44	66.24	-74.02	3,986.50	-379.14	308.83	180.30	128.53	2.403		
10,500.00	5,820.00	10,421.83	5,735.00	67.84	67.65	-74.07	4,086.49	-380.07	309.72	178.46	131.26	2.360		
10,600.00	5,820.00	10,521.83	5,735.00	69.24	69.05	-74.12	4,186.48	-381.00	310.62	176.62	134.00	2.318		
10,700.00	5,820.00	10,621.82	5,735.00	70.65	70.46	-74.16	4,286.47	-381.93	311.52	174.77	136.75	2.278		
10,800.00	5,820.00	10,721.82	5,735.00	72.06	71.87	-74.21	4,386.46	-382.87	312.41	172.91	139.50	2.240		
10,900.00	5,820.00	10,821.81	5,735.00	73.47	73.29	-74.26	4,486.45	-383.80	313.31	171.05	142.26	2.202		
11,000.00	5,820.00	10,921.81	5,735.00	74.88	74.71	-74.30	4,586.44	-384.73	314.21	169.19	145.02	2.167		
11,100.00	5,820.00	11,021.81	5,735.00	76.30	76.12	-74.35	4,686.44	-385.66	315.10	167.32	147.79	2.132		
11,200.00	5,820.00	11,121.80	5,735.00	77.72	77.55	-74.40	4,786.43	-386.59	316.00	165.44	150.56	2.099		
11,300.00	5,820.00	11,221.80	5,735.00	79.14	78.97	-74.44	4,886.42	-387.53	316.90	163.56	153.34	2.067		
11,400.00	5,820.00	11,321.79	5,735.00	80.56	80.39	-74.49	4,986.41	-388.46	317.80	161.68	156.12	2.036		
11,500.00	5,820.00	11,421.79	5,735.00	81.98	81.82	-74.53	5,086.40	-389.39	318.70	159.79	158.91	2.006		
11,600.00	5,820.00	11,521.78	5,735.00	83.41	83.25	-74.58	5,186.39	-390.32	319.59	157.90	161.70	1.976		
11,700.00	5,820.00	11,621.78	5,735.00	84.84	84.68	-74.62	5,286.38	-391.25	320.49	156.00	164.49	1.948		
11,800.00	5,820.00	11,721.77	5,735.00	86.26	86.11	-74.66	5,386.37	-392.19	321.39	154.10	167.29	1.921		
11,900.00	5,820.00	11,821.77	5,735.00	87.69	87.54	-74.71	5,486.37	-393.12	322.29	152.20	170.09	1.895		
12,000.00	5,820.00	11,921.77	5,735.00	89.13	88.97	-74.75	5,586.36	-394.05	323.19	150.29	172.90	1.869		
12,100.00	5,820.00	12,021.76	5,735.00	90.56	90.41	-74.79	5,686.35	-394.98	324.09	148.38	175.71	1.844		
12,200.00	5,820.00	12,121.76	5,735.00	91.99	91.85	-74.84	5,786.34	-395.91	324.99	146.47	178.52	1.820		
12,300.00	5,820.00	12,221.75	5,735.00	93.43	93.28	-74.88	5,886.33	-396.85	325.89	144.56	181.33	1.797		
12,400.00	5,820.00	12,321.75	5,735.00	94.86	94.72	-74.92	5,986.32	-397.78	326.79	142.64	184.15	1.775		
12,500.00	5,820.00	12,421.74	5,735.00	96.30	96.16	-74.97	6,086.31	-398.71	327.69	140.72	186.97	1.753		
12,600.00	5,820.00	12,521.74	5,735.00	97.74	97.60	-75.01	6,186.31	-399.64	328.59	138.80	189.79	1.731		
12,700.00	5,820.00	12,621.74	5,735.00	99.18	99.04	-75.05	6,286.30	-400.57	329.49	136.87	192.62	1.711		
12,800.00	5,820.00	12,721.73	5,735.00	100.62	100.49	-75.09	6,386.29	-401.51	330.39	134.94	195.44	1.690		
12,900.00	5,820.00	12,821.73	5,735.00	102.06	101.93	-75.13	6,486.28	-402.44	331.29	133.01	198.28	1.671		
13,000.00	5,820.00	12,921.72	5,735.00	103.50	103.37	-75.17	6,586.27	-403.37	332.19	131.08	201.11	1.652		
13,100.00	5,820.00	13,021.72	5,735.00	104.94	104.82	-75.21	6,686.26	-404.30	333.09	129.15	203.94	1.633		
13,200.00	5,820.00	13,121.71	5,735.00	106.38	106.26	-75.26	6,786.25	-405.23	333.99	127.21	206.78	1.615		
13,300.00	5,820.00	13,221.71	5,735.00	107.83	107.71	-75.30	6,886.24	-406.17	334.89	125.28	209.62	1.598		
13,400.00	5,820.00	13,321.71	5,735.00	109.27	109.16	-75.34	6,986.24	-407.10	335.80	123.34	212.46	1.581		
13,500.00	5,820.00	13,421.70	5,735.00	110.72	110.61	-75.38	7,086.23	-408.03	336.70	121.39	215.30	1.564		
13,600.00	5,820.00	13,521.70	5,735.00	112.17	112.06	-75.42	7,186.22	-408.96	337.60	119.45	218.15	1.548		
13,700.00	5,820.00	13,621.69	5,735.00	113.61	113.50	-75.46	7,286.21	-409.89	338.50	117.51	221.00	1.532		
13,800.00	5,820.00	13,721.69	5,735.00	115.06	114.95	-75.50	7,386.20	-410.83	339.40	115.56	223.84	1.516		
13,900.00	5,820.00	13,821.68	5,735.00	116.51	116.41	-75.54	7,486.19	-411.76	340.31	113.61	226.69	1.501		
13,926.28	5,820.00	13,847.97	5,735.00	116.89	116.79	-75.55	7,512.47	-412.00	340.54	113.10	227.44	1.497 Level 3, SF		



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	90.00	0.00	59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	90.00	0.00	59.98	59.98	58.36	1.61	37.140 CC, ES		
400.00	399.98	399.49	399.47	1.11	1.11	-96.29	-1.68	60.40	60.59	58.38	2.21	27.371		
500.00	499.84	498.96	498.80	1.41	1.41	-96.39	-6.70	61.65	62.42	59.62	2.80	22.319		
600.00	599.45	598.39	597.85	1.73	1.73	-96.54	-15.06	63.74	65.47	62.03	3.44	19.043		
700.00	698.70	697.75	696.47	2.06	2.06	-96.73	-26.75	66.66	69.74	65.61	4.13	16.886		
800.00	797.47	797.03	794.54	2.42	2.42	-96.93	-41.73	70.40	75.21	70.34	4.87	15.435		
900.00	895.96	896.66	892.52	2.82	2.81	-96.60	-59.23	74.77	81.48	75.83	5.65	14.418		
1,000.00	994.45	996.45	990.64	3.22	3.22	-96.22	-76.90	79.19	87.78	81.33	6.45	13.607		
1,100.00	1,092.94	1,096.25	1,088.76	3.63	3.63	-95.90	-94.57	83.60	94.09	86.82	7.27	12.949		
1,200.00	1,191.43	1,196.05	1,186.89	4.04	4.05	-95.62	-112.24	88.02	100.39	92.30	8.09	12.408		
1,300.00	1,289.92	1,295.85	1,285.01	4.46	4.48	-95.37	-129.91	92.43	106.70	97.78	8.92	11.958		
1,400.00	1,388.41	1,395.65	1,383.14	4.88	4.90	-95.15	-147.59	96.84	113.02	103.25	9.76	11.579		
1,500.00	1,486.90	1,495.45	1,481.26	5.30	5.33	-94.95	-165.26	101.26	119.33	108.73	10.60	11.255		
1,600.00	1,585.39	1,595.25	1,579.38	5.72	5.76	-94.77	-182.93	105.67	125.64	114.20	11.45	10.975		
1,700.00	1,683.88	1,695.05	1,677.51	6.15	6.19	-94.61	-200.60	110.09	131.96	119.66	12.30	10.732		
1,800.00	1,782.38	1,794.85	1,775.63	6.57	6.62	-94.46	-218.27	114.50	138.28	125.13	13.15	10.519		
1,900.00	1,880.87	1,894.65	1,873.75	7.00	7.06	-94.33	-235.94	118.91	144.59	130.60	14.00	10.331		
2,000.00	1,979.36	1,994.45	1,971.88	7.42	7.49	-94.20	-253.61	123.33	150.91	136.06	14.85	10.163		
2,100.00	2,077.85	2,094.25	2,070.00	7.85	7.93	-94.09	-271.29	127.74	157.23	141.53	15.70	10.012		
2,200.00	2,176.34	2,194.05	2,168.12	8.28	8.36	-93.99	-288.96	132.16	163.55	146.99	16.56	9.877		
2,300.00	2,274.83	2,293.85	2,266.25	8.70	8.80	-93.89	-306.63	136.57	169.87	152.46	17.41	9.755		
2,400.00	2,373.32	2,393.65	2,364.37	9.13	9.23	-93.80	-324.30	140.99	176.19	157.92	18.27	9.643		
2,500.00	2,471.81	2,493.45	2,462.49	9.56	9.67	-93.72	-341.97	145.40	182.51	163.39	19.13	9.541		
2,600.00	2,570.30	2,593.25	2,560.62	9.99	10.11	-93.64	-359.64	149.81	188.83	168.85	19.99	9.448		
2,700.00	2,668.79	2,693.05	2,658.74	10.42	10.54	-93.57	-377.31	154.23	195.16	174.31	20.84	9.363		
2,800.00	2,767.29	2,792.85	2,756.86	10.85	10.98	-93.50	-394.98	158.64	201.48	179.78	21.70	9.283		
2,900.00	2,865.78	2,892.65	2,854.99	11.28	11.42	-93.44	-412.66	163.06	207.80	185.24	22.56	9.210		
3,000.00	2,964.27	2,992.45	2,953.11	11.71	11.85	-93.37	-430.33	167.47	214.12	190.70	23.42	9.142		
3,100.00	3,062.76	3,092.25	3,051.23	12.14	12.29	-93.32	-448.00	171.88	220.45	196.16	24.28	9.079		
3,200.00	3,161.25	3,192.05	3,149.36	12.57	12.73	-93.26	-465.67	176.30	226.77	201.63	25.14	9.020		
3,300.00	3,259.74	3,291.85	3,247.48	13.00	13.17	-93.21	-483.34	180.71	233.09	207.09	26.00	8.965		
3,400.00	3,358.23	3,391.65	3,345.60	13.43	13.60	-93.17	-501.01	185.13	239.41	212.55	26.86	8.913		
3,500.00	3,456.72	3,491.45	3,443.73	13.86	14.04	-93.12	-518.68	189.54	245.74	218.02	27.72	8.865		
3,600.00	3,555.21	3,591.25	3,541.85	14.29	14.48	-93.08	-536.36	193.95	252.06	223.48	28.58	8.819		
3,700.00	3,653.70	3,691.05	3,639.98	14.72	14.92	-93.04	-554.03	198.37	258.39	228.94	29.44	8.776		
3,800.00	3,752.20	3,790.85	3,738.10	15.15	15.36	-93.00	-571.70	202.78	264.71	234.41	30.30	8.735		
3,900.00	3,850.69	3,890.65	3,836.22	15.58	15.79	-92.96	-589.37	207.20	271.03	239.87	31.16	8.697		
4,000.00	3,949.18	3,990.45	3,934.35	16.01	16.23	-92.92	-607.04	211.61	277.36	245.33	32.03	8.660		
4,100.00	4,047.67	4,090.25	4,032.47	16.44	16.67	-92.89	-624.71	216.03	283.68	250.79	32.89	8.626		
4,200.00	4,146.16	4,190.04	4,130.59	16.87	17.11	-92.86	-642.38	220.44	290.01	256.26	33.75	8.593		
4,300.00	4,244.65	4,288.84	4,228.72	17.30	17.55	-92.83	-660.05	224.85	296.33	261.72	34.61	8.562		
4,400.00	4,343.14	4,389.64	4,326.84	17.73	17.99	-92.80	-677.73	229.27	302.65	267.18	35.47	8.532		
4,500.00	4,441.63	4,489.44	4,424.96	18.16	18.42	-92.77	-695.40	233.68	308.98	272.65	36.33	8.504		
4,600.00	4,540.12	4,590.34	4,524.20	18.59	18.84	-92.77	-713.07	238.10	315.25	278.07	37.18	8.480		
4,700.00	4,638.65	4,693.50	4,626.14	18.99	19.12	-92.77	-728.41	241.93	320.69	282.82	37.88	8.467		
4,800.00	4,737.61	4,796.66	4,728.58	19.25	19.39	-92.91	-740.17	244.87	324.97	286.55	38.41	8.460		
4,900.00	4,837.01	4,899.80	4,831.36	19.50	19.63	-94.52	-748.35	246.91	328.03	289.11	38.92	8.428		
5,000.00	4,936.74	5,002.88	4,934.34	19.74	19.87	-95.09	-752.92	248.05	329.87	290.47	39.40	8.372		
5,100.00	5,036.65	5,105.21	5,036.65	19.96	20.12	-95.61	-754.00	248.32	330.52	290.63	39.89	8.286		

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-1935
<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-1935	<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	5,136.65	5,205.21	5,136.65	20.21	20.33	90.52	-754.00	248.32	330.58	290.23	40.35	8.193		
5,300.00	5,236.65	5,305.32	5,236.76	20.42	20.54	90.43	-753.50	248.32	330.58	289.81	40.77	8.108		
5,337.80	5,274.45	5,343.14	5,274.45	20.50	20.61	90.00	-750.48	248.32	330.57	289.64	40.93	8.077		
5,400.00	5,336.62	5,403.96	5,334.31	20.63	20.69	88.29	-739.92	248.32	330.72	289.57	41.15	8.037		
5,500.00	5,435.05	5,500.00	5,425.18	20.77	20.75	85.61	-709.28	248.32	331.56	290.22	41.34	8.020		
5,600.00	5,528.49	5,592.52	5,505.99	20.83	20.75	83.14	-664.49	248.32	333.00	291.69	41.31	8.062		
5,700.00	5,613.50	5,683.50	5,576.52	20.81	20.71	80.93	-607.19	248.32	334.82	293.73	41.08	8.150		
5,800.00	5,686.96	5,772.79	5,635.03	20.76	20.64	79.05	-539.88	248.32	336.76	296.02	40.74	8.266		
5,900.00	5,746.18	5,860.75	5,680.61	20.70	20.58	77.55	-464.78	248.32	338.58	298.22	40.36	8.388		
6,000.00	5,788.96	5,950.00	5,713.29	20.64	20.52	76.43	-381.84	248.32	340.06	299.99	40.07	8.487		
6,100.00	5,813.76	6,034.07	5,730.71	20.63	20.51	75.79	-299.69	248.32	341.01	301.09	39.92	8.542		
6,200.00	5,820.00	6,123.21	5,735.00	20.68	20.54	75.58	-210.74	248.32	341.32	301.32	40.01	8.532		
6,300.00	5,820.00	6,223.21	5,735.00	20.82	20.66	75.58	-110.74	248.32	341.32	301.02	40.30	8.469		
6,400.00	5,820.00	6,323.21	5,735.00	21.07	20.89	75.58	-10.74	248.32	341.32	300.52	40.80	8.365		
6,500.00	5,820.00	6,423.21	5,735.00	21.41	21.23	75.58	89.26	248.32	341.32	299.83	41.49	8.226		
6,600.00	5,820.00	6,523.21	5,735.00	21.85	21.66	75.58	189.26	248.32	341.32	298.96	42.37	8.057		
6,700.00	5,820.00	6,623.21	5,735.00	22.38	22.19	75.58	289.26	248.32	341.32	297.91	43.41	7.863		
6,800.00	5,820.00	6,723.21	5,735.00	22.99	22.80	75.58	389.26	248.32	341.32	296.71	44.62	7.650		
6,900.00	5,820.00	6,823.21	5,735.00	23.68	23.49	75.58	489.26	248.32	341.32	295.35	45.97	7.425		
7,000.00	5,820.00	6,923.21	5,735.00	24.43	24.25	75.58	589.26	248.32	341.32	293.87	47.45	7.193		
7,100.00	5,820.00	7,023.21	5,735.00	25.26	25.07	75.58	689.26	248.32	341.32	292.26	49.06	6.957		
7,200.00	5,820.00	7,123.21	5,735.00	26.13	25.96	75.58	789.26	248.32	341.32	290.54	50.78	6.721		
7,300.00	5,820.00	7,223.21	5,735.00	27.06	26.89	75.58	889.26	248.32	341.32	288.72	52.60	6.489		
7,400.00	5,820.00	7,323.21	5,735.00	28.04	27.87	75.58	989.26	248.32	341.32	286.81	54.51	6.261		
7,500.00	5,820.00	7,423.21	5,735.00	29.06	28.89	75.58	1,089.26	248.31	341.32	284.82	56.50	6.041		
7,600.00	5,820.00	7,523.21	5,735.00	30.11	29.95	75.58	1,189.26	248.31	341.32	282.75	58.56	5.828		
7,700.00	5,820.00	7,623.21	5,735.00	31.20	31.05	75.58	1,289.26	248.31	341.32	280.63	60.69	5.624		
7,800.00	5,820.00	7,723.21	5,735.00	32.32	32.17	75.58	1,389.26	248.31	341.32	278.44	62.88	5.428		
7,900.00	5,820.00	7,823.21	5,735.00	33.47	33.32	75.58	1,489.26	248.31	341.32	276.20	65.12	5.242		
8,000.00	5,820.00	7,923.21	5,735.00	34.64	34.49	75.58	1,589.26	248.31	341.32	273.91	67.40	5.064		
8,100.00	5,820.00	8,023.21	5,735.00	35.83	35.69	75.58	1,689.26	248.31	341.32	271.58	69.73	4.895		
8,200.00	5,820.00	8,123.21	5,735.00	37.05	36.91	75.58	1,789.26	248.31	341.32	269.21	72.10	4.734		
8,300.00	5,820.00	8,223.21	5,735.00	38.28	38.14	75.58	1,889.26	248.31	341.32	266.81	74.51	4.581		
8,400.00	5,820.00	8,323.21	5,735.00	39.53	39.39	75.58	1,989.26	248.31	341.32	264.38	76.94	4.436		
8,500.00	5,820.00	8,423.21	5,735.00	40.79	40.66	75.58	2,089.26	248.31	341.32	261.91	79.40	4.299		
8,600.00	5,820.00	8,523.21	5,735.00	42.07	41.94	75.58	2,189.26	248.31	341.32	259.42	81.89	4.168		
8,700.00	5,820.00	8,623.21	5,735.00	43.36	43.23	75.58	2,289.26	248.31	341.32	256.91	84.41	4.044		
8,800.00	5,820.00	8,723.21	5,735.00	44.66	44.53	75.58	2,389.26	248.31	341.32	254.37	86.94	3.926		
8,900.00	5,820.00	8,823.21	5,735.00	45.97	45.84	75.58	2,489.26	248.31	341.32	251.82	89.50	3.814		
9,000.00	5,820.00	8,923.21	5,735.00	47.29	47.17	75.58	2,589.26	248.31	341.31	249.25	92.07	3.707		
9,100.00	5,820.00	9,023.21	5,735.00	48.62	48.50	75.58	2,689.26	248.31	341.31	246.66	94.66	3.606		
9,200.00	5,820.00	9,123.21	5,735.00	49.95	49.84	75.58	2,789.26	248.31	341.31	244.05	97.26	3.509		
9,300.00	5,820.00	9,223.21	5,735.00	51.30	51.18	75.58	2,889.26	248.31	341.31	241.43	99.88	3.417		
9,400.00	5,820.00	9,323.21	5,735.00	52.65	52.53	75.58	2,989.26	248.31	341.31	238.80	102.52	3.329		
9,500.00	5,820.00	9,423.21	5,735.00	54.01	53.89	75.58	3,089.26	248.31	341.31	236.15	105.16	3.246		
9,600.00	5,820.00	9,523.21	5,735.00	55.37	55.26	75.58	3,189.26	248.31	341.31	233.50	107.82	3.166		
9,700.00	5,820.00	9,623.21	5,735.00	56.74	56.63	75.58	3,289.26	248.31	341.31	230.83	110.48	3.089		
9,800.00	5,820.00	9,723.21	5,735.00	58.11	58.00	75.58	3,389.26	248.31	341.31	228.15	113.16	3.016		
9,900.00	5,820.00	9,823.21	5,735.00	59.49	59.38	75.58	3,489.26	248.31	341.31	225.47	115.84	2.946		
10,000.00	5,820.00	9,923.21	5,735.00	60.87	60.77	75.58	3,589.26	248.31	341.31	222.77	118.54	2.879		
10,100.00	5,820.00	10,023.21	5,735.00	62.26	62.15	75.58	3,689.26	248.31	341.31	220.07	121.24	2.815		
10,200.00	5,820.00	10,123.21	5,735.00	63.65	63.55	75.58	3,789.26	248.31	341.31	217.36	123.95	2.754		

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-1935
<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-1935	<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	5,820.00	10,223.21	5,735.00	65.04	64.94	75.58	3,889.26	248.31	341.31	214.65	126.66	2.695		
10,400.00	5,820.00	10,323.21	5,735.00	66.44	66.34	75.58	3,989.26	248.31	341.31	211.93	129.39	2.638		
10,500.00	5,820.00	10,423.21	5,735.00	67.84	67.74	75.58	4,089.26	248.31	341.31	209.20	132.11	2.583		
10,600.00	5,820.00	10,523.21	5,735.00	69.24	69.14	75.58	4,189.26	248.31	341.31	206.46	134.85	2.531		
10,700.00	5,820.00	10,623.21	5,735.00	70.65	70.55	75.58	4,289.26	248.31	341.31	203.72	137.59	2.481		
10,800.00	5,820.00	10,723.21	5,735.00	72.06	71.96	75.58	4,389.26	248.30	341.31	200.98	140.33	2.432		
10,900.00	5,820.00	10,823.21	5,735.00	73.47	73.37	75.58	4,489.26	248.30	341.31	198.23	143.08	2.385		
11,000.00	5,820.00	10,923.21	5,735.00	74.88	74.79	75.58	4,589.26	248.30	341.31	195.48	145.83	2.340		
11,100.00	5,820.00	11,023.21	5,735.00	76.30	76.20	75.58	4,689.26	248.30	341.31	192.72	148.59	2.297		
11,200.00	5,820.00	11,123.21	5,735.00	77.72	77.62	75.58	4,789.26	248.30	341.31	189.96	151.35	2.255		
11,300.00	5,820.00	11,223.21	5,735.00	79.14	79.04	75.58	4,889.26	248.30	341.31	187.19	154.12	2.215		
11,400.00	5,820.00	11,323.21	5,735.00	80.56	80.47	75.58	4,989.26	248.30	341.31	184.42	156.89	2.176		
11,500.00	5,820.00	11,423.21	5,735.00	81.98	81.89	75.58	5,089.26	248.30	341.31	181.65	159.66	2.138		
11,600.00	5,820.00	11,523.21	5,735.00	83.41	83.32	75.58	5,189.26	248.30	341.31	178.87	162.43	2.101		
11,700.00	5,820.00	11,623.21	5,735.00	84.84	84.74	75.58	5,289.26	248.30	341.31	176.10	165.21	2.066		
11,800.00	5,820.00	11,723.21	5,735.00	86.26	86.17	75.58	5,389.26	248.30	341.31	173.31	167.99	2.032		
11,900.00	5,820.00	11,823.21	5,735.00	87.69	87.60	75.58	5,489.26	248.30	341.31	170.53	170.78	1.999		
12,000.00	5,820.00	11,923.21	5,735.00	89.13	89.04	75.58	5,589.26	248.30	341.31	167.74	173.57	1.966		
12,100.00	5,820.00	12,023.21	5,735.00	90.56	90.47	75.58	5,689.26	248.30	341.31	164.95	176.35	1.935		
12,200.00	5,820.00	12,123.21	5,735.00	91.99	91.90	75.58	5,789.26	248.30	341.31	162.16	179.15	1.905		
12,300.00	5,820.00	12,223.21	5,735.00	93.43	93.34	75.58	5,889.26	248.30	341.31	159.37	181.94	1.876		
12,400.00	5,820.00	12,323.21	5,735.00	94.86	94.77	75.58	5,989.26	248.30	341.31	156.57	184.74	1.848		
12,500.00	5,820.00	12,423.21	5,735.00	96.30	96.21	75.58	6,089.26	248.30	341.31	153.77	187.53	1.820		
12,600.00	5,820.00	12,523.21	5,735.00	97.74	97.65	75.58	6,189.26	248.30	341.31	150.97	190.33	1.793		
12,700.00	5,820.00	12,623.21	5,735.00	99.18	99.09	75.58	6,289.26	248.30	341.31	148.17	193.14	1.767		
12,800.00	5,820.00	12,723.21	5,735.00	100.62	100.53	75.58	6,389.26	248.30	341.31	145.36	195.94	1.742		
12,900.00	5,820.00	12,823.21	5,735.00	102.06	101.97	75.58	6,489.26	248.30	341.30	142.56	198.75	1.717		
13,000.00	5,820.00	12,923.21	5,735.00	103.50	103.41	75.58	6,589.26	248.30	341.30	139.75	201.55	1.693		
13,100.00	5,820.00	13,023.21	5,735.00	104.94	104.86	75.58	6,689.26	248.30	341.30	136.94	204.36	1.670		
13,200.00	5,820.00	13,123.21	5,735.00	106.38	106.30	75.58	6,789.26	248.30	341.30	134.13	207.17	1.647		
13,300.00	5,820.00	13,223.21	5,735.00	107.83	107.74	75.58	6,889.26	248.30	341.30	131.32	209.99	1.625		
13,400.00	5,820.00	13,323.21	5,735.00	109.27	109.19	75.58	6,989.26	248.30	341.30	128.51	212.80	1.604		
13,500.00	5,820.00	13,423.21	5,735.00	110.72	110.64	75.58	7,089.26	248.30	341.30	125.69	215.61	1.583		
13,600.00	5,820.00	13,523.21	5,735.00	112.17	112.08	75.58	7,189.26	248.30	341.30	122.87	218.43	1.563		
13,700.00	5,820.00	13,623.21	5,735.00	113.61	113.53	75.58	7,289.26	248.30	341.30	120.06	221.25	1.543		
13,800.00	5,820.00	13,723.21	5,735.00	115.06	114.98	75.58	7,389.26	248.30	341.30	117.24	224.06	1.523		
13,900.00	5,820.00	13,823.21	5,735.00	116.51	116.43	75.58	7,489.26	248.30	341.30	114.42	226.88	1.504		
13,926.28	5,820.00	13,849.49	5,735.00	116.89	116.81	75.58	7,515.55	248.30	341.30	113.68	227.62	1.499	Level 3, SF	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	149.49	-49.59	29.22	57.56					
100.00	100.00	100.00	100.00	0.13	0.13	149.49	-49.59	29.22	57.56	57.29	0.27	216.092		
200.00	200.00	200.00	200.00	0.47	0.47	149.49	-49.59	29.22	57.56	56.62	0.94	61.187		
300.00	300.00	300.00	300.00	0.81	0.81	149.49	-49.59	29.22	57.56	55.94	1.61	35.639		
400.00	399.98	399.66	399.64	1.11	1.14	-39.58	-48.90	30.81	56.44	54.20	2.24	25.176		
500.00	499.84	498.78	498.63	1.41	1.47	-48.55	-46.85	35.55	53.97	51.10	2.87	18.803		
600.00	599.45	597.53	597.06	1.73	1.80	-63.75	-43.75	42.69	52.62	49.07	3.55	14.816		
602.27	601.71	599.77	599.29	1.74	1.81	-64.14	-43.68	42.85	52.62	49.05	3.57	14.749 CC, ES		
700.00	698.70	695.97	695.18	2.06	2.13	-82.16	-40.59	49.98	54.67	50.41	4.26	12.829		
800.00	797.47	793.78	792.67	2.42	2.47	-100.69	-37.45	57.22	62.42	57.44	4.98	12.524		
900.00	895.96	891.26	889.83	2.82	2.81	-115.38	-34.32	64.44	75.97	70.29	5.68	13.370		
1,000.00	994.45	988.74	986.99	3.22	3.15	-125.28	-31.19	71.66	92.97	86.61	6.36	14.627		
1,100.00	1,092.94	1,086.22	1,084.15	3.63	3.49	-132.04	-28.06	78.88	111.85	104.83	7.02	15.933		
1,200.00	1,191.43	1,183.69	1,181.31	4.04	3.83	-136.82	-24.94	86.10	131.81	124.13	7.69	17.152		
1,300.00	1,289.92	1,281.17	1,278.47	4.46	4.17	-140.34	-21.81	93.33	152.43	144.08	8.35	18.252		
1,400.00	1,388.41	1,378.65	1,375.63	4.88	4.51	-143.02	-18.68	100.55	173.47	164.45	9.02	19.231		
1,500.00	1,486.90	1,476.13	1,472.79	5.30	4.85	-145.12	-15.55	107.77	194.79	185.10	9.69	20.099		
1,600.00	1,585.39	1,573.60	1,569.95	5.72	5.20	-146.80	-12.42	114.99	216.31	205.95	10.37	20.869		
1,700.00	1,683.88	1,671.08	1,667.11	6.15	5.54	-148.18	-9.29	122.21	237.98	226.94	11.04	21.555		
1,800.00	1,782.38	1,768.56	1,764.27	6.57	5.88	-149.33	-6.16	129.43	259.76	248.05	11.72	22.169		
1,900.00	1,880.87	1,866.04	1,861.43	7.00	6.22	-150.30	-3.03	136.65	281.63	269.23	12.40	22.720		
2,000.00	1,979.36	1,963.52	1,958.59	7.42	6.57	-151.13	0.09	143.87	303.56	290.48	13.07	23.217		
2,100.00	2,077.85	2,060.99	2,055.75	7.85	6.91	-151.85	3.22	151.09	325.54	311.79	13.76	23.667		
2,200.00	2,176.34	2,158.47	2,152.91	8.28	7.25	-152.47	6.35	158.31	347.57	333.13	14.44	24.076		
2,300.00	2,274.83	2,255.95	2,250.07	8.70	7.60	-153.03	9.48	165.53	369.63	354.51	15.12	24.449		
2,400.00	2,373.32	2,353.43	2,347.23	9.13	7.94	-153.52	12.61	172.75	391.72	375.92	15.80	24.792		
2,500.00	2,471.81	2,450.90	2,444.39	9.56	8.28	-153.96	15.74	179.97	413.83	397.35	16.48	25.106		
2,600.00	2,570.30	2,548.38	2,541.55	9.99	8.63	-154.35	18.87	187.19	435.97	418.80	17.17	25.396		
2,700.00	2,668.79	2,645.86	2,638.71	10.42	8.97	-154.71	22.00	194.41	458.12	440.27	17.85	25.664		
2,800.00	2,767.29	2,743.34	2,735.87	10.85	9.32	-155.03	25.13	201.63	480.29	461.75	18.53	25.913		
2,900.00	2,865.78	2,840.82	2,833.03	11.28	9.66	-155.33	28.25	208.85	502.47	483.25	19.22	26.144		
3,000.00	2,964.27	2,938.29	2,930.19	11.71	10.00	-155.60	31.38	216.07	524.66	504.76	19.90	26.360		
3,100.00	3,062.76	3,035.77	3,027.35	12.14	10.35	-155.84	34.51	223.29	546.86	526.27	20.59	26.561		
3,200.00	3,161.25	3,133.25	3,124.51	12.57	10.69	-156.07	37.64	230.51	569.07	547.80	21.27	26.749		
3,300.00	3,259.74	3,230.73	3,221.67	13.00	11.03	-156.28	40.77	237.73	591.29	569.33	21.96	26.926		
3,400.00	3,358.23	3,328.20	3,318.83	13.43	11.38	-156.48	43.90	244.95	613.52	590.87	22.65	27.092		
3,500.00	3,456.72	3,425.68	3,415.99	13.86	11.72	-156.66	47.03	252.17	635.75	612.42	23.33	27.249		
3,600.00	3,555.21	3,523.16	3,513.15	14.29	12.07	-156.83	50.16	259.39	657.99	633.98	24.02	27.396		
3,700.00	3,653.70	3,620.64	3,610.30	14.72	12.41	-156.99	53.28	266.61	680.24	655.53	24.70	27.536		
3,800.00	3,752.20	3,718.12	3,707.46	15.15	12.75	-157.14	56.41	273.83	702.49	677.10	25.39	27.668		
3,900.00	3,850.69	3,815.59	3,804.62	15.58	13.10	-157.28	59.54	281.05	724.74	698.66	26.08	27.793		
4,000.00	3,949.18	3,913.07	3,901.78	16.01	13.44	-157.41	62.67	288.27	747.00	720.23	26.76	27.911		
4,100.00	4,047.67	4,010.55	3,998.94	16.44	13.78	-157.54	65.80	295.49	769.26	741.81	27.45	28.024		
4,200.00	4,146.16	4,108.03	4,096.10	16.87	14.13	-157.65	68.93	302.71	791.52	763.38	28.14	28.131		
4,300.00	4,244.65	4,205.51	4,193.26	17.30	14.47	-157.76	72.06	309.93	813.79	784.96	28.82	28.233		
4,400.00	4,343.14	4,302.98	4,290.42	17.73	14.82	-157.87	75.19	317.15	836.06	806.54	29.51	28.330		
4,500.00	4,441.63	4,400.46	4,387.58	18.16	15.16	-157.97	78.31	324.37	858.33	828.13	30.20	28.423		
4,600.00	4,540.12	4,497.94	4,484.74	18.59	15.50	-158.06	81.44	331.59	880.60	849.72	30.89	28.512		
4,700.00	4,638.65	4,595.46	4,581.95	18.99	15.85	-158.20	84.57	338.81	902.67	871.12	31.56	28.605		
4,800.00	4,737.61	4,694.83	4,680.00	19.25	16.16	-158.30	-728.25	347.67	907.37	888.01	19.35	46.885		
4,900.00	4,837.01	4,793.64	4,778.00	19.50	16.47	-158.40	-739.07	347.67	821.64	800.29	21.35	38.477		
5,000.00	4,936.74	4,892.01	4,876.00	19.74	16.78	-158.50	-746.43	347.67	738.87	715.14	23.73	31.138		

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-1935
<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-1935	<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	5,036.65	6,166.90	5,538.00	19.96	21.31	-97.69	-750.32	347.67	660.39	633.85	26.54	24.884		
5,200.00	5,136.65	6,167.58	5,538.00	20.21	21.32	90.00	-751.00	347.67	588.15	558.31	29.83	19.714		
5,300.00	5,236.65	6,167.58	5,538.00	20.42	21.32	90.00	-751.00	347.67	525.02	491.52	33.50	15.672		
5,400.00	5,336.62	6,166.22	5,538.00	20.63	21.31	91.94	-749.64	347.67	474.75	437.53	37.22	12.756		
5,500.00	5,435.05	6,149.50	5,538.00	20.77	21.19	93.58	-732.92	347.67	442.08	402.01	40.07	11.033		
5,600.00	5,528.49	6,114.31	5,538.00	20.83	20.94	90.56	-697.73	347.67	430.03	388.86	41.17	10.446		
5,610.64	5,538.00	6,109.52	5,538.00	20.82	20.91	90.00	-692.95	347.67	429.92	388.76	41.16	10.444 SF		
5,700.00	5,613.50	6,061.94	5,538.00	20.81	20.60	83.95	-645.36	347.67	436.50	396.08	40.43	10.798		
5,800.00	5,686.96	5,994.32	5,538.00	20.76	20.18	75.53	-577.74	347.67	455.00	416.46	38.54	11.805		
5,900.00	5,746.18	5,913.92	5,538.00	20.70	19.75	67.43	-497.35	347.67	477.67	441.25	36.42	13.115		
6,000.00	5,788.96	5,831.99	5,537.72	20.64	19.37	61.50	-415.42	347.67	498.02	463.34	34.68	14.361		
6,100.00	5,813.76	5,769.89	5,531.98	20.63	19.12	57.71	-353.62	347.67	515.85	482.32	33.53	15.386		
6,200.00	5,820.00	5,700.00	5,516.79	20.68	18.87	54.81	-285.45	347.67	531.37	498.59	32.77	16.215		
6,300.00	5,820.00	5,650.00	5,500.39	20.82	18.72	53.37	-238.24	347.67	550.67	518.14	32.53	16.929		
6,400.00	5,820.00	5,600.00	5,479.55	21.07	18.57	51.62	-192.81	347.67	577.83	545.46	32.38	17.847		
6,500.00	5,820.00	5,550.00	5,454.44	21.41	18.44	49.63	-149.59	347.67	612.79	580.49	32.30	18.970		
6,600.00	5,820.00	5,500.00	5,425.31	21.85	18.31	47.45	-108.98	347.67	655.41	623.12	32.29	20.296		
6,700.00	5,820.00	5,467.67	5,404.46	22.38	18.23	45.97	-84.28	347.67	705.01	672.28	32.73	21.538		
6,800.00	5,820.00	5,433.93	5,381.10	22.99	18.14	44.41	-59.93	347.67	761.08	727.94	33.14	22.968		
6,900.00	5,820.00	5,400.00	5,356.08	23.68	18.06	42.82	-37.03	347.67	822.82	789.32	33.51	24.557		
7,000.00	5,820.00	5,377.79	5,338.91	24.43	18.00	41.79	-22.94	347.67	889.42	855.37	34.05	26.119		
7,100.00	5,820.00	5,350.00	5,316.62	25.26	17.94	40.50	-6.36	347.67	960.27	925.84	34.43	27.890		
7,200.00	5,820.00	5,333.70	5,303.14	26.13	17.89	39.75	2.80	347.67	1,034.65	999.72	34.92	29.626		
7,300.00	5,820.00	5,300.00	5,274.40	27.06	17.81	38.24	20.39	347.67	1,112.41	1,077.30	35.11	31.683		
7,400.00	5,820.00	5,300.00	5,274.40	28.04	17.81	38.24	20.39	347.67	1,192.15	1,156.48	35.67	33.421		
7,500.00	5,820.00	5,300.00	5,274.40	29.06	17.81	38.24	20.39	347.67	1,274.76	1,238.63	36.13	35.283		
7,600.00	5,820.00	5,270.30	5,248.17	30.11	17.73	36.94	34.32	347.67	1,358.57	1,322.33	36.24	37.486		
7,700.00	5,820.00	5,250.00	5,229.81	31.20	17.68	36.07	42.97	347.67	1,444.44	1,408.01	36.43	39.649		
7,800.00	5,820.00	5,250.00	5,229.81	32.32	17.68	36.07	42.97	347.67	1,531.56	1,494.81	36.75	41.680		





# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	119.08	-49.60	89.20	102.06					
100.00	100.00	100.00	100.00	0.13	0.13	119.08	-49.60	89.20	102.06	101.80	0.27	383.193		
200.00	200.00	200.00	200.00	0.47	0.47	119.08	-49.60	89.20	102.06	101.12	0.94	108.503		
300.00	300.00	300.00	300.00	0.81	0.81	119.08	-49.60	89.20	102.06	100.45	1.61	63.199 CC		
400.00	399.98	397.35	397.33	1.11	1.12	-68.65	-49.23	90.81	102.68	100.42	2.26	45.363 ES		
500.00	499.84	494.24	494.09	1.41	1.45	-72.94	-48.12	95.61	104.96	102.02	2.94	35.649		
600.00	599.45	590.23	589.73	1.73	1.77	-79.52	-46.29	103.51	110.03	106.34	3.70	29.768		
700.00	698.70	684.89	683.73	2.06	2.11	-87.46	-43.79	114.35	119.42	114.92	4.50	26.524		
800.00	797.47	780.84	778.72	2.42	2.45	-95.84	-40.72	127.62	133.71	128.49	5.21	25.653		
900.00	895.96	877.50	874.38	2.82	2.81	-103.44	-37.60	141.11	151.04	145.17	5.87	25.713		
1,000.00	994.45	974.16	970.04	3.22	3.17	-109.43	-34.49	154.61	170.49	163.95	6.54	26.084		
1,100.00	1,092.94	1,070.82	1,065.70	3.63	3.54	-114.19	-31.37	168.10	191.40	184.20	7.20	26.581		
1,200.00	1,191.43	1,167.47	1,161.36	4.04	3.91	-118.01	-28.25	181.59	213.34	205.47	7.87	27.102		
1,300.00	1,289.92	1,264.13	1,257.02	4.46	4.28	-121.12	-25.13	195.08	236.03	227.48	8.55	27.606		
1,400.00	1,388.41	1,360.79	1,352.68	4.88	4.65	-123.68	-22.01	208.57	259.27	250.04	9.23	28.080		
1,500.00	1,486.90	1,457.44	1,448.34	5.30	5.03	-125.82	-18.90	222.06	282.93	273.00	9.92	28.516		
1,600.00	1,585.39	1,554.10	1,544.00	5.72	5.40	-127.64	-15.78	235.55	306.90	296.29	10.61	28.915		
1,700.00	1,683.88	1,650.76	1,639.66	6.15	5.77	-129.19	-12.66	249.04	331.12	319.81	11.31	29.279		
1,800.00	1,782.38	1,747.42	1,735.32	6.57	6.15	-130.53	-9.54	262.53	355.55	343.54	12.01	29.609		
1,900.00	1,880.87	1,844.07	1,830.98	7.00	6.52	-131.69	-6.42	276.03	380.13	367.42	12.71	29.911		
2,000.00	1,979.36	1,940.73	1,926.64	7.42	6.90	-132.72	-3.31	289.52	404.84	391.43	13.41	30.185		
2,100.00	2,077.85	2,037.39	2,022.30	7.85	7.28	-133.63	-0.19	303.01	429.67	415.55	14.12	30.437		
2,200.00	2,176.34	2,134.04	2,117.96	8.28	7.65	-134.44	2.93	316.50	454.58	439.76	14.82	30.667		
2,300.00	2,274.83	2,230.70	2,213.62	8.70	8.03	-135.17	6.05	329.99	479.57	464.04	15.53	30.879		
2,400.00	2,373.32	2,327.36	2,309.28	9.13	8.40	-135.82	9.17	343.48	504.62	488.38	16.24	31.074		
2,500.00	2,471.81	2,424.02	2,404.94	9.56	8.78	-136.41	12.29	356.97	529.73	512.78	16.95	31.255		
2,600.00	2,570.30	2,520.67	2,500.60	9.99	9.16	-136.95	15.40	370.46	554.89	537.23	17.66	31.422		
2,700.00	2,668.79	2,617.33	2,596.26	10.42	9.53	-137.44	18.52	383.95	580.09	561.72	18.37	31.577		
2,800.00	2,767.29	2,713.99	2,691.92	10.85	9.91	-137.89	21.64	397.44	605.33	586.25	19.08	31.722		
2,900.00	2,865.78	2,810.64	2,787.58	11.28	10.29	-138.31	24.76	410.94	630.60	610.81	19.80	31.856		
3,000.00	2,964.27	2,907.30	2,883.24	11.71	10.67	-138.69	27.88	424.43	655.90	635.39	20.51	31.982		
3,100.00	3,062.76	3,003.96	2,978.90	12.14	11.04	-139.05	30.99	437.92	681.23	660.00	21.22	32.100		
3,200.00	3,161.25	3,100.62	3,074.56	12.57	11.42	-139.38	34.11	451.41	706.57	684.64	21.94	32.211		
3,300.00	3,259.74	3,197.27	3,170.22	13.00	11.80	-139.68	37.23	464.90	731.94	709.29	22.65	32.315		
3,400.00	3,358.23	3,293.93	3,265.88	13.43	12.18	-139.97	40.35	478.39	757.33	733.96	23.36	32.413		
3,500.00	3,456.72	3,390.59	3,361.54	13.86	12.55	-140.24	43.47	491.88	782.73	758.65	24.08	32.506		
3,600.00	3,555.21	3,487.25	3,457.20	14.29	12.93	-140.49	46.58	505.37	808.15	783.35	24.80	32.593		
3,700.00	3,653.70	3,583.90	3,552.86	14.72	13.31	-140.72	49.70	518.86	833.58	808.07	25.51	32.675		
3,800.00	3,752.20	3,680.56	3,648.52	15.15	13.69	-140.94	52.82	532.36	859.02	832.80	26.23	32.754		
3,900.00	3,850.69	3,777.22	3,744.18	15.58	14.06	-141.15	55.94	545.85	884.48	857.53	26.94	32.828		
4,000.00	3,949.18	3,873.87	3,839.84	16.01	14.44	-141.35	59.06	559.34	909.94	882.28	27.66	32.898		
4,100.00	4,047.67	3,970.53	3,935.50	16.44	14.82	-141.54	62.17	572.83	935.42	907.04	28.38	32.965		
4,200.00	4,146.16	4,067.19	4,031.16	16.87	15.20	-141.71	65.29	586.32	960.90	931.81	29.09	33.029		
4,300.00	4,244.65	4,163.85	4,126.82	17.30	15.57	-141.88	68.41	599.81	986.39	956.58	29.81	33.090		
4,400.00	4,343.14	4,260.50	4,222.48	17.73	15.95	-142.04	71.53	613.30	1,011.89	981.36	30.53	33.148		
4,500.00	4,441.63	4,357.16	4,318.14	18.16	16.33	-142.19	74.65	626.79	1,037.40	1,006.15	31.24	33.203		
4,600.00	4,540.12	4,453.82	4,413.80	18.59	16.71	-142.33	77.76	640.28	1,062.91	1,030.95	31.96	33.256		
4,700.00	4,638.65	4,566.71	4,525.60	18.99	17.12	-142.61	81.30	655.60	1,087.99	1,055.25	32.75	33.225		
4,800.00	4,737.61	4,710.21	4,668.36	19.25	17.53	-143.08	84.55	669.66	1,107.73	1,074.23	33.50	33.064		
4,900.00	4,837.01	6,249.91	5,606.00	19.50	22.46	-101.44	-739.06	677.65	1,080.19	1,052.52	27.67	39.045		
5,000.00	4,936.74	6,257.27	5,606.00	19.74	22.51	-99.07	-746.43	677.65	1,012.23	982.43	29.79	33.974		
5,100.00	5,036.65	6,261.17	5,606.00	19.96	22.54	-97.18	-750.32	677.65	949.47	917.44	32.03	29.642		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-3104 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis		Distance								Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
5,200.00	5,136.65	6,261.85	5,606.00	20.21	22.54	90.00	-751.00	677.65	893.16	858.81	34.35	26.002	18.457 SF				
5,300.00	5,236.65	6,261.85	5,606.00	20.42	22.54	90.00	-751.00	677.65	844.91	808.29	36.62	23.074					
5,400.00	5,336.62	6,260.49	5,606.00	20.63	22.53	91.47	-749.64	677.65	806.24	767.52	38.71	20.826					
5,500.00	5,435.05	6,243.77	5,606.00	20.77	22.42	93.36	-732.92	677.65	778.89	738.62	40.28	19.339					
5,600.00	5,528.49	6,208.58	5,606.00	20.83	22.19	92.57	-697.73	677.65	763.84	722.76	41.08	18.593					
5,690.65	5,606.00	6,161.79	5,606.00	20.82	21.90	90.00	-650.94	677.65	759.90	718.73	41.17	18.457 SF					
5,700.00	5,613.50	6,156.21	5,606.00	20.81	21.86	89.66	-645.36	677.65	759.94	718.78	41.15	18.466					
5,800.00	5,686.96	6,088.59	5,606.00	20.76	21.47	85.46	-577.74	677.65	764.20	723.56	40.64	18.802					
5,900.00	5,746.18	6,008.19	5,606.00	20.70	21.07	81.00	-497.34	677.65	772.72	732.87	39.85	19.391					
6,000.00	5,788.96	5,925.13	5,605.60	20.64	20.71	77.39	-414.29	677.65	781.74	742.68	39.06	20.015					
6,100.00	5,813.76	5,857.51	5,598.60	20.63	20.46	74.77	-347.08	677.65	790.62	752.20	38.43	20.576					
6,200.00	5,820.00	5,791.41	5,583.40	20.68	20.25	72.71	-282.80	677.65	799.14	761.16	37.98	21.043					
6,300.00	5,820.00	5,729.21	5,561.77	20.82	20.07	71.23	-224.52	677.65	810.60	772.93	37.67	21.516					
6,400.00	5,820.00	5,672.91	5,536.33	21.07	19.92	69.53	-174.32	677.65	827.45	789.97	37.48	22.078					
6,500.00	5,820.00	5,622.83	5,509.26	21.41	19.80	67.76	-132.21	677.65	850.33	812.92	37.40	22.735					
6,600.00	5,820.00	5,578.77	5,482.21	21.85	19.70	66.03	-97.45	677.65	879.63	842.19	37.44	23.494					
6,700.00	5,820.00	5,550.00	5,462.99	22.38	19.64	64.84	-76.04	677.65	915.61	877.93	37.69	24.295					
6,800.00	5,820.00	5,500.00	5,426.89	22.99	19.52	62.65	-41.47	677.65	957.87	920.14	37.73	25.386					
6,900.00	5,820.00	5,477.19	5,409.36	23.68	19.47	61.61	-26.89	677.65	1,006.22	968.13	38.09	26.417					
7,000.00	5,820.00	5,450.00	5,387.65	24.43	19.41	60.36	-10.52	677.65	1,060.24	1,021.86	38.38	27.624					
7,100.00	5,820.00	5,428.81	5,370.16	25.26	19.36	59.38	1.43	677.65	1,119.34	1,080.60	38.73	28.899					
7,200.00	5,820.00	5,400.00	5,345.62	26.13	19.30	58.02	16.53	677.65	1,183.05	1,144.10	38.95	30.374					
7,300.00	5,820.00	5,400.00	5,345.62	27.06	19.30	58.02	16.53	677.65	1,250.66	1,211.25	39.40	31.739					
7,400.00	5,820.00	5,375.33	5,323.98	28.04	19.24	56.87	28.36	677.65	1,321.67	1,282.07	39.60	33.372					
7,500.00	5,820.00	5,350.00	5,301.20	29.06	19.18	55.68	39.43	677.65	1,395.98	1,356.20	39.78	35.089					
7,600.00	5,820.00	5,350.00	5,301.20	30.11	19.18	55.68	39.43	677.65	1,472.66	1,432.55	40.11	36.716					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	49.59					
100.00	100.00	100.00	100.00	0.13	0.13	-179.11	-49.59	-0.77	49.59	49.33	0.27	186.195		
200.00	200.00	200.00	200.00	0.47	0.47	-179.11	-49.59	-0.77	49.59	48.65	0.94	52.722		
300.00	300.00	300.00	300.00	0.81	0.81	-179.11	-49.59	-0.77	49.59	47.98	1.61	30.709		
400.00	399.98	401.02	401.00	1.11	1.14	-7.24	-48.46	0.61	46.74	44.46	2.28	20.486		
500.00	499.84	500.94	500.81	1.41	1.48	-13.46	-45.61	4.09	38.99	36.07	2.92	13.371		
600.00	599.45	600.15	599.92	1.73	1.81	-25.60	-42.66	7.71	28.65	25.11	3.55	8.079		
700.00	698.70	698.88	698.54	2.06	2.14	-56.51	-39.72	11.30	18.70	14.51	4.19	4.466		
741.39	739.65	739.58	739.19	2.21	2.28	-79.97	-38.51	12.78	17.16	12.68	4.48	3.827 CC, ES, SF		
800.00	797.47	797.01	796.56	2.42	2.47	-113.77	-36.80	14.87	20.67	15.74	4.93	4.196		
900.00	895.96	894.81	894.25	2.82	2.80	-142.24	-33.89	18.43	36.57	30.97	5.60	6.528		
1,000.00	994.45	992.61	991.94	3.22	3.13	-152.54	-30.97	21.99	55.83	49.58	6.25	8.938		
1,100.00	1,092.94	1,090.41	1,089.64	3.63	3.46	-157.50	-28.06	25.55	75.94	69.04	6.89	11.015		
1,200.00	1,191.43	1,188.21	1,187.33	4.04	3.80	-160.37	-25.15	29.11	96.37	88.82	7.55	12.768		
1,300.00	1,289.92	1,286.02	1,285.02	4.46	4.13	-162.24	-22.24	32.67	116.94	108.74	8.20	14.254		
1,400.00	1,388.41	1,383.82	1,382.72	4.88	4.46	-163.55	-19.33	36.24	137.60	128.74	8.86	15.523		
1,500.00	1,486.90	1,481.62	1,480.41	5.30	4.79	-164.52	-16.42	39.80	158.31	148.79	9.53	16.618		
1,600.00	1,585.39	1,579.42	1,578.10	5.72	5.13	-165.26	-13.51	43.36	179.06	168.87	10.19	17.571		
1,700.00	1,683.88	1,677.22	1,675.80	6.15	5.46	-165.85	-10.59	46.92	199.83	188.97	10.86	18.406		
1,800.00	1,782.38	1,775.02	1,773.49	6.57	5.79	-166.33	-7.68	50.48	220.61	209.09	11.52	19.144		
1,900.00	1,880.87	1,872.82	1,871.18	7.00	6.13	-166.72	-4.77	54.04	241.41	229.22	12.19	19.801		
2,000.00	1,979.36	1,970.62	1,968.88	7.42	6.46	-167.05	-1.86	57.60	262.21	249.35	12.86	20.389		
2,100.00	2,077.85	2,068.43	2,066.57	7.85	6.79	-167.34	1.05	61.16	283.02	269.49	13.53	20.919		
2,200.00	2,176.34	2,166.23	2,164.26	8.28	7.12	-167.58	3.96	64.72	303.84	289.64	14.20	21.397		
2,300.00	2,274.83	2,264.03	2,261.95	8.70	7.46	-167.80	6.87	68.28	324.67	309.79	14.87	21.833		
2,400.00	2,373.32	2,361.83	2,359.65	9.13	7.79	-167.98	9.79	71.84	345.49	329.95	15.54	22.230		
2,500.00	2,471.81	2,459.63	2,457.34	9.56	8.12	-168.15	12.70	75.40	366.32	350.11	16.21	22.594		
2,600.00	2,570.30	2,557.43	2,555.03	9.99	8.46	-168.30	15.61	78.96	387.15	370.27	16.89	22.929		
2,700.00	2,668.79	2,655.23	2,652.73	10.42	8.79	-168.43	18.52	82.52	407.99	390.43	17.56	23.238		
2,800.00	2,767.29	2,753.03	2,750.42	10.85	9.12	-168.55	21.43	86.08	428.83	410.60	18.23	23.524		
2,900.00	2,865.78	2,850.84	2,848.11	11.28	9.46	-168.66	24.34	89.64	449.66	430.76	18.90	23.789		
3,000.00	2,964.27	2,948.64	2,945.81	11.71	9.79	-168.76	27.25	93.20	470.50	450.93	19.58	24.036		
3,100.00	3,062.76	3,046.44	3,043.50	12.14	10.12	-168.85	30.17	96.76	491.34	471.10	20.25	24.266		
3,200.00	3,161.25	3,144.24	3,141.19	12.57	10.46	-168.94	33.08	100.32	512.19	491.27	20.92	24.482		
3,300.00	3,259.74	3,242.04	3,238.89	13.00	10.79	-169.01	35.99	103.88	533.03	511.43	21.59	24.683		
3,400.00	3,358.23	3,339.84	3,336.58	13.43	11.12	-169.09	38.90	107.44	553.87	531.61	22.27	24.873		
3,500.00	3,456.72	3,437.64	3,434.27	13.86	11.46	-169.15	41.81	111.01	574.72	551.78	22.94	25.051		
3,600.00	3,555.21	3,535.45	3,531.97	14.29	11.79	-169.21	44.72	114.57	595.56	571.95	23.62	25.219		
3,700.00	3,653.70	3,633.25	3,629.66	14.72	12.12	-169.27	47.63	118.13	616.41	592.12	24.29	25.377		
3,800.00	3,752.20	3,731.05	3,727.35	15.15	12.46	-169.32	50.54	121.69	637.26	612.29	24.96	25.527		
3,900.00	3,850.69	3,828.85	3,825.04	15.58	12.79	-169.37	53.46	125.25	658.10	632.46	25.64	25.669		
4,000.00	3,949.18	3,926.65	3,922.74	16.01	13.12	-169.42	56.37	128.81	678.95	652.64	26.31	25.804		
4,100.00	4,047.67	4,024.45	4,020.43	16.44	13.46	-169.47	59.28	132.37	699.80	672.81	26.99	25.931		
4,200.00	4,146.16	4,122.25	4,118.12	16.87	13.79	-169.51	62.19	135.93	720.65	692.99	27.66	26.053		
4,300.00	4,244.65	4,220.05	4,215.82	17.30	14.12	-169.55	65.10	139.49	741.49	713.16	28.34	26.168		
4,400.00	4,343.14	4,317.86	4,313.51	17.73	14.46	-169.58	68.01	143.05	762.34	733.33	29.01	26.279		
4,500.00	4,441.63	4,415.66	4,411.20	18.16	14.79	-169.62	70.92	146.61	783.19	753.51	29.68	26.384		
4,600.00	4,540.12	4,513.46	4,508.90	18.59	15.12	-169.65	73.84	150.17	804.04	773.68	30.36	26.484		
4,700.00	4,638.65	4,611.31	4,606.63	18.99	15.46	-169.71	76.75	153.73	824.67	793.65	31.02	26.585		
4,800.00	4,737.61	4,709.68	4,704.90	19.25	15.79	-169.77	79.68	157.31	842.63	811.01	31.62	26.650		
4,900.00	4,837.01	4,808.60	4,803.71	19.50	16.13	-169.77	82.62	160.92	857.19	824.97	32.22	26.606		
5,000.00	4,936.74	4,907.96	4,902.96	19.74	16.47	-169.72	85.58	164.53	868.35	835.53	32.82	26.458		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3135 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning				
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor						
5,100.00	5,036.65	6,440.82	5,820.00	19.96	21.69	-100.15	-749.90	170.62	823.13	808.20	14.93	55.143						
5,200.00	5,136.65	6,441.50	5,820.00	20.21	21.70	89.90	-750.58	170.62	728.64	712.29	16.35	44.576						
5,300.00	5,236.65	6,441.50	5,820.00	20.42	21.70	89.90	-750.58	170.62	635.80	617.60	18.20	34.932						
5,400.00	5,336.62	6,440.14	5,820.00	20.63	21.69	97.76	-749.22	170.62	545.53	524.84	20.69	26.364						
5,500.00	5,435.05	6,423.42	5,820.00	20.77	21.57	111.60	-732.50	170.59	460.56	436.65	23.91	19.266						
5,600.00	5,528.49	6,388.23	5,820.00	20.83	21.33	116.86	-697.31	170.53	385.84	357.97	27.87	13.843						
5,700.00	5,613.50	6,335.86	5,820.00	20.81	21.00	116.20	-644.94	170.44	326.34	294.03	32.31	10.101						
5,800.00	5,686.96	6,268.24	5,820.00	20.76	20.61	111.36	-577.32	170.33	285.47	249.14	36.33	7.857						
5,900.00	5,746.18	6,187.84	5,820.00	20.70	20.19	104.04	-496.93	170.20	263.02	224.12	38.90	6.761						
6,000.00	5,788.96	6,096.08	5,819.33	20.64	19.80	96.31	-405.17	170.04	254.12	214.30	39.82	6.382						
6,081.94	5,810.66	6,018.22	5,809.60	20.64	19.52	89.75	-328.00	169.92	252.17	212.32	39.84	6.329						
6,100.00	5,813.76	6,001.65	5,806.05	20.63	19.47	88.32	-311.82	169.89	252.26	212.49	39.77	6.342						
6,200.00	5,820.00	5,913.26	5,778.54	20.68	19.21	80.66	-227.92	169.75	255.96	216.86	39.10	6.546						
6,300.00	5,820.00	5,834.62	5,742.47	20.82	19.01	72.89	-158.13	169.63	267.77	229.80	37.97	7.052						
6,400.00	5,820.00	5,768.25	5,704.13	21.07	18.86	65.29	-104.01	169.54	292.45	255.84	36.60	7.990						
6,500.00	5,820.00	5,713.17	5,667.31	21.41	18.73	58.76	-63.09	169.47	331.50	295.97	35.53	9.330						
6,600.00	5,820.00	5,667.69	5,633.78	21.85	18.62	53.50	-32.38	169.42	383.59	348.58	35.01	10.956						
6,700.00	5,820.00	5,630.03	5,604.07	22.38	18.52	49.37	-9.25	169.39	446.15	411.22	34.94	12.770						
6,800.00	5,820.00	5,600.00	5,579.23	22.99	18.45	46.26	7.63	169.36	516.64	481.50	35.15	14.700						
6,900.00	5,820.00	5,572.27	5,555.47	23.68	18.38	43.56	21.92	169.33	593.03	557.65	35.38	16.761						
7,000.00	5,820.00	5,550.00	5,535.86	24.43	18.32	41.52	32.46	169.32	673.83	638.16	35.67	18.889						
7,100.00	5,820.00	5,530.74	5,518.54	25.26	18.27	39.84	40.90	169.30	757.98	722.03	35.95	21.084						
7,200.00	5,820.00	5,500.00	5,490.30	26.13	18.19	37.34	53.02	169.28	845.00	809.00	36.00	23.474						
7,300.00	5,820.00	5,500.00	5,490.30	27.06	18.19	37.34	53.02	169.28	933.42	897.00	36.42	25.632						
7,400.00	5,820.00	5,500.00	5,490.30	28.04	18.19	37.34	53.02	169.28	1,023.97	987.24	36.73	27.878						
7,500.00	5,820.00	5,476.02	5,467.81	29.06	18.12	35.53	61.31	169.27	1,115.34	1,078.57	36.77	30.333						
7,600.00	5,820.00	5,450.00	5,442.98	30.11	18.05	33.71	69.12	169.25	1,208.35	1,171.56	36.79	32.843						
7,700.00	5,820.00	5,450.00	5,442.98	31.20	18.05	33.71	69.12	169.25	1,301.59	1,264.59	37.00	35.178						
7,800.00	5,820.00	5,450.00	5,442.98	32.32	18.05	33.71	69.12	169.25	1,395.77	1,358.60	37.17	37.549						
7,900.00	5,820.00	5,450.00	5,442.98	33.47	18.05	33.71	69.12	169.25	1,490.70	1,453.39	37.32	39.947						



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	129.95	-49.59	59.21	77.24					
100.00	100.00	100.00	100.00	0.13	0.13	129.95	-49.59	59.21	77.24	76.97	0.27	289.981		
200.00	200.00	200.00	200.00	0.47	0.47	129.95	-49.59	59.21	77.24	76.30	0.94	82.109		
300.00	300.00	300.00	300.00	0.81	0.81	129.95	-49.59	59.21	77.24	75.62	1.61	47.826		
345.92	345.92	345.24	345.24	0.95	0.96	-56.75	-49.49	59.55	77.23	75.33	1.90	40.550 CC		
400.00	399.98	398.46	398.44	1.11	1.13	-58.41	-49.11	60.83	77.27	75.01	2.25	34.284 ES		
500.00	499.84	496.43	496.27	1.41	1.46	-64.62	-47.66	65.66	77.99	75.07	2.92	26.738		
600.00	599.45	593.43	592.91	1.73	1.79	-74.35	-45.28	73.59	81.20	77.54	3.67	22.139		
700.00	698.70	691.30	690.23	2.06	2.12	-85.96	-42.29	83.58	88.24	83.88	4.37	20.201		
800.00	797.47	788.85	787.22	2.42	2.47	-97.41	-39.30	93.57	98.92	93.86	5.06	19.540		
900.00	895.96	886.05	883.87	2.82	2.81	-107.34	-36.31	103.52	113.41	107.66	5.75	19.724		
1,000.00	994.45	983.26	980.52	3.22	3.16	-114.91	-33.33	113.48	130.54	124.11	6.43	20.309		
1,100.00	1,092.94	1,080.47	1,077.17	3.63	3.51	-120.69	-30.35	123.43	149.40	142.30	7.10	21.041		
1,200.00	1,191.43	1,177.67	1,173.82	4.04	3.86	-125.16	-27.37	133.38	169.42	161.64	7.78	21.785		
1,300.00	1,289.92	1,274.88	1,270.46	4.46	4.21	-128.69	-24.38	143.34	190.23	181.77	8.45	22.500		
1,400.00	1,388.41	1,372.08	1,367.11	4.88	4.57	-131.51	-21.40	153.29	211.60	202.46	9.13	23.164		
1,500.00	1,486.90	1,469.29	1,463.76	5.30	4.92	-133.82	-18.42	163.24	233.37	223.55	9.82	23.771		
1,600.00	1,585.39	1,566.50	1,560.41	5.72	5.28	-135.73	-15.44	173.20	255.45	244.94	10.50	24.323		
1,700.00	1,683.88	1,663.70	1,657.06	6.15	5.63	-137.34	-12.45	183.15	277.75	266.56	11.19	24.823		
1,800.00	1,782.38	1,760.91	1,753.71	6.57	5.98	-138.72	-9.47	193.10	300.23	288.35	11.88	25.276		
1,900.00	1,880.87	1,858.11	1,850.36	7.00	6.34	-139.90	-6.49	203.06	322.86	310.29	12.57	25.688		
2,000.00	1,979.36	1,955.32	1,947.01	7.42	6.69	-140.92	-3.50	213.01	345.59	332.33	13.26	26.064		
2,100.00	2,077.85	2,052.53	2,043.66	7.85	7.05	-141.82	-0.52	222.96	368.42	354.47	13.95	26.406		
2,200.00	2,176.34	2,149.73	2,140.31	8.28	7.40	-142.62	2.46	232.91	391.33	376.68	14.65	26.720		
2,300.00	2,274.83	2,246.94	2,236.95	8.70	7.76	-143.32	5.44	242.87	414.30	398.96	15.34	27.008		
2,400.00	2,373.32	2,344.14	2,333.60	9.13	8.12	-143.96	8.43	252.82	437.32	421.29	16.03	27.273		
2,500.00	2,471.81	2,441.35	2,430.25	9.56	8.47	-144.52	11.41	262.77	460.39	443.66	16.73	27.518		
2,600.00	2,570.30	2,538.55	2,526.90	9.99	8.83	-145.04	14.39	272.73	483.50	466.07	17.43	27.745		
2,700.00	2,668.79	2,635.76	2,623.55	10.42	9.18	-145.51	17.37	282.68	506.64	488.51	18.12	27.955		
2,800.00	2,767.29	2,732.97	2,720.20	10.85	9.54	-145.93	20.36	292.63	529.81	510.99	18.82	28.151		
2,900.00	2,865.78	2,830.17	2,816.85	11.28	9.89	-146.33	23.34	302.59	553.00	533.49	19.52	28.334		
3,000.00	2,964.27	2,927.38	2,913.50	11.71	10.25	-146.69	26.32	312.54	576.22	556.01	20.22	28.504		
3,100.00	3,062.76	3,024.58	3,010.15	12.14	10.61	-147.02	29.30	322.49	599.46	578.55	20.91	28.664		
3,200.00	3,161.25	3,121.79	3,106.80	12.57	10.96	-147.33	32.29	332.44	622.72	601.10	21.61	28.813		
3,300.00	3,259.74	3,219.00	3,203.44	13.00	11.32	-147.61	35.27	342.40	645.99	623.68	22.31	28.954		
3,400.00	3,358.23	3,316.20	3,300.09	13.43	11.67	-147.88	38.25	352.35	669.27	646.26	23.01	29.087		
3,500.00	3,456.72	3,413.41	3,396.74	13.86	12.03	-148.12	41.24	362.30	692.57	668.86	23.71	29.212		
3,600.00	3,555.21	3,510.61	3,493.39	14.29	12.39	-148.36	44.22	372.26	715.88	691.47	24.41	29.330		
3,700.00	3,653.70	3,607.82	3,590.04	14.72	12.74	-148.57	47.20	382.21	739.20	714.09	25.11	29.441		
3,800.00	3,752.20	3,705.03	3,686.69	15.15	13.10	-148.78	50.18	392.16	762.53	736.72	25.81	29.547		
3,900.00	3,850.69	3,802.23	3,783.34	15.58	13.46	-148.97	53.17	402.12	785.87	759.36	26.51	29.648		
4,000.00	3,949.18	3,899.44	3,879.99	16.01	13.81	-149.15	56.15	412.07	809.21	782.01	27.21	29.743		
4,100.00	4,047.67	3,996.64	3,976.64	16.44	14.17	-149.32	59.13	422.02	832.57	804.66	27.91	29.833		
4,200.00	4,146.16	4,093.85	4,073.29	16.87	14.52	-149.48	62.11	431.98	855.93	827.32	28.61	29.920		
4,300.00	4,244.65	4,191.06	4,169.93	17.30	14.88	-149.63	65.10	441.93	879.29	849.99	29.31	30.002		
4,400.00	4,343.14	4,288.26	4,266.58	17.73	15.24	-149.78	68.08	451.88	902.67	872.66	30.01	30.080		
4,500.00	4,441.63	4,385.47	4,363.23	18.16	15.59	-149.91	71.06	461.83	926.04	895.33	30.71	30.155		
4,600.00	4,540.12	4,482.67	4,459.88	18.59	15.95	-150.05	74.04	471.79	949.42	918.01	31.41	30.227		
4,700.00	4,638.65	4,579.93	4,556.58	18.99	16.31	-150.25	77.03	481.75	972.62	940.53	32.09	30.306		
4,800.00	4,737.61	4,677.72	4,653.81	19.25	16.66	-150.49	80.03	491.76	993.46	960.77	32.70	30.382		
4,900.00	4,837.01	4,773.14	4,768.64	19.50	17.06	-150.60	83.38	502.96	1,010.96	977.57	33.39	30.276		
5,000.00	4,936.74	4,869.02	4,869.02	19.74	22.30	-100.53	-746.43	513.04	995.49	971.13	24.36	40.859		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	Hz	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-3136 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:		0.00 usft			
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth Depth (usft)	Vertical Depth (usft)	Measured Depth 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	5,036.65	6,372.92	5,735.00	19.96	22.33	-97.70	-750.32	513.04	917.59	891.08	26.52	34.606					
5,200.00	5,136.65	6,373.60	5,735.00	20.21	22.33	90.00	-751.00	513.04	844.04	815.10	28.94	29.168					
5,300.00	5,236.65	6,373.60	5,735.00	20.42	22.33	90.00	-751.00	513.04	776.35	744.77	31.59	24.579					
5,400.00	5,336.62	6,372.24	5,735.00	20.63	22.32	92.77	-749.64	513.04	716.30	681.89	34.41	20.818					
5,500.00	5,435.05	6,355.52	5,735.00	20.77	22.21	97.50	-732.92	513.04	666.59	629.55	37.04	17.995					
5,600.00	5,528.49	6,320.33	5,735.00	20.83	21.97	98.69	-697.73	513.04	630.09	590.99	39.11	16.112					
5,700.00	5,613.50	6,267.96	5,735.00	20.81	21.64	97.02	-645.36	513.04	607.56	567.21	40.35	15.057					
5,800.00	5,686.96	6,200.34	5,735.00	20.76	21.24	93.44	-577.74	513.04	597.23	556.49	40.73	14.662 SF					
5,878.93	5,735.00	6,137.80	5,735.00	20.71	20.92	90.00	-515.21	513.04	595.29	554.70	40.59	14.665					
5,900.00	5,746.18	6,119.94	5,735.00	20.70	20.83	89.08	-497.35	513.04	595.40	554.89	40.50	14.700					
6,000.00	5,788.96	6,032.33	5,734.41	20.64	20.45	85.16	-409.74	513.04	597.79	557.81	39.99	14.950					
6,100.00	5,813.76	5,950.00	5,724.01	20.63	20.14	81.79	-328.16	513.04	602.28	562.85	39.43	15.273					
6,200.00	5,820.00	5,872.83	5,702.72	20.68	19.89	78.85	-254.06	513.04	608.28	569.32	38.96	15.614					
6,300.00	5,820.00	5,800.00	5,672.80	20.82	19.68	76.11	-187.72	513.04	618.03	579.48	38.55	16.032					
6,400.00	5,820.00	5,739.20	5,640.93	21.07	19.52	73.26	-135.98	513.04	634.13	595.89	38.24	16.585					
6,500.00	5,820.00	5,685.81	5,608.15	21.41	19.39	70.41	-93.87	513.04	657.87	619.87	38.00	17.312					
6,600.00	5,820.00	5,650.00	5,583.82	21.85	19.31	68.36	-67.61	513.04	690.03	652.02	38.00	18.157					
6,700.00	5,820.00	5,600.00	5,546.95	22.38	19.19	65.36	-33.86	513.04	730.30	692.45	37.85	19.296					
6,800.00	5,820.00	5,569.22	5,522.71	22.99	19.11	63.46	-14.90	513.04	778.53	740.57	37.96	20.509					
6,900.00	5,820.00	5,550.00	5,507.02	23.68	19.07	62.27	-3.80	513.04	833.93	795.71	38.22	21.821					
7,000.00	5,820.00	5,517.24	5,479.37	24.43	18.99	60.22	13.76	513.04	895.32	857.02	38.30	23.376					
7,100.00	5,820.00	5,500.00	5,464.39	25.26	18.94	59.15	22.29	513.04	962.12	923.60	38.52	24.975					
7,200.00	5,820.00	5,478.34	5,445.19	26.13	18.89	57.80	32.30	513.04	1,033.36	994.70	38.67	26.724					
7,300.00	5,820.00	5,450.00	5,419.46	27.06	18.82	56.07	44.18	513.04	1,108.59	1,069.84	38.74	28.614					
7,400.00	5,820.00	5,450.00	5,419.46	28.04	18.82	56.07	44.18	513.04	1,186.58	1,147.54	39.04	30.393					
7,500.00	5,820.00	5,450.00	5,419.46	29.06	18.82	56.07	44.18	513.04	1,267.67	1,228.39	39.28	32.270					
7,600.00	5,820.00	5,424.90	5,396.16	30.11	18.76	54.55	53.52	513.04	1,350.52	1,311.20	39.32	34.348					
7,700.00	5,820.00	5,400.00	5,372.63	31.20	18.69	53.07	61.67	513.04	1,435.79	1,396.44	39.35	36.486					
7,800.00	5,820.00	5,400.00	5,372.63	32.32	18.69	53.07	61.67	513.04	1,522.17	1,482.65	39.53	38.511					



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	112.59	-49.59	119.19	129.09					
100.00	100.00	100.00	100.00	0.13	0.13	112.59	-49.59	119.19	129.09	128.82	0.27	484.671		
200.00	200.00	200.00	200.00	0.47	0.47	112.59	-49.59	119.19	129.09	128.15	0.94	137.237		
300.00	300.00	300.00	300.00	0.81	0.81	112.59	-49.59	119.19	129.09	127.48	1.61	79.935 CC, ES		
400.00	399.98	396.30	396.28	1.11	1.12	-74.75	-49.28	120.78	130.03	127.76	2.27	57.341		
500.00	499.84	492.17	492.02	1.41	1.44	-77.88	-48.38	125.52	133.13	130.18	2.96	45.047		
600.00	599.45	587.18	586.70	1.73	1.76	-82.69	-46.90	133.32	139.19	135.49	3.71	37.568		
700.00	698.70	680.93	679.81	2.06	2.09	-88.59	-44.86	144.03	149.26	144.77	4.50	33.191		
800.00	797.47	773.03	770.88	2.42	2.43	-94.87	-42.31	157.47	164.37	159.06	5.31	30.958		
900.00	895.96	868.57	865.07	2.82	2.79	-101.11	-39.30	173.26	183.74	177.77	5.97	30.766		
1,000.00	994.45	964.80	959.92	3.22	3.16	-106.19	-36.27	189.19	204.92	198.30	6.62	30.965		
1,100.00	1,092.94	1,061.03	1,054.77	3.63	3.54	-110.32	-33.24	205.13	227.38	220.11	7.28	31.252		
1,200.00	1,191.43	1,157.26	1,149.62	4.04	3.93	-113.71	-30.22	221.06	250.79	242.85	7.93	31.609		
1,300.00	1,289.92	1,253.49	1,244.47	4.46	4.31	-116.52	-27.19	236.99	274.89	266.28	8.61	31.932		
1,400.00	1,388.41	1,349.72	1,339.33	4.88	4.70	-118.88	-24.16	252.92	299.53	290.24	9.29	32.241		
1,500.00	1,486.90	1,445.95	1,434.18	5.30	5.09	-120.88	-21.13	268.86	324.58	314.60	9.98	32.527		
1,600.00	1,585.39	1,542.17	1,529.03	5.72	5.48	-122.60	-18.10	284.79	349.94	339.27	10.67	32.790		
1,700.00	1,683.88	1,638.40	1,623.88	6.15	5.87	-124.08	-15.07	300.72	375.57	364.20	11.37	33.028		
1,800.00	1,782.38	1,734.63	1,718.73	6.57	6.26	-125.38	-12.04	316.65	401.40	389.33	12.07	33.246		
1,900.00	1,880.87	1,830.86	1,813.59	7.00	6.65	-126.52	-9.01	332.59	427.41	414.63	12.78	33.444		
2,000.00	1,979.36	1,927.09	1,908.44	7.42	7.05	-127.53	-5.98	348.52	453.55	440.06	13.49	33.624		
2,100.00	2,077.85	2,023.32	2,003.29	7.85	7.44	-128.43	-2.95	364.45	479.82	465.62	14.20	33.789		
2,200.00	2,176.34	2,119.54	2,098.14	8.28	7.83	-129.24	0.08	380.38	506.18	491.26	14.91	33.940		
2,300.00	2,274.83	2,215.77	2,192.99	8.70	8.23	-129.97	3.11	396.32	532.62	517.00	15.63	34.079		
2,400.00	2,373.32	2,312.00	2,287.85	9.13	8.62	-130.63	6.14	412.25	559.14	542.80	16.35	34.207		
2,500.00	2,471.81	2,408.23	2,382.70	9.56	9.02	-131.23	9.17	428.18	585.73	568.66	17.06	34.325		
2,600.00	2,570.30	2,504.46	2,477.55	9.99	9.41	-131.78	12.20	444.11	612.36	594.58	17.78	34.434		
2,700.00	2,668.79	2,600.69	2,572.40	10.42	9.80	-132.28	15.23	460.05	639.05	620.54	18.50	34.536		
2,800.00	2,767.29	2,696.92	2,667.25	10.85	10.20	-132.74	18.26	475.98	665.78	646.55	19.23	34.630		
2,900.00	2,865.78	2,793.14	2,762.11	11.28	10.59	-133.17	21.29	491.91	692.54	672.59	19.95	34.718		
3,000.00	2,964.27	2,889.37	2,856.96	11.71	10.99	-133.56	24.32	507.84	719.34	698.67	20.67	34.800		
3,100.00	3,062.76	2,985.60	2,951.81	12.14	11.38	-133.93	27.35	523.78	746.16	724.77	21.39	34.877		
3,200.00	3,161.25	3,081.83	3,046.66	12.57	11.78	-134.27	30.38	539.71	773.02	750.90	22.12	34.950		
3,300.00	3,259.74	3,178.06	3,141.51	13.00	12.18	-134.59	33.41	555.64	799.89	777.05	22.84	35.017		
3,400.00	3,358.23	3,274.29	3,236.37	13.43	12.57	-134.88	36.44	571.57	826.79	803.22	23.57	35.081		
3,500.00	3,456.72	3,370.52	3,331.22	13.86	12.97	-135.16	39.47	587.51	853.71	829.41	24.29	35.141		
3,600.00	3,555.21	3,466.74	3,426.07	14.29	13.36	-135.42	42.50	603.44	880.64	855.62	25.02	35.198		
3,700.00	3,653.70	3,562.97	3,520.92	14.72	13.76	-135.67	45.53	619.37	907.59	881.85	25.75	35.252		
3,800.00	3,752.20	3,659.20	3,615.77	15.15	14.15	-135.90	48.56	635.30	934.56	908.09	26.47	35.303		
3,900.00	3,850.69	3,755.43	3,710.63	15.58	14.55	-136.12	51.58	651.24	961.54	934.34	27.20	35.351		
4,000.00	3,949.18	3,851.66	3,805.48	16.01	14.94	-136.33	54.61	667.17	988.53	960.60	27.93	35.397		
4,100.00	4,047.67	3,947.89	3,900.33	16.44	15.34	-136.52	57.64	683.10	1,015.53	986.88	28.65	35.441		
4,200.00	4,146.16	4,044.12	3,995.18	16.87	15.74	-136.71	60.67	699.03	1,042.55	1,013.16	29.38	35.482		
4,300.00	4,244.65	4,140.34	4,090.03	17.30	16.13	-136.89	63.70	714.97	1,069.57	1,039.46	30.11	35.521		
4,400.00	4,343.14	4,236.57	4,184.89	17.73	16.53	-137.05	66.73	730.90	1,096.60	1,065.76	30.84	35.559		
4,500.00	4,441.63	4,332.80	4,279.74	18.16	16.92	-137.21	69.76	746.83	1,123.64	1,092.07	31.57	35.595		
4,600.00	4,540.12	4,429.03	4,374.59	18.59	17.32	-137.37	72.79	762.76	1,150.69	1,118.39	32.30	35.629		
4,700.00	4,638.65	4,525.31	4,469.49	18.99	17.72	-137.64	75.82	778.70	1,177.58	1,144.58	33.00	35.680		
4,800.00	4,737.61	4,641.77	4,584.37	19.25	18.14	-138.03	79.39	797.48	1,202.21	1,168.51	33.71	35.667		
4,900.00	4,837.01	4,795.36	4,736.78	19.50	18.58	-138.35	82.92	816.04	1,220.78	1,186.28	34.50	35.385		
5,000.00	4,936.74	4,801.25	4,734.00	19.74	23.48	-99.05	-746.44	829.15	1,210.52	1,180.60	29.92	40.459		
5,100.00	5,036.65	4,805.15	4,734.00	19.96	23.51	-97.19	-750.33	829.15	1,147.52	1,115.67	31.85	36.030		

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-1935
<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-1935	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Well Error:</b>	0.00 usft	<b>Output errors are at</b>	3.00 sigma
<b>Reference Wellbore</b>	HZ	<b>Database:</b>	LandmarkEDM
<b>Reference Design:</b>	APD	<b>Offset TVD Reference:</b>	Offset Datum

<b>Offset Design</b> Sec 30-T10N-R57W - Horsetail #30E-3137 Dropped - HZ - APD												<b>Offset Site Error:</b>	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												<b>Offset Well Error:</b>	0.00 usft
Reference		Offset		Semi Major Axis		Highside Toolface (°)	Distance		Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)		Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)					
5,200.00	5,136.65	6,405.82	5,734.00	20.21	23.51	90.00	-751.01	829.15	1,089.72	1,055.87	33.85	32.193	
5,300.00	5,236.65	6,405.82	5,734.00	20.42	23.51	90.00	-751.01	829.15	1,038.27	1,002.44	35.83	28.976	
5,400.00	5,336.62	6,404.46	5,734.00	20.63	23.51	91.80	-749.65	829.15	994.27	956.52	37.75	26.338	
5,500.00	5,435.05	6,387.75	5,734.00	20.77	23.40	94.90	-732.93	829.15	959.18	919.85	39.32	24.391	
5,600.00	5,528.49	6,352.56	5,734.00	20.83	23.18	95.67	-697.74	829.15	934.28	893.90	40.38	23.135	
5,700.00	5,613.50	6,300.19	5,734.00	20.81	22.87	94.56	-645.37	829.15	919.33	878.46	40.87	22.493	
5,800.00	5,686.96	6,232.57	5,734.00	20.76	22.51	92.20	-577.75	829.15	912.61	871.71	40.90	22.313 SF	
5,877.08	5,733.99	6,171.58	5,734.00	20.71	22.21	90.00	-516.76	829.15	911.40	870.72	40.69	22.401	
5,900.00	5,746.18	6,152.17	5,734.00	20.70	22.13	89.34	-497.36	829.15	911.48	870.88	40.60	22.450	
6,000.00	5,788.96	6,064.69	5,733.37	20.64	21.78	86.78	-409.89	829.15	913.10	872.93	40.17	22.732	
6,100.00	5,813.76	5,983.38	5,723.05	20.63	21.50	84.57	-329.32	829.15	916.10	876.33	39.77	23.036	
6,200.00	5,820.00	5,905.58	5,701.56	20.68	21.28	82.60	-254.62	829.15	920.11	880.67	39.44	23.327	
6,300.00	5,820.00	5,834.39	5,672.36	20.82	21.10	80.80	-189.76	829.15	926.66	887.41	39.25	23.608	
6,400.00	5,820.00	5,772.25	5,639.84	21.07	20.95	78.82	-136.84	829.16	937.56	898.38	39.18	23.929	
6,500.00	5,820.00	5,718.96	5,607.11	21.41	20.84	76.85	-94.82	829.16	953.87	914.65	39.23	24.318	
6,600.00	5,820.00	5,673.66	5,576.03	21.85	20.74	75.01	-61.88	829.16	976.35	936.97	39.38	24.795	
6,700.00	5,820.00	5,635.23	5,547.50	22.38	20.66	73.35	-36.15	829.16	1,005.39	965.77	39.62	25.377	
6,800.00	5,820.00	5,600.00	5,519.75	22.99	20.58	71.77	-14.46	829.16	1,041.06	1,001.16	39.90	26.090	
6,900.00	5,820.00	5,574.62	5,498.87	23.68	20.53	70.59	-0.02	829.16	1,083.13	1,042.85	40.29	26.886	
7,000.00	5,820.00	5,550.00	5,477.98	24.43	20.47	69.43	13.00	829.16	1,131.25	1,090.62	40.63	27.842	
7,100.00	5,820.00	5,529.83	5,460.42	25.26	20.43	68.47	22.92	829.16	1,184.89	1,143.90	40.99	28.905	
7,200.00	5,820.00	5,500.00	5,433.78	26.13	20.36	67.03	36.33	829.16	1,243.68	1,202.41	41.27	30.137	
7,300.00	5,820.00	5,500.00	5,433.78	27.06	20.36	67.03	36.33	829.16	1,306.65	1,264.95	41.70	31.334	
7,400.00	5,820.00	5,481.83	5,417.20	28.04	20.32	66.16	43.73	829.16	1,373.66	1,331.69	41.97	32.730	
7,500.00	5,820.00	5,469.39	5,405.69	29.06	20.29	65.55	48.47	829.16	1,444.15	1,401.91	42.24	34.190	
7,600.00	5,820.00	5,450.00	5,387.55	30.11	20.25	64.62	55.31	829.16	1,517.74	1,475.30	42.44	35.761	



# WOG

## Anticollision Report

<b>Company:</b>	Whiting Petroleum Corp.	<b>Local Co-ordinate Reference:</b>	Well Horsetail #30E-1935
<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-1935	<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	108.39	-49.59	149.18	157.20					
100.00	100.00	100.00	100.00	0.13	0.13	108.39	-49.59	149.18	157.20	156.94	0.27	590.224		
200.00	200.00	200.00	200.00	0.47	0.47	108.39	-49.59	149.18	157.20	156.26	0.94	167.124		
300.00	300.00	300.00	300.00	0.81	0.81	108.39	-49.59	149.18	157.20	155.59	1.61	97.344 CC, ES		
400.00	399.98	395.22	395.21	1.11	1.12	-78.67	-49.39	150.75	158.35	156.08	2.27	69.788		
500.00	499.84	490.04	489.90	1.41	1.43	-81.03	-48.79	155.43	162.00	159.04	2.96	54.721		
600.00	599.45	584.06	583.60	1.73	1.75	-84.66	-47.79	163.13	168.70	164.99	3.71	45.504		
700.00	698.70	676.91	675.82	2.06	2.07	-89.18	-46.42	173.73	179.22	174.73	4.49	39.922		
800.00	797.47	768.21	766.13	2.42	2.40	-94.12	-44.70	187.04	194.33	189.04	5.29	36.741		
900.00	895.96	858.03	854.51	2.82	2.75	-99.01	-42.66	202.91	214.33	208.25	6.08	35.256		
1,000.00	994.45	946.51	941.04	3.22	3.12	-103.05	-40.29	221.22	238.80	231.95	6.84	34.892		
1,100.00	1,092.94	1,033.72	1,025.72	3.63	3.49	-106.29	-37.63	241.85	267.25	259.67	7.58	35.273		
1,200.00	1,191.43	1,127.99	1,116.93	4.04	3.92	-109.12	-34.58	265.47	297.82	289.62	8.20	36.340		
1,300.00	1,289.92	1,222.25	1,208.15	4.46	4.36	-111.42	-31.53	289.08	328.93	320.12	8.81	37.329		
1,400.00	1,388.41	1,316.52	1,299.36	4.88	4.81	-113.33	-28.48	312.69	360.45	350.99	9.46	38.100		
1,500.00	1,486.90	1,410.79	1,390.57	5.30	5.25	-114.93	-25.43	336.31	392.27	382.15	10.12	38.750		
1,600.00	1,585.39	1,505.06	1,481.78	5.72	5.71	-116.29	-22.38	359.92	424.34	413.54	10.80	39.297		
1,700.00	1,683.88	1,599.33	1,573.00	6.15	6.16	-117.47	-19.33	383.54	456.58	445.10	11.48	39.759		
1,800.00	1,782.38	1,693.60	1,664.21	6.57	6.62	-118.49	-16.28	407.15	488.98	476.80	12.18	40.152		
1,900.00	1,880.87	1,787.87	1,755.42	7.00	7.08	-119.38	-13.23	430.77	521.50	508.62	12.88	40.488		
2,000.00	1,979.36	1,882.14	1,846.63	7.42	7.54	-120.17	-10.18	454.38	554.12	540.53	13.59	40.777		
2,100.00	2,077.85	1,976.41	1,937.85	7.85	8.00	-120.87	-7.13	477.99	586.83	572.52	14.30	41.027		
2,200.00	2,176.34	2,070.68	2,029.06	8.28	8.46	-121.50	-4.08	501.61	619.60	604.58	15.02	41.245		
2,300.00	2,274.83	2,164.95	2,120.27	8.70	8.93	-122.06	-1.03	525.22	652.44	636.69	15.75	41.437		
2,400.00	2,373.32	2,259.21	2,211.48	9.13	9.39	-122.57	2.01	548.84	685.32	668.85	16.47	41.606		
2,500.00	2,471.81	2,353.48	2,302.70	9.56	9.86	-123.04	5.06	572.45	718.25	701.05	17.20	41.755		
2,600.00	2,570.30	2,447.75	2,393.91	9.99	10.32	-123.46	8.11	596.06	751.22	733.29	17.93	41.889		
2,700.00	2,668.79	2,542.02	2,485.12	10.42	10.79	-123.85	11.16	619.68	784.23	765.56	18.67	42.008		
2,800.00	2,767.29	2,636.29	2,576.34	10.85	11.25	-124.21	14.21	643.29	817.26	797.85	19.41	42.115		
2,900.00	2,865.78	2,730.56	2,667.55	11.28	11.72	-124.53	17.26	666.91	850.32	830.17	20.14	42.212		
3,000.00	2,964.27	2,824.83	2,758.76	11.71	12.19	-124.84	20.31	690.52	883.40	862.51	20.88	42.300		
3,100.00	3,062.76	2,919.10	2,849.97	12.14	12.66	-125.12	23.36	714.14	916.50	894.88	21.63	42.379		
3,200.00	3,161.25	3,013.37	2,941.19	12.57	13.12	-125.38	26.41	737.75	949.62	927.25	22.37	42.452		
3,300.00	3,259.74	3,107.64	3,032.40	13.00	13.59	-125.63	29.46	761.36	982.76	959.65	23.11	42.518		
3,400.00	3,358.23	3,201.91	3,123.61	13.43	14.06	-125.86	32.51	784.98	1,015.91	992.05	23.86	42.579		
3,500.00	3,456.72	3,296.17	3,214.82	13.86	14.53	-126.07	35.56	808.59	1,049.08	1,024.47	24.61	42.635		
3,600.00	3,555.21	3,390.44	3,306.04	14.29	14.99	-126.28	38.61	832.21	1,082.26	1,056.90	25.35	42.687		
3,700.00	3,653.70	3,484.71	3,397.25	14.72	15.46	-126.46	41.66	855.82	1,115.45	1,089.34	26.10	42.735		
3,800.00	3,752.20	3,578.98	3,488.46	15.15	15.93	-126.64	44.71	879.44	1,148.65	1,121.80	26.85	42.779		
3,900.00	3,850.69	3,673.25	3,579.67	15.58	16.40	-126.81	47.76	903.05	1,181.86	1,154.26	27.60	42.820		
4,000.00	3,949.18	3,767.52	3,670.89	16.01	16.87	-126.97	50.80	926.66	1,215.07	1,186.72	28.35	42.859		
4,100.00	4,047.67	3,861.79	3,762.10	16.44	17.34	-127.12	53.85	950.28	1,248.30	1,219.20	29.10	42.894		
4,200.00	4,146.16	3,956.06	3,853.31	16.87	17.81	-127.27	56.90	973.89	1,281.53	1,251.68	29.85	42.927		
4,300.00	4,244.65	4,050.33	3,944.52	17.30	18.27	-127.40	59.95	997.51	1,314.77	1,284.17	30.61	42.958		
4,400.00	4,343.14	4,144.60	4,035.74	17.73	18.74	-127.53	63.00	1,021.12	1,348.02	1,316.66	31.36	42.987		
4,500.00	4,441.63	4,238.87	4,126.95	18.16	19.21	-127.65	66.05	1,044.73	1,381.27	1,349.16	32.11	43.015		
4,600.00	4,540.12	4,333.14	4,218.16	18.59	19.68	-127.77	69.10	1,068.35	1,414.53	1,381.66	32.87	43.040		
4,700.00	4,638.65	4,443.85	4,325.34	18.99	20.21	-128.09	72.65	1,095.86	1,447.55	1,413.85	33.70	42.950		
4,800.00	4,737.61	4,621.46	4,498.95	19.25	20.85	-128.70	77.43	1,132.88	1,475.32	1,440.59	34.73	42.479		
4,900.00	4,837.01	4,805.00	4,680.44	19.50	21.40	-129.16	80.92	1,159.85	1,495.48	1,459.86	35.62	41.980		
5,000.00	4,936.74	4,649.45	4,535.00	19.74	25.75	-98.15	-749.34	1,177.25	1,490.74	1,457.44	33.31	44.754		
5,100.00	5,036.65	4,673.35	4,535.00	19.96	25.77	-96.80	-753.24	1,177.24	1,440.08	1,405.20	34.88	41.289		

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-1935
<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-1935	<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	5,136.65	6,474.03	5,735.00	20.21	25.78	90.13	-753.91	1,177.24	1,394.40	1,357.96	36.44	38.269		
5,300.00	5,236.65	6,474.03	5,735.00	20.42	25.78	90.13	-753.91	1,177.24	1,354.50	1,316.60	37.91	35.730		
5,400.00	5,336.62	6,472.67	5,735.00	20.63	25.77	91.44	-752.55	1,177.24	1,321.00	1,281.72	39.28	33.628		
5,500.00	5,435.05	6,455.95	5,735.00	20.77	25.68	93.69	-735.83	1,177.28	1,294.76	1,254.42	40.34	32.100		
5,600.00	5,528.49	6,420.76	5,735.00	20.83	25.49	94.25	-700.64	1,177.36	1,276.43	1,235.47	40.97	31.159		
5,700.00	5,613.50	6,368.39	5,735.00	20.81	25.22	93.44	-648.28	1,177.49	1,265.58	1,224.39	41.20	30.720		
5,800.00	5,686.96	6,300.77	5,735.00	20.76	24.92	91.71	-580.65	1,177.64	1,260.81	1,219.72	41.09	30.684 SF		
5,871.14	5,730.69	6,244.72	5,735.00	20.71	24.69	90.24	-524.60	1,177.77	1,260.03	1,219.14	40.90	30.810		
5,900.00	5,746.18	6,220.38	5,735.00	20.70	24.59	89.63	-500.26	1,177.83	1,260.13	1,219.34	40.79	30.894		
6,000.00	5,788.96	6,132.77	5,734.40	20.64	24.30	87.75	-412.66	1,178.03	1,261.47	1,221.07	40.41	31.219		
6,100.00	5,813.76	6,050.00	5,723.91	20.63	24.07	86.11	-330.65	1,178.22	1,263.83	1,223.76	40.07	31.543		
6,200.00	5,820.00	5,973.28	5,702.70	20.68	23.89	84.68	-257.00	1,178.39	1,266.93	1,227.12	39.81	31.822		
6,300.00	5,820.00	5,900.00	5,672.56	20.82	23.74	83.33	-190.27	1,178.54	1,271.88	1,232.18	39.70	32.037		
6,400.00	5,820.00	5,839.67	5,640.91	21.07	23.62	81.92	-138.94	1,178.66	1,280.00	1,240.25	39.75	32.199		
6,500.00	5,820.00	5,786.28	5,608.12	21.41	23.53	80.46	-96.84	1,178.76	1,292.16	1,252.22	39.94	32.351		
6,600.00	5,820.00	5,750.00	5,583.45	21.85	23.46	79.38	-70.24	1,178.82	1,309.04	1,268.75	40.29	32.491		
6,700.00	5,820.00	5,700.00	5,546.55	22.38	23.37	77.77	-36.53	1,178.90	1,330.94	1,290.27	40.67	32.725		
6,800.00	5,820.00	5,669.71	5,522.69	22.99	23.32	76.74	-17.88	1,178.94	1,358.22	1,317.02	41.20	32.968		
6,900.00	5,820.00	5,650.00	5,506.59	23.68	23.28	76.04	-6.51	1,178.97	1,390.93	1,349.14	41.79	33.280		
7,000.00	5,820.00	5,617.74	5,479.36	24.43	23.22	74.89	10.77	1,179.01	1,428.80	1,386.46	42.34	33.749		
7,100.00	5,820.00	5,600.00	5,463.94	25.26	23.19	74.24	19.55	1,179.03	1,471.78	1,428.79	42.99	34.238		
7,200.00	5,820.00	5,578.84	5,445.18	26.13	23.15	73.45	29.32	1,179.05	1,519.51	1,475.93	43.58	34.871		



# WOG

## Anticollision Report

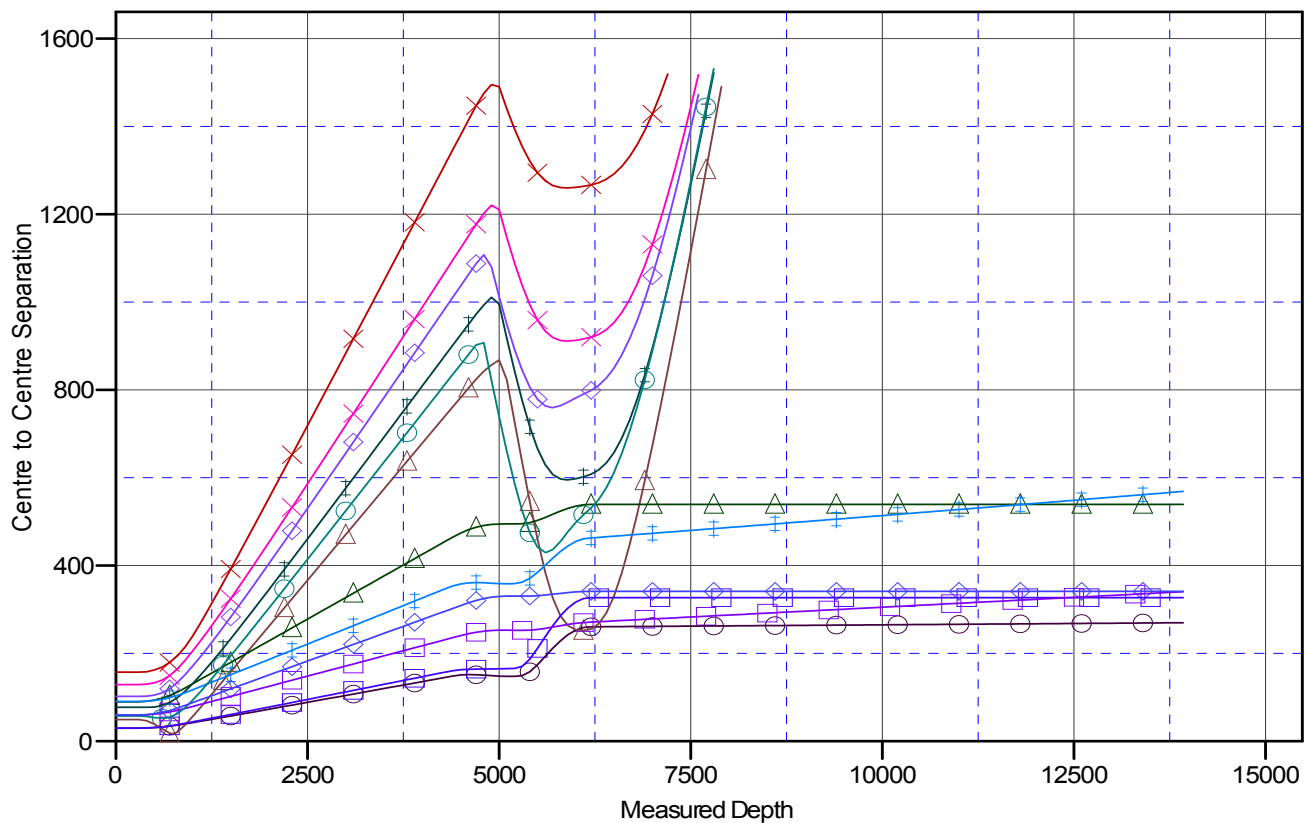
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1935  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1935  
**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-1935  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Ladder Plot



### LEGEND

- |  |                                |                                |
|--|--------------------------------|--------------------------------|
| Horsetail #30E-1902, Hz, APDV0         | Horsetail #30E-3138, Hz, APDV0 | Horsetail #30E-1903, Hz, APDV0 |
| Horsetail #30E-3104, Hz, APDV0         | Horsetail #30E-1904, Hz, APDV0 | Horsetail #30E-1934, Hz, APDV0 |
| Horsetail #30E-3137 Dropped, Hz, APDV0 | Horsetail #30E-3136, Hz, APDV0 | Horsetail #30E-3103, Hz, APDV0 |
| Horsetail #30E-3135, Hz, APDV0         | Horsetail #30E-1901, Hz, APDV0 | Horsetail #30E-1936, Hz, APDV0 |



# WOG

## Anticollision Report

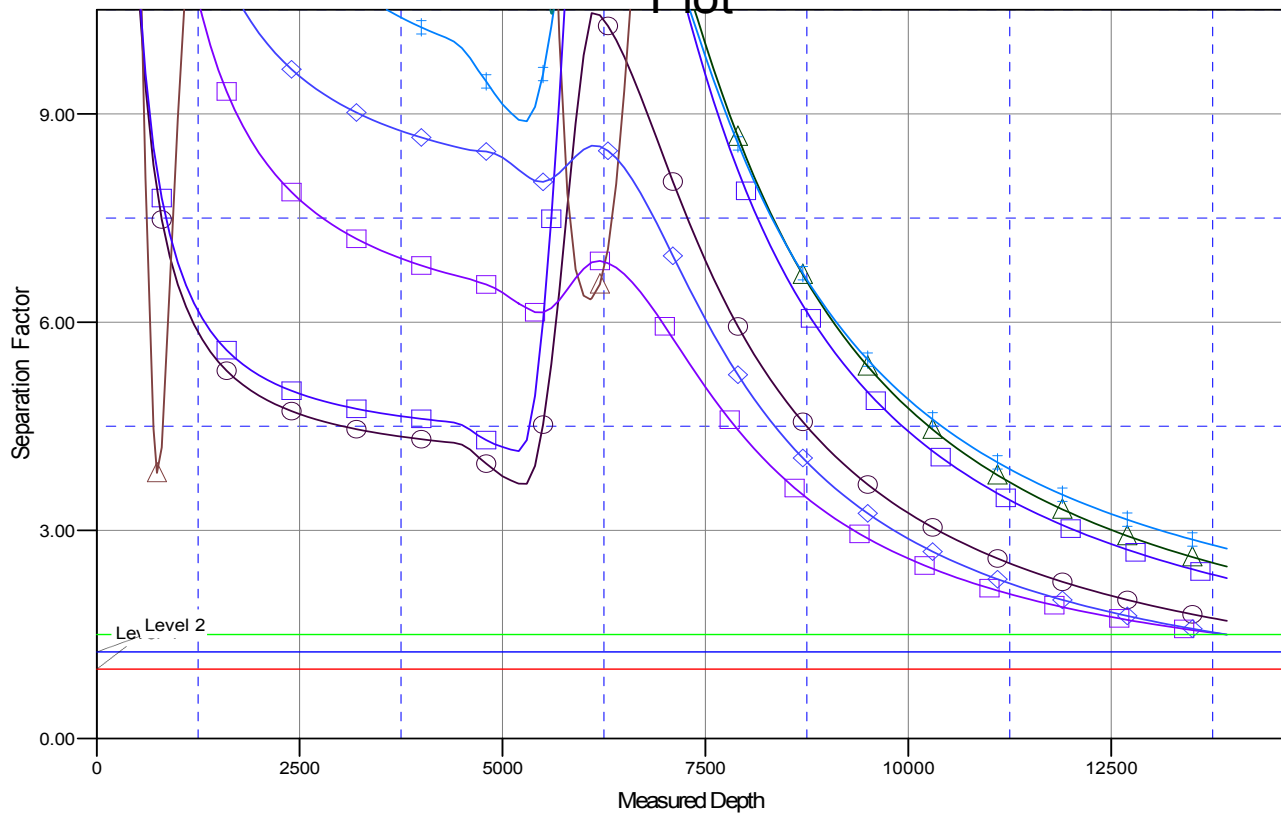
**Company:** Whiting Petroleum Corp.  
**Project:** Weld County, CO  
**Reference Site:** Sec 30-T10N-R57W  
**Site Error:** 0.00 usft  
**Reference Well:** Horsetail #30E-1935  
**Well Error:** 0.00 usft  
**Reference Wellbore:** Hz  
**Reference Design:** APD

**Local Co-ordinate Reference:** Well Horsetail #30E-1935  
**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-1935  
Coordinate System is US State Plane 1983, Colorado Northern Zone  
Grid Convergence at Surface is: 1.10°

### Separation Factor Plot



### LEGEND

- |  |                                |                                |
|--|--------------------------------|--------------------------------|
| Horsetail #30E-1902, Hz, APDV0         | Horsetail #30E-3138, Hz, APDV0 | Horsetail #30E-1903, Hz, APDV0 |
| Horsetail #30E-3104, Hz, APDV0         | Horsetail #30E-1904, Hz, APDV0 | Horsetail #30E-1934, Hz, APDV0 |
| Horsetail #30E-3137 Dropped, Hz, APDV0 | Horsetail #30E-3136, Hz, APDV0 | Horsetail #30E-3103, Hz, APDV0 |
| Horsetail #30E-3135, Hz, APDV0         | Horsetail #30E-1901, Hz, APDV0 | Horsetail #30E-1936, Hz, APDV0 |