



Whiting Petroleum Corp.

Weld County, CO

Sec 30-T10N-R57W

Horsetail #30E-3136

Hz

APD

Anticollision Report

22 October, 2015



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

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

Survey Tool Program		Date	10/22/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,855.60	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	157.94	156.32	97.797	CC, ES
Horsetail #30E-1901 - Hz - APD	5,605.92	6,093.07	965.45	927.46	25.413	SF
Horsetail #30E-1902 - Hz - APD	300.00	300.00	102.06	100.45	63.199	CC, ES
Horsetail #30E-1902 - Hz - APD	5,685.19	6,109.27	744.36	706.01	19.410	SF
Horsetail #30E-1903 - Hz - APD	597.85	601.28	52.13	48.51	14.412	CC
Horsetail #30E-1903 - Hz - APD	600.00	603.42	52.13	48.50	14.360	ES
Horsetail #30E-1903 - Hz - APD	5,588.47	6,108.61	430.01	391.89	11.279	SF
Horsetail #30E-1904 - Hz - APD	805.40	805.10	12.39	7.31	2.440	CC, ES, SF
Horsetail #30E-1934 - Hz - APD	300.00	300.00	129.09	127.48	79.937	CC, ES
Horsetail #30E-1934 - Hz - APD	6,200.00	5,793.30	856.65	816.36	21.263	SF
Horsetail #30E-1935 - Hz - APD	345.25	345.93	77.23	75.33	40.549	CC
Horsetail #30E-1935 - Hz - APD	400.00	401.43	77.27	75.01	34.194	ES
Horsetail #30E-1935 - Hz - APD	6,200.00	5,830.22	596.41	555.65	14.632	SF
Horsetail #30E-1936 - Hz - APD	742.43	744.74	21.83	17.20	4.713	CC, ES, SF
Horsetail #30E-3103 - Hz - APD	200.00	200.00	29.99	29.05	31.882	CC
Horsetail #30E-3103 - Hz - APD	500.00	501.93	30.22	27.15	9.848	ES
Horsetail #30E-3103 - Hz - APD	13,855.60	13,649.58	257.22	87.85	1.519	SF
Horsetail #30E-3104 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-3104 - Hz - APD	13,855.60	13,742.83	209.14	7.18	1.036	Level 2, ES, SF
Horsetail #30E-3135 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-3135 - Hz - APD	400.00	401.64	60.28	57.97	26.063	ES
Horsetail #30E-3135 - Hz - APD	13,855.60	13,924.47	340.77	102.69	1.431	Level 3, SF
Horsetail #30E-3138 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC
Horsetail #30E-3138 - Hz - APD	600.00	590.93	90.06	86.25	23.604	ES
Horsetail #30E-3138 - Hz - APD	13,855.60	13,949.06	646.92	402.34	2.645	SF

Offset Design	Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD										Offset Site Error:	0.00 usft
Survey Program:	0-MWD+IFR1+MS+sag										Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	
0.00	0.00	0.00	0.00	0.00	0.00	-71.70	49.60	-149.95	157.94			
100.00	100.00	100.00	100.00	0.13	0.13	-71.70	49.60	-149.95	157.94	157.67	0.27	592.969
200.00	200.00	200.00	200.00	0.47	0.47	-71.70	49.60	-149.95	157.94	157.00	0.94	167.902

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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		
300.00	300.00	300.00	300.00	0.81	0.81	-71.70	49.60	-149.95	157.94	156.32	1.61	97.797	CC, ES	
400.00	399.98	399.26	399.24	1.13	1.11	-145.97	48.04	-150.67	159.59	157.35	2.24	71.254		
500.00	499.84	497.92	497.77	1.47	1.41	-148.68	43.41	-152.84	164.82	161.96	2.86	57.556		
600.00	599.45	595.41	594.88	1.81	1.72	-152.77	35.81	-156.38	174.31	170.78	3.53	49.330		
700.00	698.88	691.47	690.26	2.15	2.04	-157.63	25.40	-161.24	187.55	183.32	4.23	44.287		
800.00	798.31	786.20	783.86	2.50	2.38	-162.62	12.30	-167.35	203.38	198.42	4.95	41.049		
900.00	897.73	879.40	875.46	2.86	2.75	-167.53	-3.32	-174.64	222.16	216.46	5.70	38.990		
1,000.00	997.16	974.56	968.57	3.22	3.15	-172.18	-21.09	-182.93	243.58	237.17	6.41	37.980		
1,100.00	1,096.59	1,070.37	1,062.32	3.58	3.56	-176.12	-39.03	-191.31	266.39	259.28	7.11	37.465		
1,200.00	1,196.02	1,166.18	1,156.06	3.94	3.98	-179.44	-56.98	-199.68	290.23	282.44	7.79	37.239		
1,300.00	1,295.44	1,261.99	1,249.80	4.31	4.41	177.74	-74.92	-208.05	314.87	306.39	8.48	37.146		
1,400.00	1,394.87	1,357.80	1,343.55	4.67	4.83	175.32	-92.86	-216.43	340.14	330.99	9.15	37.160		
1,500.00	1,494.30	1,453.62	1,437.29	5.03	5.26	173.24	-110.80	-224.80	365.90	356.08	9.83	37.232		
1,600.00	1,593.72	1,549.43	1,531.03	5.40	5.70	171.43	-128.74	-233.17	392.07	381.57	10.50	37.339		
1,700.00	1,693.15	1,645.24	1,624.78	5.76	6.13	169.84	-146.69	-241.55	418.56	407.38	11.17	37.463		
1,800.00	1,792.58	1,741.05	1,718.52	6.13	6.56	168.44	-164.63	-249.92	445.31	433.47	11.84	37.597		
1,900.00	1,892.00	1,836.86	1,812.26	6.49	7.00	167.20	-182.57	-258.29	472.29	459.77	12.52	37.733		
2,000.00	1,991.43	1,932.67	1,906.01	6.86	7.44	166.09	-200.51	-266.67	499.45	486.26	13.19	37.868		
2,100.00	2,090.86	2,028.48	1,999.75	7.22	7.88	165.10	-218.46	-275.04	526.77	512.90	13.86	37.999		
2,200.00	2,190.29	2,124.30	2,093.49	7.59	8.31	164.20	-236.40	-283.41	554.22	539.68	14.54	38.127		
2,300.00	2,289.71	2,220.11	2,187.24	7.95	8.75	163.39	-254.34	-291.79	581.78	566.57	15.21	38.248		
2,400.00	2,389.14	2,315.92	2,280.98	8.32	9.19	162.65	-272.28	-300.16	609.45	593.56	15.89	38.365		
2,500.00	2,488.57	2,411.73	2,374.72	8.69	9.63	161.97	-290.23	-308.53	637.20	620.63	16.56	38.475		
2,600.00	2,587.99	2,507.54	2,468.46	9.05	10.07	161.35	-308.17	-316.91	665.02	647.78	17.24	38.580		
2,700.00	2,687.42	2,603.35	2,562.21	9.42	10.51	160.78	-326.11	-325.28	692.91	675.00	17.91	38.679		
2,800.00	2,786.85	2,699.16	2,655.95	9.78	10.95	160.26	-344.05	-333.65	720.86	702.27	18.59	38.773		
2,900.00	2,886.28	2,794.98	2,749.69	10.15	11.40	159.77	-361.99	-342.03	748.87	729.60	19.27	38.861		
3,000.00	2,985.70	2,890.79	2,843.44	10.52	11.84	159.32	-379.94	-350.40	776.92	756.97	19.95	38.946		
3,100.00	3,085.13	2,986.60	2,937.18	10.88	12.28	158.90	-397.88	-358.77	805.01	784.38	20.63	39.025		
3,200.00	3,184.56	3,082.41	3,030.92	11.25	12.72	158.51	-415.82	-367.15	833.13	811.83	21.31	39.101		
3,300.00	3,283.98	3,178.22	3,124.67	11.62	13.16	158.14	-433.76	-375.52	861.30	839.31	21.99	39.172		
3,400.00	3,383.41	3,274.03	3,218.41	11.98	13.60	157.80	-451.71	-383.89	889.49	866.82	22.67	39.240		
3,500.00	3,482.84	3,369.84	3,312.15	12.35	14.04	157.47	-469.65	-392.26	917.71	894.36	23.35	39.305		
3,600.00	3,582.27	3,465.66	3,405.90	12.71	14.49	157.17	-487.59	-400.64	945.95	921.92	24.03	39.366		
3,700.00	3,681.69	3,561.47	3,499.64	13.08	14.93	156.89	-505.53	-409.01	974.22	949.51	24.71	39.424		
3,800.00	3,781.12	3,657.28	3,593.38	13.45	15.37	156.62	-523.47	-417.38	1,002.51	977.12	25.39	39.480		
3,900.00	3,880.55	3,753.09	3,687.13	13.81	15.81	156.36	-541.42	-425.76	1,030.82	1,004.74	26.08	39.533		
4,000.00	3,979.97	3,848.90	3,780.87	14.18	16.26	156.12	-559.36	-434.13	1,059.14	1,032.39	26.76	39.583		
4,100.00	4,079.40	3,944.71	3,874.61	14.55	16.70	155.89	-577.30	-442.50	1,087.49	1,060.05	27.44	39.631		
4,200.00	4,178.83	4,040.52	3,968.36	14.91	17.14	155.67	-595.24	-450.88	1,115.84	1,087.72	28.12	39.677		
4,300.00	4,278.25	4,136.34	4,062.10	15.28	17.58	155.47	-613.19	-459.25	1,144.21	1,115.41	28.81	39.721		
4,400.00	4,377.68	4,232.15	4,155.84	15.65	18.03	155.27	-631.13	-467.62	1,172.60	1,143.11	29.49	39.762		
4,500.00	4,477.11	4,343.65	4,265.00	16.01	18.50	155.06	-651.75	-477.25	1,200.83	1,170.57	30.26	39.678		
4,600.00	4,576.54	4,502.07	4,421.21	16.38	18.98	154.90	-675.50	-488.33	1,225.54	1,194.32	31.22	39.259		
4,700.00	4,675.96	4,664.30	4,582.43	16.75	19.38	154.91	-691.68	-495.88	1,245.25	1,213.17	32.08	38.817		
4,800.00	4,775.47	6,214.43	5,538.00	17.08	20.44	-165.18	117.41	-513.39	1,224.28	1,195.41	28.87	42.409		
4,900.00	4,875.25	6,216.22	5,538.00	17.34	20.45	-164.74	119.20	-513.42	1,169.97	1,139.47	30.51	38.353		
5,000.00	4,975.20	6,217.06	5,538.00	17.59	20.45	-164.38	120.04	-513.43	1,118.98	1,086.87	32.11	34.848		
5,100.00	5,075.19	6,217.13	5,538.00	17.86	20.45	-90.94	120.11	-513.43	1,072.40	1,038.73	33.67	31.851		
5,200.00	5,175.19	6,217.13	5,538.00	18.16	20.45	-90.94	120.11	-513.43	1,033.19	998.05	35.14	29.401		
5,300.00	5,275.05	6,213.54	5,538.00	18.43	20.44	90.89	116.52	-513.37	1,002.43	966.02	36.41	27.533		
5,400.00	5,372.63	6,192.40	5,538.00	18.69	20.38	92.09	95.38	-513.02	981.02	943.71	37.31	26.292		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design												Sec 30-T10N-R57W - Horsetail #30E-1901 - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis		Distance								Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
5,500.00	5,464.39	6,153.03	5,538.00	18.94	20.29	91.27	56.01	-512.38	969.14	931.31	37.83	25.618					
5,600.00	5,546.95	6,096.88	5,538.00	19.19	20.17	88.94	-0.13	-511.46	965.46	927.47	37.99	25.416					
5,605.92	5,551.48	6,093.07	5,538.00	19.20	20.17	88.76	-3.94	-511.39	965.45	927.46	37.99	25.413 SF					
5,700.00	5,617.28	6,026.02	5,538.00	19.43	20.11	85.76	-70.98	-510.29	967.50	929.55	37.95	25.492					
5,800.00	5,672.80	5,943.04	5,538.00	19.68	20.09	82.53	-153.95	-508.93	972.28	934.41	37.87	25.672					
5,900.00	5,711.47	5,867.76	5,535.63	19.97	20.13	80.11	-229.14	-507.69	977.47	939.58	37.89	25.795					
6,000.00	5,731.86	5,800.00	5,524.80	20.32	20.19	78.10	-295.97	-506.59	983.01	945.00	38.01	25.862					
6,100.00	5,735.00	5,733.87	5,505.97	20.74	20.27	76.57	-359.31	-505.55	988.72	950.49	38.23	25.862					
6,200.00	5,735.00	5,673.00	5,481.67	21.24	20.34	75.19	-415.07	-504.64	997.77	959.29	38.48	25.930					
6,300.00	5,735.00	5,618.56	5,454.56	21.84	20.41	73.68	-462.25	-503.86	1,011.55	972.84	38.71	26.131					
6,400.00	5,735.00	5,570.57	5,426.69	22.51	20.47	72.14	-501.29	-503.22	1,030.69	991.77	38.92	26.483					
6,500.00	5,735.00	5,528.64	5,399.49	23.27	20.52	70.67	-533.18	-502.70	1,055.61	1,016.52	39.10	26.998					
6,600.00	5,735.00	5,500.00	5,379.47	24.08	20.54	69.60	-553.66	-502.36	1,086.60	1,047.29	39.30	27.647					
6,700.00	5,735.00	5,450.00	5,341.95	24.97	20.59	67.64	-586.66	-501.82	1,123.55	1,084.25	39.31	28.584					
6,800.00	5,735.00	5,432.65	5,328.21	25.90	20.59	66.94	-597.25	-501.64	1,166.15	1,126.66	39.49	29.532					
6,900.00	5,735.00	5,400.00	5,301.43	26.88	20.61	65.59	-615.92	-501.34	1,214.39	1,174.88	39.51	30.736					
7,000.00	5,735.00	5,400.00	5,301.43	27.91	20.61	65.59	-615.92	-501.34	1,267.72	1,227.98	39.74	31.897					
7,100.00	5,735.00	5,368.27	5,274.33	28.98	20.62	64.25	-632.42	-501.07	1,325.40	1,285.70	39.70	33.382					
7,200.00	5,735.00	5,350.00	5,258.29	30.08	20.62	63.47	-641.16	-500.92	1,387.42	1,347.68	39.74	34.912					
7,300.00	5,735.00	5,350.00	5,258.29	31.21	20.62	63.47	-641.16	-500.92	1,453.37	1,413.48	39.89	36.436					
7,400.00	5,735.00	5,323.36	5,234.38	32.37	20.62	62.33	-652.89	-500.73	1,522.26	1,482.43	39.82	38.226					



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-60.92	49.60	-89.20	102.06					
100.00	100.00	100.00	100.00	0.13	0.13	-60.92	49.60	-89.20	102.06	101.80	0.27	383.193		
200.00	200.00	200.00	200.00	0.47	0.47	-60.92	49.60	-89.20	102.06	101.12	0.94	108.503		
300.00	300.00	300.00	300.00	0.81	0.81	-60.92	49.60	-89.20	102.06	100.45	1.61	63.199 CC, ES		
400.00	399.98	400.78	400.76	1.13	1.11	-135.89	47.89	-89.65	102.89	100.65	2.24	45.866		
500.00	499.84	501.01	500.84	1.47	1.41	-140.61	42.79	-91.01	105.87	103.02	2.86	37.031		
600.00	599.45	600.11	599.56	1.81	1.73	-147.73	34.43	-93.24	112.33	108.82	3.51	31.993		
700.00	698.88	697.86	696.58	2.15	2.06	-155.94	22.95	-96.30	122.55	118.35	4.20	29.182		
800.00	798.31	794.31	791.86	2.50	2.41	-164.06	8.50	-100.15	135.82	130.90	4.92	27.594		
900.00	897.73	890.23	886.14	2.86	2.79	-171.64	-8.60	-104.70	152.53	146.86	5.67	26.919		
1,000.00	997.16	986.81	980.97	3.22	3.18	-177.86	-26.24	-109.40	171.64	165.25	6.39	26.855		
1,100.00	1,096.59	1,083.39	1,075.81	3.58	3.59	177.17	-43.87	-114.09	192.36	185.26	7.10	27.091		
1,200.00	1,196.02	1,179.97	1,170.65	3.94	4.00	173.17	-61.51	-118.79	214.22	206.43	7.80	27.482		
1,300.00	1,295.44	1,276.54	1,265.49	4.31	4.41	169.92	-79.14	-123.48	236.91	228.42	8.49	27.917		
1,400.00	1,394.87	1,373.12	1,360.32	4.67	4.83	167.23	-96.78	-128.18	260.20	251.03	9.17	28.372		
1,500.00	1,494.30	1,469.70	1,455.16	5.03	5.25	164.98	-114.41	-132.88	283.95	274.10	9.85	28.817		
1,600.00	1,593.72	1,566.28	1,550.00	5.40	5.67	163.08	-132.05	-137.57	308.06	297.52	10.53	29.242		
1,700.00	1,693.15	1,662.85	1,644.84	5.76	6.09	161.45	-149.68	-142.27	332.44	321.22	11.22	29.641		
1,800.00	1,792.58	1,759.43	1,739.68	6.13	6.51	160.04	-167.32	-146.97	357.04	345.14	11.90	30.013		
1,900.00	1,892.00	1,856.01	1,834.51	6.49	6.94	158.82	-184.95	-151.66	381.81	369.24	12.58	30.357		
2,000.00	1,991.43	1,952.59	1,929.35	6.86	7.36	157.74	-202.59	-156.36	406.74	393.48	13.26	30.676		
2,100.00	2,090.86	2,049.16	2,024.19	7.22	7.79	156.79	-220.22	-161.06	431.78	417.84	13.94	30.970		
2,200.00	2,190.29	2,145.74	2,119.03	7.59	8.21	155.94	-237.86	-165.75	456.92	442.29	14.62	31.243		
2,300.00	2,289.71	2,242.32	2,213.86	7.95	8.64	155.18	-255.49	-170.45	482.14	466.84	15.31	31.495		
2,400.00	2,389.14	2,338.90	2,308.70	8.32	9.07	154.50	-273.12	-175.15	507.44	491.45	15.99	31.729		
2,500.00	2,488.57	2,435.47	2,403.54	8.69	9.49	153.88	-290.76	-179.84	532.80	516.12	16.68	31.946		
2,600.00	2,587.99	2,532.05	2,498.38	9.05	9.92	153.31	-308.39	-184.54	558.21	540.85	17.36	32.148		
2,700.00	2,687.42	2,628.63	2,593.21	9.42	10.35	152.80	-326.03	-189.24	583.67	565.62	18.05	32.336		
2,800.00	2,786.85	2,725.21	2,688.05	9.78	10.78	152.33	-343.66	-193.93	609.17	590.43	18.74	32.511		
2,900.00	2,886.28	2,821.78	2,782.89	10.15	11.21	151.90	-361.30	-198.63	634.71	615.28	19.42	32.675		
3,000.00	2,985.70	2,918.36	2,877.73	10.52	11.63	151.50	-378.93	-203.32	660.27	640.16	20.11	32.829		
3,100.00	3,085.13	3,014.94	2,972.57	10.88	12.06	151.12	-396.57	-208.02	685.87	665.07	20.80	32.973		
3,200.00	3,184.56	3,111.52	3,067.40	11.25	12.49	150.78	-414.20	-212.72	711.48	690.00	21.49	33.108		
3,300.00	3,283.98	3,208.10	3,162.24	11.62	12.92	150.46	-431.84	-217.41	737.13	714.95	22.18	33.236		
3,400.00	3,383.41	3,304.67	3,257.08	11.98	13.35	150.16	-449.47	-222.11	762.79	739.92	22.87	33.356		
3,500.00	3,482.84	3,401.25	3,351.92	12.35	13.78	149.88	-467.11	-226.81	788.47	764.91	23.56	33.469		
3,600.00	3,582.27	3,497.83	3,446.75	12.71	14.21	149.62	-484.74	-231.50	814.16	789.91	24.25	33.576		
3,700.00	3,681.69	3,594.41	3,541.59	13.08	14.64	149.38	-502.38	-236.20	839.87	814.93	24.94	33.677		
3,800.00	3,781.12	3,690.98	3,636.43	13.45	15.07	149.15	-520.01	-240.90	865.60	839.97	25.63	33.773		
3,900.00	3,880.55	3,787.56	3,731.27	13.81	15.50	148.93	-537.65	-245.59	891.33	865.01	26.32	33.864		
4,000.00	3,979.97	3,884.14	3,826.10	14.18	15.92	148.72	-555.28	-250.29	917.08	890.07	27.01	33.951		
4,100.00	4,079.40	3,980.72	3,920.94	14.55	16.35	148.53	-572.92	-254.99	942.84	915.14	27.70	34.033		
4,200.00	4,178.83	4,077.29	4,015.78	14.91	16.78	148.35	-590.55	-259.68	968.61	940.21	28.40	34.111		
4,300.00	4,278.25	4,173.87	4,110.62	15.28	17.21	148.17	-608.19	-264.38	994.38	965.30	29.09	34.186		
4,400.00	4,377.68	4,270.45	4,205.46	15.65	17.64	148.01	-625.82	-269.08	1,020.17	990.39	29.78	34.257		
4,500.00	4,477.11	4,367.03	4,300.29	16.01	18.07	147.85	-643.46	-273.77	1,045.96	1,015.49	30.47	34.325		
4,600.00	4,576.54	4,490.00	4,421.25	16.38	18.55	147.68	-661.09	-278.48	1,071.11	1,039.80	31.16	34.390		
4,700.00	4,675.96	4,637.69	4,567.54	16.75	18.94	147.66	-678.35	-283.19	1,096.28	1,060.11	31.85	34.447		
4,800.00	4,775.47	4,788.16	4,717.45	17.08	19.30	147.89	-695.66	-287.94	1,121.43	1,085.26	32.54	34.500		
4,900.00	4,875.25	4,888.12	4,816.00	17.34	20.70	-164.16	133.53	-290.89	1,041.07	1,013.63	27.44	37.941		
5,000.00	4,975.20	4,888.00	4,816.00	17.59	20.70	-163.62	134.42	-290.89	975.79	946.45	29.34	33.263		
5,100.00	5,075.19	4,888.08	4,816.00	17.86	20.70	-90.12	134.49	-290.89	914.53	883.24	31.30	29.222		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,175.19	6,289.08	5,606.00	18.16	20.70	-90.12	134.49	-290.89	860.36	827.07	33.29	25.845		
5,300.00	5,275.05	6,285.49	5,606.00	18.43	20.69	92.87	130.90	-290.89	814.94	779.77	35.18	23.168		
5,400.00	5,372.63	6,264.34	5,606.00	18.69	20.62	95.34	109.75	-290.84	780.39	743.67	36.71	21.257		
5,500.00	5,464.39	6,224.97	5,606.00	18.94	20.49	95.12	70.38	-290.76	757.94	720.21	37.74	20.085		
5,600.00	5,546.95	6,168.81	5,606.00	19.19	20.33	92.81	14.22	-290.65	746.82	708.58	38.24	19.528		
5,685.19	5,607.74	6,109.27	5,606.00	19.39	20.20	89.82	-45.32	-290.53	744.36	706.01	38.35	19.410 SF		
5,700.00	5,617.28	6,097.94	5,606.00	19.43	20.18	89.25	-56.65	-290.51	744.42	706.08	38.34	19.415		
5,800.00	5,672.80	6,014.95	5,606.00	19.68	20.08	85.43	-139.64	-290.34	747.16	708.88	38.29	19.515		
5,900.00	5,711.47	5,931.63	5,604.26	19.97	20.05	82.33	-222.91	-290.17	751.72	713.46	38.26	19.646		
6,000.00	5,731.86	5,856.21	5,592.70	20.32	20.07	79.71	-297.37	-290.02	757.37	719.08	38.29	19.778		
6,100.00	5,735.00	5,783.65	5,571.54	20.74	20.11	77.60	-366.72	-289.88	763.91	725.51	38.40	19.896		
6,200.00	5,735.00	5,717.52	5,544.04	21.24	20.16	75.60	-426.81	-289.76	774.33	735.86	38.47	20.130		
6,300.00	5,735.00	5,659.29	5,513.70	21.84	20.21	73.42	-476.47	-289.66	790.35	751.89	38.46	20.550		
6,400.00	5,735.00	5,600.00	5,477.30	22.51	20.27	70.88	-523.24	-289.56	812.95	774.63	38.32	21.214		
6,500.00	5,735.00	5,565.43	5,453.71	23.27	20.30	69.27	-548.49	-289.51	842.44	804.18	38.26	22.021		
6,600.00	5,735.00	5,528.22	5,426.50	24.08	20.32	67.46	-573.87	-289.46	879.16	841.05	38.11	23.070		
6,700.00	5,735.00	5,500.00	5,404.70	24.97	20.34	66.04	-591.78	-289.42	922.85	884.85	38.00	24.287		
6,800.00	5,735.00	5,468.71	5,379.43	25.90	20.35	64.43	-610.23	-289.39	972.98	935.16	37.82	25.724		
6,900.00	5,735.00	5,450.00	5,363.81	26.88	20.36	63.46	-620.52	-289.37	1,029.04	991.28	37.77	27.248		
7,000.00	5,735.00	5,424.04	5,341.55	27.91	20.37	62.10	-633.86	-289.34	1,090.26	1,052.64	37.62	28.981		
7,100.00	5,735.00	5,400.00	5,320.35	28.98	20.37	60.84	-645.21	-289.32	1,156.14	1,118.65	37.49	30.835		
7,200.00	5,735.00	5,400.00	5,320.35	30.08	20.37	60.84	-645.21	-289.32	1,226.04	1,188.44	37.61	32.601		
7,300.00	5,735.00	5,375.51	5,298.25	31.21	20.36	59.56	-655.75	-289.29	1,299.18	1,261.70	37.48	34.664		
7,400.00	5,735.00	5,350.00	5,274.73	32.37	20.36	58.23	-665.62	-289.27	1,375.61	1,338.26	37.35	36.830		
7,500.00	5,735.00	5,350.00	5,274.73	33.55	20.36	58.23	-665.62	-289.27	1,454.21	1,416.76	37.45	38.827		
7,600.00	5,735.00	5,350.00	5,274.73	34.76	20.36	58.23	-665.62	-289.27	1,535.31	1,497.76	37.55	40.892		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	-30.50	49.60	-29.22	57.57					
100.00	100.00	100.00	100.00	0.13	0.13	-30.50	49.60	-29.22	57.57	57.30	0.27	216.143		
200.00	200.00	200.00	200.00	0.47	0.47	-30.50	49.60	-29.22	57.57	56.63	0.94	61.202		
300.00	300.00	300.00	300.00	0.81	0.81	-30.50	49.60	-29.22	57.57	55.95	1.61	35.648		
400.00	399.98	401.75	401.73	1.13	1.11	-106.41	47.80	-29.09	56.45	54.16	2.30	24.589		
500.00	499.84	503.05	502.88	1.47	1.42	-114.68	42.43	-28.71	53.82	50.84	2.98	18.051		
597.85	597.32	601.28	600.73	1.80	1.73	-129.09	33.81	-28.11	52.13	48.51	3.62	14.412	CC	
600.00	599.45	603.42	602.86	1.81	1.74	-129.47	33.59	-28.09	52.13	48.50	3.63	14.360	ES	
700.00	698.88	702.68	701.36	2.15	2.07	-148.54	21.42	-27.23	54.35	50.12	4.23	12.841		
800.00	798.31	800.81	798.26	2.50	2.43	-167.51	6.05	-26.15	61.83	56.93	4.89	12.634		
900.00	897.73	898.06	893.85	2.86	2.81	176.78	-11.81	-24.89	75.21	69.55	5.66	13.297		
1,000.00	997.16	995.30	989.39	3.22	3.21	166.10	-29.89	-23.62	92.60	86.18	6.42	14.428		
1,100.00	1,096.59	1,092.55	1,084.93	3.58	3.62	158.90	-47.98	-22.35	112.16	105.01	7.15	15.686		
1,200.00	1,196.02	1,189.80	1,180.47	3.94	4.03	153.86	-66.06	-21.07	132.93	125.07	7.86	16.911		
1,300.00	1,295.44	1,287.05	1,276.02	4.31	4.44	150.19	-84.15	-19.80	154.43	145.87	8.56	18.036		
1,400.00	1,394.87	1,384.29	1,371.56	4.67	4.86	147.42	-102.23	-18.53	176.38	167.12	9.26	19.053		
1,500.00	1,494.30	1,481.54	1,467.10	5.03	5.28	145.27	-120.32	-17.25	198.64	188.69	9.95	19.964		
1,600.00	1,593.72	1,578.79	1,562.65	5.40	5.70	143.55	-138.40	-15.98	221.12	210.47	10.64	20.777		
1,700.00	1,693.15	1,676.04	1,658.19	5.76	6.13	142.14	-156.49	-14.70	243.75	232.41	11.34	21.503		
1,800.00	1,792.58	1,773.28	1,753.73	6.13	6.55	140.98	-174.57	-13.43	266.49	254.46	12.03	22.154		
1,900.00	1,892.00	1,870.53	1,849.27	6.49	6.98	140.00	-192.65	-12.16	289.33	276.60	12.72	22.740		
2,000.00	1,991.43	1,967.78	1,944.82	6.86	7.40	139.16	-210.74	-10.88	312.23	298.81	13.42	23.268		
2,100.00	2,090.86	2,065.03	2,040.36	7.22	7.83	138.43	-228.82	-9.61	335.19	321.07	14.12	23.747		
2,200.00	2,190.29	2,162.27	2,135.90	7.59	8.26	137.80	-246.91	-8.33	358.19	343.38	14.81	24.181		
2,300.00	2,289.71	2,259.52	2,231.44	7.95	8.68	137.25	-264.99	-7.06	381.23	365.72	15.51	24.578		
2,400.00	2,389.14	2,356.77	2,326.99	8.32	9.11	136.76	-283.08	-5.79	404.30	388.09	16.21	24.941		
2,500.00	2,488.57	2,454.02	2,422.53	8.69	9.54	136.32	-301.16	-4.51	427.39	410.48	16.91	25.274		
2,600.00	2,587.99	2,551.26	2,518.07	9.05	9.97	135.92	-319.25	-3.24	450.50	432.89	17.61	25.582		
2,700.00	2,687.42	2,648.51	2,613.62	9.42	10.40	135.57	-337.33	-1.97	473.64	455.33	18.31	25.865		
2,800.00	2,786.85	2,745.76	2,709.16	9.78	10.83	135.25	-355.41	-0.69	496.79	477.77	19.01	26.128		
2,900.00	2,886.28	2,843.01	2,804.70	10.15	11.25	134.95	-373.50	0.58	519.95	500.23	19.72	26.372		
3,000.00	2,985.70	2,940.25	2,900.24	10.52	11.68	134.68	-391.58	1.86	543.12	522.70	20.42	26.599		
3,100.00	3,085.13	3,037.50	2,995.79	10.88	12.11	134.44	-409.67	3.13	566.31	545.18	21.12	26.811		
3,200.00	3,184.56	3,134.75	3,091.33	11.25	12.54	134.21	-427.75	4.40	589.50	567.67	21.83	27.009		
3,300.00	3,283.98	3,232.00	3,186.87	11.62	12.97	134.00	-445.84	5.68	612.70	590.17	22.53	27.195		
3,400.00	3,383.41	3,329.25	3,282.42	11.98	13.40	133.81	-463.92	6.95	635.91	612.68	23.23	27.369		
3,500.00	3,482.84	3,426.49	3,377.96	12.35	13.83	133.63	-482.01	8.22	659.13	635.19	23.94	27.533		
3,600.00	3,582.27	3,523.74	3,473.50	12.71	14.26	133.46	-500.09	9.50	682.35	657.70	24.64	27.687		
3,700.00	3,681.69	3,620.99	3,569.04	13.08	14.69	133.30	-518.17	10.77	705.57	680.22	25.35	27.833		
3,800.00	3,781.12	3,718.24	3,664.59	13.45	15.12	133.15	-536.26	12.05	728.80	702.75	26.06	27.970		
3,900.00	3,880.55	3,815.48	3,760.13	13.81	15.55	133.01	-554.34	13.32	752.04	725.28	26.76	28.101		
4,000.00	3,979.97	3,912.73	3,855.67	14.18	15.98	132.88	-572.43	14.59	775.28	747.81	27.47	28.224		
4,100.00	4,079.40	4,009.98	3,951.22	14.55	16.41	132.76	-590.51	15.87	798.52	770.35	28.18	28.341		
4,200.00	4,178.83	4,107.23	4,046.76	14.91	16.84	132.64	-608.60	17.14	821.77	792.89	28.88	28.453		
4,300.00	4,278.25	4,204.47	4,142.30	15.28	17.27	132.54	-626.68	18.42	845.02	815.43	29.59	28.559		
4,400.00	4,377.68	4,301.72	4,237.84	15.65	17.70	132.43	-644.77	19.69	868.27	837.97	30.30	28.660		
4,500.00	4,477.11	4,417.86	4,352.10	16.01	18.14	132.34	-665.52	21.15	890.98	859.88	31.10	28.648		
4,600.00	4,576.54	4,512.62	4,445.54	16.38	18.49	132.42	-684.21	22.47	910.18	878.26	31.92	28.515		
4,700.00	4,675.96	4,609.19	4,541.51	16.75	18.83	132.70	-696.74	23.35	925.36	892.66	32.70	28.303		
4,800.00	4,775.47	4,708.75	4,641.00	17.08	20.51	-165.44	133.15	23.82	870.78	850.16	20.61	42.242		
4,900.00	4,875.25	4,808.64	4,741.00	17.34	20.52	-164.46	135.04	23.82	788.28	765.68	22.61	34.870		
5,000.00	4,975.20	4,908.53	4,841.00	17.59	20.52	-163.60	135.93	23.82	708.13	683.26	24.86	28.479		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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										
Measured Depth	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre		Between Centres	Between Ellipses	Minimum Separation	Separation Factor	Warning				
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)						
5,100.00	5,075.19	6,221.61	5,538.00	17.86	20.52	-90.00	136.00	23.82	631.74	604.30	27.45	23.017					
5,200.00	5,175.19	6,221.61	5,538.00	18.16	20.52	-90.00	136.00	23.82	562.62	532.22	30.40	18.508					
5,300.00	5,275.05	6,218.02	5,538.00	18.43	20.51	94.10	132.41	23.82	504.03	470.51	33.52	15.037					
5,400.00	5,372.63	6,196.87	5,538.00	18.69	20.42	96.68	111.26	23.82	460.71	424.48	36.23	12.716					
5,500.00	5,464.39	6,157.50	5,538.00	18.94	20.29	94.70	71.89	23.82	436.27	398.40	37.87	11.520					
5,588.47	5,538.00	6,108.61	5,538.00	19.16	20.13	90.00	23.00	23.82	430.01	391.89	38.12	11.279 SF					
5,600.00	5,546.95	6,101.34	5,538.00	19.19	20.10	89.24	15.73	23.82	430.10	392.02	38.08	11.295					
5,700.00	5,617.28	6,030.47	5,538.00	19.43	19.94	81.88	-55.14	23.82	437.26	400.00	37.26	11.736					
5,800.00	5,672.80	5,947.48	5,538.00	19.68	19.80	74.57	-138.13	23.82	450.64	414.56	36.08	12.489					
5,900.00	5,711.47	5,867.42	5,536.77	19.97	19.73	69.21	-218.16	23.82	464.30	429.23	35.07	13.240					
6,000.00	5,731.86	5,800.00	5,527.81	20.32	19.72	65.26	-284.93	23.82	477.91	443.66	34.24	13.957					
6,100.00	5,735.00	5,731.62	5,510.00	20.74	19.73	62.38	-350.90	23.82	491.38	457.69	33.69	14.586					
6,200.00	5,735.00	5,669.60	5,486.50	21.24	19.76	59.98	-408.26	23.82	510.84	477.76	33.08	15.445					
6,300.00	5,735.00	5,613.93	5,459.73	21.84	19.80	57.37	-457.04	23.82	538.37	505.96	32.41	16.612					
6,400.00	5,735.00	5,564.75	5,431.88	22.51	19.84	54.82	-497.55	23.82	574.29	542.48	31.81	18.051					
6,500.00	5,735.00	5,521.73	5,404.47	23.27	19.87	52.45	-530.69	23.82	618.42	587.03	31.39	19.704					
6,600.00	5,735.00	5,484.26	5,378.44	24.08	19.90	50.33	-557.63	23.82	670.13	638.98	31.15	21.510					
6,700.00	5,735.00	5,450.00	5,353.00	24.97	19.92	48.38	-580.57	23.82	728.60	697.53	31.07	23.450					
6,800.00	5,735.00	5,423.23	5,332.11	25.90	19.94	46.86	-597.31	23.82	792.88	761.68	31.20	25.413					
6,900.00	5,735.00	5,400.00	5,313.30	26.88	19.95	45.56	-610.94	23.82	862.13	830.71	31.42	27.437					
7,000.00	5,735.00	5,376.55	5,293.72	27.91	19.96	44.26	-623.84	23.82	935.53	903.89	31.64	29.571					
7,100.00	5,735.00	5,350.00	5,270.87	28.98	19.96	42.81	-637.36	23.82	1,012.49	980.70	31.79	31.848					
7,200.00	5,735.00	5,350.00	5,270.87	30.08	19.96	42.81	-637.36	23.82	1,092.35	1,060.00	32.35	33.767					
7,300.00	5,735.00	5,325.03	5,248.78	31.21	19.96	41.49	-649.00	23.82	1,174.47	1,141.99	32.48	36.157					
7,400.00	5,735.00	5,300.00	5,226.11	32.37	19.96	40.20	-659.59	23.82	1,258.95	1,226.35	32.61	38.608					
7,500.00	5,735.00	5,300.00	5,226.11	33.55	19.96	40.20	-659.59	23.82	1,344.85	1,311.82	33.03	40.718					
7,600.00	5,735.00	5,300.00	5,226.11	34.76	19.96	40.20	-659.59	23.82	1,432.57	1,399.17	33.39	42.898					
7,700.00	5,735.00	5,278.14	5,205.91	35.98	19.95	39.10	-667.94	23.82	1,521.21	1,487.71	33.50	45.412					



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	31.81	49.58	30.76	58.35					
100.00	100.00	100.00	100.00	0.13	0.13	31.81	49.58	30.76	58.35	58.08	0.27	219.067		
200.00	200.00	200.00	200.00	0.47	0.47	31.81	49.58	30.76	58.35	57.41	0.94	62.030		
300.00	300.00	300.00	300.00	0.81	0.81	31.81	49.58	30.76	58.35	56.73	1.61	36.130		
400.00	399.98	401.13	401.11	1.13	1.11	-41.24	47.94	31.46	56.03	53.76	2.27	24.677		
500.00	499.84	501.92	501.76	1.47	1.42	-40.27	43.04	33.55	49.09	46.15	2.94	16.677		
600.00	599.45	602.06	601.50	1.81	1.74	-37.85	34.95	37.01	37.61	33.97	3.64	10.322		
700.00	698.88	701.38	700.06	2.15	2.07	-28.02	23.77	41.80	23.18	18.88	4.30	5.391		
800.00	798.31	799.81	797.28	2.50	2.44	21.44	9.60	47.86	12.44	7.44	5.00	2.487		
805.40	803.67	805.10	802.48	2.52	2.46	26.15	8.75	48.22	12.39	7.31	5.08	2.440 CC, ES, SF		
900.00	897.73	897.30	892.99	2.86	2.83	81.52	-7.41	55.13	23.59	17.42	6.18	3.819		
1,000.00	997.16	994.94	988.64	3.22	3.23	96.20	-25.45	62.85	43.62	36.86	6.76	6.450		
1,100.00	1,096.59	1,092.58	1,084.29	3.58	3.65	101.53	-43.49	70.56	64.66	57.29	7.37	8.771		
1,200.00	1,196.02	1,190.23	1,179.94	3.94	4.08	104.24	-61.53	78.27	85.98	77.97	8.01	10.740		
1,300.00	1,295.44	1,287.87	1,275.60	4.31	4.51	105.87	-79.57	85.99	107.40	98.74	8.66	12.400		
1,400.00	1,394.87	1,385.51	1,371.25	4.67	4.94	106.96	-97.61	93.70	128.88	119.55	9.33	13.816		
1,500.00	1,494.30	1,483.15	1,466.90	5.03	5.37	107.73	-115.64	101.41	150.39	140.39	10.00	15.032		
1,600.00	1,593.72	1,580.79	1,562.55	5.40	5.81	108.32	-133.68	109.13	171.92	161.23	10.69	16.085		
1,700.00	1,693.15	1,678.43	1,658.20	5.76	6.25	108.77	-151.72	116.84	193.47	182.09	11.38	17.005		
1,800.00	1,792.58	1,776.07	1,753.85	6.13	6.69	109.13	-169.76	124.56	215.02	202.95	12.07	17.814		
1,900.00	1,892.00	1,873.72	1,849.50	6.49	7.13	109.43	-187.80	132.27	236.58	223.81	12.77	18.530		
2,000.00	1,991.43	1,971.36	1,945.15	6.86	7.57	109.67	-205.84	139.98	258.15	244.68	13.47	19.168		
2,100.00	2,090.86	2,069.00	2,040.80	7.22	8.01	109.88	-223.87	147.70	279.71	265.54	14.17	19.740		
2,200.00	2,190.29	2,166.64	2,136.45	7.59	8.45	110.06	-241.91	155.41	301.29	286.41	14.87	20.255		
2,300.00	2,289.71	2,264.28	2,232.10	7.95	8.90	110.22	-259.95	163.12	322.86	307.28	15.58	20.721		
2,400.00	2,389.14	2,361.92	2,327.75	8.32	9.34	110.35	-277.99	170.84	344.44	328.15	16.29	21.145		
2,500.00	2,488.57	2,459.56	2,423.40	8.69	9.78	110.47	-296.03	178.55	366.02	349.02	17.00	21.532		
2,600.00	2,587.99	2,557.21	2,519.05	9.05	10.23	110.58	-314.07	186.27	387.59	369.89	17.71	21.886		
2,700.00	2,687.42	2,654.85	2,614.70	9.42	10.67	110.67	-332.10	193.98	409.18	390.75	18.42	22.212		
2,800.00	2,786.85	2,752.49	2,710.35	9.78	11.11	110.76	-350.14	201.69	430.76	411.62	19.13	22.512		
2,900.00	2,886.28	2,850.13	2,806.00	10.15	11.56	110.83	-368.18	209.41	452.34	432.49	19.85	22.790		
3,000.00	2,985.70	2,947.77	2,901.65	10.52	12.00	110.91	-386.22	217.12	473.92	453.36	20.56	23.048		
3,100.00	3,085.13	3,045.41	2,997.30	10.88	12.45	110.97	-404.26	224.83	495.51	474.23	21.28	23.288		
3,200.00	3,184.56	3,143.06	3,092.95	11.25	12.89	111.03	-422.30	232.55	517.09	495.10	21.99	23.512		
3,300.00	3,283.98	3,240.70	3,188.60	11.62	13.34	111.08	-440.33	240.26	538.67	515.97	22.71	23.721		
3,400.00	3,383.41	3,338.34	3,284.25	11.98	13.78	111.13	-458.37	247.98	560.26	536.83	23.43	23.916		
3,500.00	3,482.84	3,435.98	3,379.90	12.35	14.23	111.18	-476.41	255.69	581.85	557.70	24.14	24.100		
3,600.00	3,582.27	3,533.62	3,475.55	12.71	14.68	111.22	-494.45	263.40	603.43	578.57	24.86	24.273		
3,700.00	3,681.69	3,631.26	3,571.20	13.08	15.12	111.26	-512.49	271.12	625.02	599.44	25.58	24.435		
3,800.00	3,781.12	3,728.90	3,666.85	13.45	15.57	111.30	-530.53	278.83	646.60	620.31	26.30	24.588		
3,900.00	3,880.55	3,826.55	3,762.50	13.81	16.01	111.33	-548.56	286.54	668.19	641.17	27.02	24.733		
4,000.00	3,979.97	3,924.19	3,858.15	14.18	16.46	111.37	-566.60	294.26	689.78	662.04	27.73	24.871		
4,100.00	4,079.40	4,021.83	3,953.80	14.55	16.91	111.40	-584.64	301.97	711.36	682.91	28.45	25.001		
4,200.00	4,178.83	4,119.47	4,049.45	14.91	17.35	111.43	-602.68	309.69	732.95	703.78	29.17	25.124		
4,300.00	4,278.25	4,217.11	4,145.10	15.28	17.80	111.45	-620.72	317.40	754.54	724.65	29.89	25.241		
4,400.00	4,377.68	4,314.75	4,240.75	15.65	18.24	111.48	-638.76	325.11	776.13	745.51	30.61	25.353		
4,500.00	4,477.11	4,421.31	4,345.19	16.01	18.68	111.51	-656.83	333.44	797.56	766.18	31.38	25.417		
4,600.00	4,576.54	4,515.81	4,473.86	16.38	19.04	111.70	-678.15	341.96	816.10	783.88	32.22	25.332		
4,700.00	4,675.96	4,683.90	4,604.98	16.75	19.38	112.08	-692.80	348.23	830.69	797.68	33.01	25.162		
4,800.00	4,775.47	6,300.32	5,606.00	17.08	20.79	-170.51	133.14	353.62	835.47	824.27	11.20	74.598		
4,900.00	4,875.25	6,302.21	5,606.00	17.34	20.80	-167.75	135.03	353.62	737.16	725.40	11.76	62.663		
5,000.00	4,975.20	6,303.10	5,606.00	17.59	20.80	-164.62	135.92	353.62	638.68	626.26	12.42	51.440		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,075.19	6,303.17	5,606.00	17.86	20.80	-90.00	136.00	353.62	540.18	526.97	13.22	40.868		
5,200.00	5,175.19	6,303.17	5,606.00	18.16	20.80	-90.00	136.00	353.62	442.31	427.91	14.40	30.713		
5,300.00	5,275.05	6,299.59	5,606.00	18.43	20.79	111.16	132.41	353.62	345.79	329.48	16.31	21.207		
5,400.00	5,372.63	6,278.44	5,606.00	18.69	20.72	125.34	111.26	353.62	253.97	234.42	19.55	12.988		
5,500.00	5,464.39	6,239.06	5,606.00	18.94	20.61	124.18	71.89	353.62	173.48	147.98	25.50	6.803		
5,600.00	5,546.95	6,182.91	5,606.00	19.19	20.47	110.64	15.73	353.62	116.32	81.52	34.80	3.343		
5,682.54	5,606.00	6,125.36	5,606.00	19.38	20.38	90.00	-41.81	353.62	100.21	61.77	38.44	2.607		
5,700.00	5,617.28	6,112.03	5,606.00	19.43	20.36	85.02	-55.14	353.62	100.84	62.95	37.89	2.661		
5,800.00	5,672.80	6,029.05	5,606.00	19.68	20.30	59.59	-138.13	353.62	120.43	89.69	30.75	3.917		
5,900.00	5,711.47	5,944.76	5,604.62	19.97	20.31	45.15	-222.38	353.62	146.70	121.99	24.71	5.936		
6,000.00	5,731.86	5,869.02	5,593.63	20.32	20.36	36.78	-297.26	353.62	173.47	152.54	20.93	8.289		
6,100.00	5,735.00	5,800.00	5,574.27	20.74	20.42	31.94	-363.45	353.62	200.04	180.21	19.84	10.084		
6,200.00	5,735.00	5,729.54	5,545.67	21.24	20.49	27.89	-427.78	353.62	236.42	216.80	19.62	12.050		
6,300.00	5,735.00	5,670.87	5,515.40	21.84	20.56	24.53	-478.01	353.62	284.09	263.23	20.86	13.622		
6,400.00	5,735.00	5,619.98	5,484.72	22.51	20.61	21.82	-518.58	353.62	341.26	318.58	22.68	15.049		
6,500.00	5,735.00	5,576.23	5,455.28	23.27	20.65	19.71	-550.93	353.62	406.14	381.56	24.57	16.527		
6,600.00	5,735.00	5,550.00	5,436.37	24.08	20.67	18.55	-569.10	353.62	477.38	450.49	26.90	17.749		
6,700.00	5,735.00	5,500.00	5,397.89	24.97	20.70	16.56	-601.00	353.62	553.04	525.53	27.51	20.102		
6,800.00	5,735.00	5,478.70	5,380.60	25.90	20.71	15.79	-613.44	353.62	632.63	603.58	29.05	21.778		
6,900.00	5,735.00	5,450.00	5,356.53	26.88	20.72	14.83	-629.06	353.62	715.38	685.43	29.96	23.881		
7,000.00	5,735.00	5,433.69	5,342.48	27.91	20.72	14.32	-637.34	353.62	800.53	769.56	30.98	25.844		
7,100.00	5,735.00	5,400.00	5,312.68	28.98	20.73	13.35	-653.04	353.62	888.07	856.70	31.37	28.307		
7,200.00	5,735.00	5,400.00	5,312.68	30.08	20.73	13.35	-653.04	353.62	976.54	944.18	32.36	30.179		
7,300.00	5,735.00	5,400.00	5,312.68	31.21	20.73	13.35	-653.04	353.62	1,067.04	1,033.91	33.13	32.204		
7,400.00	5,735.00	5,372.05	5,287.22	32.37	20.72	12.61	-664.57	353.62	1,158.03	1,124.68	33.34	34.731		
7,500.00	5,735.00	5,350.00	5,266.72	33.55	20.71	12.08	-672.70	353.62	1,250.44	1,216.84	33.61	37.210		
7,600.00	5,735.00	5,350.00	5,266.72	34.76	20.71	12.08	-672.70	353.62	1,343.37	1,309.26	34.10	39.394		
7,700.00	5,735.00	5,350.00	5,266.72	35.98	20.71	12.08	-672.70	353.62	1,437.24	1,402.72	34.52	41.634		
7,800.00	5,735.00	5,350.00	5,266.72	37.23	20.71	12.08	-672.70	353.62	1,531.89	1,497.01	34.88	43.918		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-67.41	49.59	-119.19	129.09					
100.00	100.00	100.00	100.00	0.13	0.13	-67.41	49.59	-119.19	129.09	128.83	0.27	484.683		
200.00	200.00	200.00	200.00	0.47	0.47	-67.41	49.59	-119.19	129.09	128.15	0.94	137.240		
300.00	300.00	300.00	300.00	0.81	0.81	-67.41	49.59	-119.19	129.09	127.48	1.61	79.937 CC, ES		
400.00	399.98	400.10	400.08	1.13	1.11	-141.96	47.95	-119.79	130.40	128.16	2.24	58.227		
500.00	499.84	499.61	499.45	1.47	1.41	-145.49	43.07	-121.58	134.68	131.82	2.86	47.138		
600.00	599.45	597.97	597.44	1.81	1.73	-150.79	35.06	-124.51	142.86	139.35	3.52	40.599		
700.00	698.88	694.94	693.69	2.15	2.05	-157.00	24.07	-128.53	154.77	150.55	4.22	36.711		
800.00	798.31	790.58	788.19	2.50	2.40	-163.25	10.25	-133.60	169.40	164.46	4.94	34.307		
900.00	897.73	885.94	881.93	2.86	2.77	-169.29	-6.18	-139.61	187.09	181.42	5.67	32.988		
1,000.00	997.16	982.38	976.64	3.22	3.17	-174.44	-23.24	-145.86	206.79	200.41	6.38	32.390		
1,100.00	1,096.59	1,078.82	1,071.36	3.58	3.57	-178.70	-40.30	-152.11	227.86	220.78	7.09	32.160		
1,200.00	1,196.02	1,175.26	1,166.07	3.94	3.98	177.77	-57.36	-158.35	249.96	242.18	7.77	32.154		
1,300.00	1,295.44	1,271.70	1,260.78	4.31	4.39	174.80	-74.42	-164.60	272.82	264.36	8.46	32.245		
1,400.00	1,394.87	1,368.15	1,355.50	4.67	4.81	172.30	-91.48	-170.85	296.29	287.14	9.14	32.407		
1,500.00	1,494.30	1,464.59	1,450.21	5.03	5.23	170.15	-108.54	-177.09	320.22	310.39	9.82	32.601		
1,600.00	1,593.72	1,561.03	1,544.93	5.40	5.65	168.31	-125.60	-183.34	344.51	334.01	10.50	32.809		
1,700.00	1,693.15	1,657.47	1,639.64	5.76	6.07	166.71	-142.66	-189.59	369.10	357.92	11.18	33.020		
1,800.00	1,792.58	1,753.91	1,734.35	6.13	6.49	165.30	-159.72	-195.83	393.93	382.08	11.86	33.226		
1,900.00	1,892.00	1,850.35	1,829.07	6.49	6.91	164.07	-176.78	-202.08	418.96	406.43	12.53	33.426		
2,000.00	1,991.43	1,946.79	1,923.78	6.86	7.34	162.97	-193.84	-208.33	444.15	430.94	13.21	33.616		
2,100.00	2,090.86	2,043.23	2,018.50	7.22	7.76	161.99	-210.90	-214.58	469.48	455.59	13.89	33.796		
2,200.00	2,190.29	2,139.67	2,113.21	7.59	8.19	161.11	-227.96	-220.82	494.93	480.36	14.57	33.966		
2,300.00	2,289.71	2,236.11	2,207.93	7.95	8.61	160.31	-245.02	-227.07	520.47	505.22	15.25	34.126		
2,400.00	2,389.14	2,332.55	2,302.64	8.32	9.04	159.59	-262.08	-233.32	546.10	530.17	15.93	34.277		
2,500.00	2,488.57	2,429.00	2,397.35	8.69	9.46	158.93	-279.14	-239.56	571.81	555.19	16.61	34.418		
2,600.00	2,587.99	2,525.44	2,492.07	9.05	9.89	158.33	-296.20	-245.81	597.58	580.28	17.30	34.551		
2,700.00	2,687.42	2,621.88	2,586.78	9.42	10.32	157.78	-313.26	-252.06	623.40	605.42	17.98	34.676		
2,800.00	2,786.85	2,718.32	2,681.50	9.78	10.74	157.27	-330.32	-258.31	649.27	630.61	18.66	34.793		
2,900.00	2,886.28	2,814.76	2,776.21	10.15	11.17	156.81	-347.38	-264.55	675.19	655.85	19.34	34.904		
3,000.00	2,985.70	2,911.20	2,870.93	10.52	11.60	156.37	-364.44	-270.80	701.15	681.12	20.03	35.008		
3,100.00	3,085.13	3,007.64	2,965.64	10.88	12.03	155.97	-381.50	-277.05	727.14	706.43	20.71	35.107		
3,200.00	3,184.56	3,104.08	3,060.35	11.25	12.45	155.60	-398.56	-283.29	753.17	731.77	21.40	35.199		
3,300.00	3,283.98	3,200.52	3,155.07	11.62	12.88	155.25	-415.62	-289.54	779.22	757.14	22.08	35.287		
3,400.00	3,383.41	3,296.96	3,249.78	11.98	13.31	154.92	-432.68	-295.79	805.30	782.53	22.77	35.370		
3,500.00	3,482.84	3,393.40	3,344.50	12.35	13.74	154.61	-449.74	-302.03	831.40	807.94	23.45	35.449		
3,600.00	3,582.27	3,489.85	3,439.21	12.71	14.17	154.32	-466.80	-308.28	857.52	833.38	24.14	35.523		
3,700.00	3,681.69	3,586.29	3,533.92	13.08	14.59	154.05	-483.86	-314.53	883.66	858.83	24.83	35.594		
3,800.00	3,781.12	3,682.73	3,628.64	13.45	15.02	153.80	-500.92	-320.78	909.81	884.30	25.51	35.661		
3,900.00	3,880.55	3,779.17	3,723.35	13.81	15.45	153.55	-517.98	-327.02	935.99	909.79	26.20	35.725		
4,000.00	3,979.97	3,875.61	3,818.07	14.18	15.88	153.33	-535.04	-333.27	962.18	935.29	26.89	35.786		
4,100.00	4,079.40	3,972.05	3,912.78	14.55	16.31	153.11	-552.09	-339.52	988.38	960.80	27.57	35.844		
4,200.00	4,178.83	4,068.49	4,007.50	14.91	16.74	152.90	-569.15	-345.76	1,014.59	986.33	28.26	35.899		
4,300.00	4,278.25	4,164.93	4,102.21	15.28	17.17	152.71	-586.21	-352.01	1,040.82	1,011.87	28.95	35.952		
4,400.00	4,377.68	4,261.37	4,196.92	15.65	17.59	152.53	-603.27	-358.26	1,067.05	1,037.42	29.64	36.002		
4,500.00	4,477.11	4,357.81	4,291.64	16.01	18.02	152.35	-620.33	-364.50	1,093.30	1,062.97	30.33	36.050		
4,600.00	4,576.54	4,454.25	4,386.35	16.38	18.45	152.18	-637.39	-370.75	1,119.56	1,088.54	31.02	36.097		
4,700.00	4,675.96	4,554.57	4,484.88	16.75	18.89	152.01	-655.12	-377.24	1,145.81	1,114.08	31.73	36.114		
4,800.00	4,775.47	4,707.82	4,636.17	17.08	19.33	151.99	-677.91	-385.59	1,168.73	1,136.10	32.62	35.823		
4,900.00	4,875.25	4,864.99	4,792.46	17.34	19.72	152.02	-693.35	-391.24	1,183.97	1,150.60	33.37	35.475		
5,000.00	4,975.20	6,413.53	5,735.00	17.59	21.07	-164.04	127.95	-401.92	1,144.22	1,115.35	28.87	39.630		
5,100.00	5,075.19	6,413.60	5,735.00	17.86	21.07	-90.53	128.03	-401.92	1,080.61	1,049.99	30.62	35.294		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,175.19	6,413.60	5,735.00	18.16	21.07	-90.53	128.03	-401.92	1,022.62	990.20	32.42	31.542	
5,300.00	5,275.05	6,410.01	5,735.00	18.43	21.06	93.08	124.44	-401.89	971.53	937.33	34.19	28.412	
5,400.00	5,372.63	6,388.86	5,735.00	18.69	20.99	96.85	103.29	-401.69	929.13	893.37	35.76	25.983	
5,500.00	5,464.39	6,349.49	5,735.00	18.94	20.89	98.19	63.92	-401.32	896.98	859.97	37.01	24.236	
5,600.00	5,546.95	6,293.34	5,735.00	19.19	20.74	97.60	7.77	-400.80	875.11	837.23	37.88	23.100	
5,700.00	5,617.28	6,222.47	5,735.00	19.43	20.63	95.76	-63.10	-400.14	862.08	823.62	38.46	22.414	
5,800.00	5,672.80	6,139.48	5,735.00	19.68	20.57	93.42	-146.08	-399.37	855.50	816.65	38.85	22.022	
5,900.00	5,711.47	6,044.97	5,731.53	19.97	20.57	91.08	-240.45	-398.49	852.61	813.43	39.18	21.759	
6,000.00	5,731.86	5,953.21	5,713.01	20.32	20.62	88.72	-330.20	-397.65	851.69	812.14	39.55	21.532	
6,001.19	5,731.99	5,952.16	5,712.70	20.33	20.63	88.69	-331.21	-397.64	851.69	812.13	39.56	21.529	
6,100.00	5,735.00	5,867.74	5,681.84	20.74	20.70	86.42	-409.69	-396.91	852.59	812.66	39.93	21.351	
6,200.00	5,735.00	5,793.30	5,644.43	21.24	20.77	83.92	-473.96	-396.31	856.65	816.36	40.29	21.263 SF	
6,300.00	5,735.00	5,730.94	5,606.30	21.84	20.83	81.39	-523.25	-395.85	865.71	825.15	40.56	21.342	
6,400.00	5,735.00	5,679.34	5,570.48	22.51	20.88	79.04	-560.36	-395.51	881.18	840.43	40.74	21.627	
6,500.00	5,735.00	5,636.71	5,538.23	23.27	20.90	76.95	-588.22	-395.25	903.91	863.07	40.84	22.133	
6,600.00	5,735.00	5,600.00	5,508.72	24.08	20.92	75.07	-610.04	-395.04	934.22	893.36	40.86	22.866	
6,700.00	5,735.00	5,571.80	5,485.04	24.97	20.93	73.59	-625.36	-394.90	972.00	931.17	40.83	23.804	
6,800.00	5,735.00	5,550.00	5,466.19	25.90	20.93	72.42	-636.30	-394.80	1,016.86	976.07	40.79	24.927	
6,900.00	5,735.00	5,525.68	5,444.64	26.88	20.93	71.11	-647.57	-394.69	1,068.16	1,027.49	40.68	26.259	
7,000.00	5,735.00	5,500.00	5,421.35	27.91	20.93	69.71	-658.37	-394.59	1,125.32	1,084.81	40.52	27.775	
7,100.00	5,735.00	5,500.00	5,421.35	28.98	20.93	69.71	-658.37	-394.59	1,187.53	1,146.99	40.54	29.291	
7,200.00	5,735.00	5,477.96	5,400.95	30.08	20.91	68.51	-666.71	-394.51	1,254.10	1,213.73	40.37	31.064	
7,300.00	5,735.00	5,450.00	5,374.59	31.21	20.90	66.98	-676.04	-394.43	1,324.88	1,284.73	40.15	33.000	
7,400.00	5,735.00	5,450.00	5,374.59	32.37	20.90	66.98	-676.04	-394.43	1,398.45	1,358.30	40.15	34.831	
7,500.00	5,735.00	5,450.00	5,374.59	33.55	20.90	66.98	-676.04	-394.43	1,475.13	1,434.99	40.14	36.748	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-50.05	49.59	-59.21	77.24					
100.00	100.00	100.00	100.00	0.13	0.13	-50.05	49.59	-59.21	77.24	76.97	0.27	289.981		
200.00	200.00	200.00	200.00	0.47	0.47	-50.05	49.59	-59.21	77.24	76.30	0.94	82.109		
300.00	300.00	300.00	300.00	0.81	0.81	-50.05	49.59	-59.21	77.24	75.62	1.61	47.826		
345.25	345.25	345.93	345.93	0.96	0.95	-123.82	49.23	-59.25	77.23	75.33	1.90	40.549 CC		
400.00	399.98	401.43	401.41	1.13	1.11	-125.57	47.81	-59.40	77.27	75.01	2.26	34.194 ES		
500.00	499.84	502.34	502.17	1.47	1.42	-132.07	42.49	-59.99	78.04	75.15	2.89	27.010		
600.00	599.45	602.21	601.65	1.81	1.74	-142.20	33.76	-60.94	81.45	77.92	3.53	23.079		
700.00	698.88	700.83	699.53	2.15	2.07	-154.00	21.77	-62.26	88.67	84.48	4.19	21.156		
800.00	798.31	798.31	795.80	2.50	2.42	-165.51	6.62	-63.92	99.53	94.63	4.90	20.314		
900.00	897.73	895.42	891.45	2.86	2.80	-175.31	-10.08	-65.75	114.17	108.53	5.64	20.242		
1,000.00	997.16	992.63	987.18	3.22	3.19	177.21	-26.81	-67.58	131.40	125.03	6.37	20.628		
1,100.00	1,096.59	1,089.83	1,082.92	3.58	3.59	171.51	-43.53	-69.41	150.33	143.24	7.08	21.219		
1,200.00	1,196.02	1,187.04	1,178.66	3.94	3.99	167.09	-60.25	-71.24	170.39	162.61	7.79	21.883		
1,300.00	1,295.44	1,284.24	1,274.40	4.31	4.39	163.60	-76.98	-73.07	191.23	182.75	8.48	22.543		
1,400.00	1,394.87	1,381.45	1,370.14	4.67	4.80	160.81	-93.70	-74.90	212.62	203.45	9.17	23.175		
1,500.00	1,494.30	1,478.66	1,465.88	5.03	5.21	158.52	-110.42	-76.74	234.41	224.55	9.86	23.763		
1,600.00	1,593.72	1,575.86	1,561.62	5.40	5.62	156.62	-127.15	-78.57	256.50	245.95	10.55	24.306		
1,700.00	1,693.15	1,673.07	1,657.36	5.76	6.03	155.02	-143.87	-80.40	278.81	267.57	11.24	24.802		
1,800.00	1,792.58	1,770.27	1,753.10	6.13	6.44	153.66	-160.59	-82.23	301.30	289.37	11.93	25.255		
1,900.00	1,892.00	1,867.48	1,848.84	6.49	6.86	152.49	-177.32	-84.06	323.93	311.31	12.62	25.669		
2,000.00	1,991.43	1,964.68	1,944.58	6.86	7.27	151.47	-194.04	-85.89	346.68	333.37	13.31	26.047		
2,100.00	2,090.86	2,061.89	2,040.31	7.22	7.69	150.58	-210.76	-87.72	369.51	355.51	14.00	26.393		
2,200.00	2,190.29	2,159.10	2,136.05	7.59	8.10	149.79	-227.49	-89.56	392.42	377.73	14.69	26.711		
2,300.00	2,289.71	2,256.30	2,231.79	7.95	8.52	149.08	-244.21	-91.39	415.39	400.01	15.38	27.003		
2,400.00	2,389.14	2,353.51	2,327.53	8.32	8.93	148.45	-260.93	-93.22	438.41	422.34	16.08	27.272		
2,500.00	2,488.57	2,450.71	2,423.27	8.69	9.35	147.89	-277.66	-95.05	461.48	444.72	16.77	27.521		
2,600.00	2,587.99	2,547.92	2,519.01	9.05	9.77	147.38	-294.38	-96.88	484.59	467.13	17.46	27.751		
2,700.00	2,687.42	2,645.13	2,614.75	9.42	10.18	146.91	-311.10	-98.71	507.74	489.58	18.16	27.965		
2,800.00	2,786.85	2,742.33	2,710.49	9.78	10.60	146.48	-327.82	-100.55	530.91	512.06	18.85	28.164		
2,900.00	2,886.28	2,839.54	2,806.23	10.15	11.02	146.09	-344.55	-102.38	554.10	534.56	19.55	28.349		
3,000.00	2,985.70	2,936.74	2,901.97	10.52	11.44	145.74	-361.27	-104.21	577.32	557.08	20.24	28.523		
3,100.00	3,085.13	3,033.95	2,997.71	10.88	11.85	145.40	-377.99	-106.04	600.56	579.63	20.94	28.685		
3,200.00	3,184.56	3,131.16	3,093.44	11.25	12.27	145.10	-394.72	-107.87	623.82	602.19	21.63	28.837		
3,300.00	3,283.98	3,228.36	3,189.18	11.62	12.69	144.81	-411.44	-109.70	647.09	624.76	22.33	28.979		
3,400.00	3,383.41	3,325.57	3,284.92	11.98	13.11	144.55	-428.16	-111.53	670.38	647.35	23.03	29.114		
3,500.00	3,482.84	3,422.77	3,380.66	12.35	13.52	144.30	-444.89	-113.37	693.68	669.95	23.72	29.240		
3,600.00	3,582.27	3,519.98	3,476.40	12.71	13.94	144.07	-461.61	-115.20	716.99	692.57	24.42	29.360		
3,700.00	3,681.69	3,617.19	3,572.14	13.08	14.36	143.86	-478.33	-117.03	740.31	715.19	25.12	29.473		
3,800.00	3,781.12	3,714.39	3,667.88	13.45	14.78	143.65	-495.06	-118.86	763.64	737.82	25.82	29.580		
3,900.00	3,880.55	3,811.60	3,763.62	13.81	15.20	143.46	-511.78	-120.69	786.98	760.46	26.51	29.681		
4,000.00	3,979.97	3,908.80	3,859.36	14.18	15.61	143.28	-528.50	-122.52	810.32	783.11	27.21	29.777		
4,100.00	4,079.40	4,006.01	3,955.10	14.55	16.03	143.11	-545.23	-124.36	833.68	805.77	27.91	29.869		
4,200.00	4,178.83	4,103.22	4,050.84	14.91	16.45	142.95	-561.95	-126.19	857.04	828.43	28.61	29.956		
4,300.00	4,278.25	4,200.42	4,146.57	15.28	16.87	142.80	-578.67	-128.02	880.40	851.09	29.31	30.039		
4,400.00	4,377.68	4,297.63	4,242.31	15.65	17.29	142.65	-595.40	-129.85	903.78	873.77	30.01	30.118		
4,500.00	4,477.11	4,394.83	4,338.05	16.01	17.71	142.52	-612.12	-131.68	927.15	896.44	30.71	30.193		
4,600.00	4,576.54	4,492.04	4,433.79	16.38	18.13	142.39	-628.84	-133.51	950.53	919.13	31.41	30.265		
4,700.00	4,675.96	4,589.24	4,529.53	16.75	18.54	142.26	-645.56	-135.35	973.92	941.81	32.11	30.334		
4,800.00	4,775.47	4,696.37	4,635.07	17.08	18.98	142.29	-663.81	-137.34	996.58	963.75	32.83	30.359		
4,900.00	4,875.25	4,838.17	4,775.51	17.34	19.35	142.28	-683.19	-139.47	1,013.72	980.15	33.57	30.198		
5,000.00	4,975.20	4,982.34	4,919.10	17.59	19.70	142.21	-695.78	-140.85	1,023.83	989.58	34.25	29.889		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,075.19	6,497.14	5,820.00	17.86	21.40	-90.00	136.00	-141.46	953.47	927.72	25.75	37.032		
5,200.00	5,175.19	6,497.14	5,820.00	18.16	21.40	-90.00	136.00	-141.46	877.58	849.81	27.77	31.600		
5,300.00	5,275.05	6,493.55	5,820.00	18.43	21.39	96.12	132.41	-141.46	807.05	777.06	30.00	26.905		
5,400.00	5,372.63	6,472.41	5,820.00	18.69	21.31	102.89	111.26	-141.46	744.65	712.39	32.26	23.084		
5,500.00	5,464.39	6,433.03	5,820.00	18.94	21.18	106.02	71.89	-141.46	693.42	659.05	34.37	20.174		
5,600.00	5,546.95	6,376.88	5,820.00	19.19	21.01	106.34	15.73	-141.46	654.93	618.77	36.16	18.114		
5,700.00	5,617.28	6,306.00	5,820.00	19.43	20.84	104.77	-55.14	-141.46	628.86	591.36	37.50	16.769		
5,800.00	5,672.80	6,223.02	5,820.00	19.68	20.71	102.28	-138.13	-141.46	613.22	574.77	38.45	15.947		
5,900.00	5,711.47	6,118.17	5,816.25	19.97	20.64	99.19	-242.83	-141.46	604.57	565.41	39.16	15.437		
6,000.00	5,731.86	6,009.61	5,792.15	20.32	20.64	95.53	-348.47	-141.46	598.69	558.83	39.86	15.020		
6,100.00	5,735.00	5,911.83	5,752.13	20.74	20.69	91.65	-437.53	-141.46	595.62	555.20	40.42	14.737		
6,137.80	5,735.00	5,878.93	5,735.00	20.92	20.71	90.00	-465.61	-141.46	595.29	554.70	40.59	14.665		
6,200.00	5,735.00	5,830.22	5,706.47	21.24	20.74	87.26	-505.07	-141.46	596.41	555.65	40.76	14.632 SF		
6,300.00	5,735.00	5,764.82	5,662.62	21.84	20.78	83.07	-553.53	-141.46	604.26	563.46	40.79	14.813		
6,400.00	5,735.00	5,712.77	5,623.59	22.51	20.81	79.40	-587.93	-141.46	621.57	581.02	40.55	15.330		
6,500.00	5,735.00	5,671.14	5,590.03	23.27	20.82	76.31	-612.54	-141.46	649.41	609.29	40.12	16.187		
6,600.00	5,735.00	5,637.49	5,561.52	24.08	20.83	73.75	-630.43	-141.46	687.68	648.06	39.62	17.359		
6,700.00	5,735.00	5,600.00	5,528.49	24.97	20.83	70.87	-648.14	-141.46	735.64	696.65	38.99	18.866		
6,800.00	5,735.00	5,587.06	5,516.81	25.90	20.82	69.87	-653.69	-141.46	791.69	753.00	38.68	20.467		
6,900.00	5,735.00	5,567.86	5,499.22	26.88	20.81	68.39	-661.40	-141.46	854.86	816.54	38.32	22.310		
7,000.00	5,735.00	5,550.00	5,482.62	27.91	20.81	67.02	-667.98	-141.46	923.82	885.81	38.01	24.304		
7,100.00	5,735.00	5,550.00	5,482.62	28.98	20.81	67.02	-667.98	-141.46	997.70	959.76	37.95	26.291		
7,200.00	5,735.00	5,525.40	5,459.40	30.08	20.79	65.16	-676.10	-141.46	1,075.05	1,037.41	37.64	28.559		
7,300.00	5,735.00	5,500.00	5,435.05	31.21	20.77	63.26	-683.33	-141.46	1,156.02	1,118.65	37.37	30.933		
7,400.00	5,735.00	5,500.00	5,435.05	32.37	20.77	63.26	-683.33	-141.46	1,239.07	1,201.68	37.39	33.140		
7,500.00	5,735.00	5,500.00	5,435.05	33.55	20.77	63.26	-683.33	-141.46	1,324.45	1,287.04	37.41	35.403		
7,600.00	5,735.00	5,500.00	5,435.05	34.76	20.77	63.26	-683.33	-141.46	1,411.76	1,374.33	37.44	37.711		
7,700.00	5,735.00	5,500.00	5,435.05	35.98	20.77	63.26	-683.33	-141.46	1,500.66	1,463.19	37.47	40.054		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	0.89	49.59	0.77	49.60					
100.00	100.00	100.00	100.00	0.13	0.13	0.89	49.59	0.77	49.60	49.33	0.27	186.224		
200.00	200.00	200.00	200.00	0.47	0.47	0.89	49.59	0.77	49.60	48.66	0.94	52.730		
300.00	300.00	300.00	300.00	0.81	0.81	0.89	49.59	0.77	49.60	47.99	1.61	30.713		
400.00	399.98	401.64	401.61	1.13	1.11	-73.96	47.85	1.21	47.38	45.06	2.31	20.486		
500.00	499.84	502.87	502.71	1.47	1.42	-79.49	42.63	2.51	40.94	37.87	3.06	13.359		
600.00	599.45	603.33	602.76	1.81	1.74	-93.30	34.03	4.66	31.47	27.62	3.85	8.181		
700.00	698.88	702.82	701.49	2.15	2.08	-124.15	22.16	7.62	23.05	18.57	4.47	5.153		
742.43	741.07	744.74	742.95	2.30	2.22	-143.88	16.17	9.12	21.83	17.20	4.63	4.713 CC, ES, SF		
800.00	798.31	801.30	798.74	2.50	2.43	-171.51	7.15	11.37	24.39	19.48	4.90	4.974		
900.00	897.73	898.99	894.81	2.86	2.82	158.09	-10.05	15.67	38.44	32.71	5.72	6.717		
1,000.00	997.16	996.65	990.84	3.22	3.22	145.35	-27.34	19.99	57.29	50.79	6.49	8.821		
1,100.00	1,096.59	1,094.32	1,086.86	3.58	3.62	139.04	-44.63	24.31	77.52	70.31	7.21	10.753		
1,200.00	1,196.02	1,191.99	1,182.89	3.94	4.04	135.35	-61.93	28.63	98.28	90.37	7.90	12.436		
1,300.00	1,295.44	1,289.65	1,278.91	4.31	4.45	132.95	-79.22	32.95	119.29	110.70	8.59	13.881		
1,400.00	1,394.87	1,387.32	1,374.94	4.67	4.87	131.28	-96.52	37.27	140.44	131.16	9.28	15.128		
1,500.00	1,494.30	1,484.99	1,470.97	5.03	5.29	130.04	-113.81	41.59	161.68	151.71	9.97	16.209		
1,600.00	1,593.72	1,582.65	1,566.99	5.40	5.71	129.09	-131.10	45.90	182.98	172.31	10.67	17.152		
1,700.00	1,693.15	1,680.32	1,663.02	5.76	6.13	128.33	-148.40	50.22	204.31	192.95	11.36	17.980		
1,800.00	1,792.58	1,777.99	1,759.05	6.13	6.55	127.72	-165.69	54.54	225.67	213.61	12.06	18.711		
1,900.00	1,892.00	1,875.65	1,855.07	6.49	6.98	127.22	-182.98	58.86	247.05	234.29	12.76	19.362		
2,000.00	1,991.43	1,973.32	1,951.10	6.86	7.40	126.79	-200.28	63.18	268.44	254.98	13.46	19.943		
2,100.00	2,090.86	2,070.99	2,047.12	7.22	7.83	126.43	-217.57	67.50	289.85	275.69	14.16	20.466		
2,200.00	2,190.29	2,168.65	2,143.15	7.59	8.25	126.12	-234.86	71.82	311.27	296.40	14.87	20.938		
2,300.00	2,289.71	2,266.32	2,239.18	7.95	8.68	125.85	-252.16	76.14	332.69	317.12	15.57	21.366		
2,400.00	2,389.14	2,363.99	2,335.20	8.32	9.10	125.61	-269.45	80.46	354.12	337.84	16.28	21.757		
2,500.00	2,488.57	2,461.65	2,431.23	8.69	9.53	125.40	-286.75	84.78	375.56	358.57	16.98	22.114		
2,600.00	2,587.99	2,559.32	2,527.26	9.05	9.96	125.21	-304.04	89.10	397.00	379.31	17.69	22.441		
2,700.00	2,687.42	2,656.99	2,623.28	9.42	10.38	125.04	-321.33	93.42	418.44	400.04	18.40	22.743		
2,800.00	2,786.85	2,754.65	2,719.31	9.78	10.81	124.89	-338.63	97.74	439.89	420.78	19.11	23.022		
2,900.00	2,886.28	2,852.32	2,815.34	10.15	11.24	124.75	-355.92	102.06	461.34	441.52	19.82	23.280		
3,000.00	2,985.70	2,949.99	2,911.36	10.52	11.67	124.62	-373.21	106.38	482.79	462.26	20.53	23.520		
3,100.00	3,085.13	3,047.65	3,007.39	10.88	12.10	124.51	-390.51	110.70	504.24	483.01	21.24	23.743		
3,200.00	3,184.56	3,145.32	3,103.41	11.25	12.52	124.40	-407.80	115.02	525.70	503.75	21.95	23.952		
3,300.00	3,283.98	3,242.99	3,199.44	11.62	12.95	124.30	-425.10	119.34	547.16	524.50	22.66	24.147		
3,400.00	3,383.41	3,340.65	3,295.47	11.98	13.38	124.21	-442.39	123.66	568.61	545.24	23.37	24.330		
3,500.00	3,482.84	3,438.32	3,391.49	12.35	13.81	124.13	-459.68	127.98	590.07	565.99	24.08	24.501		
3,600.00	3,582.27	3,535.99	3,487.52	12.71	14.24	124.05	-476.98	132.30	611.54	586.74	24.80	24.663		
3,700.00	3,681.69	3,633.65	3,583.55	13.08	14.67	123.98	-494.27	136.62	633.00	607.49	25.51	24.815		
3,800.00	3,781.12	3,731.32	3,679.57	13.45	15.10	123.91	-511.56	140.94	654.46	628.24	26.22	24.959		
3,900.00	3,880.55	3,828.99	3,775.60	13.81	15.52	123.85	-528.86	145.26	675.93	648.99	26.93	25.095		
4,000.00	3,979.97	3,926.65	3,871.62	14.18	15.95	123.79	-546.15	149.58	697.39	669.74	27.65	25.224		
4,100.00	4,079.40	4,024.32	3,967.65	14.55	16.38	123.73	-563.44	153.90	718.85	690.49	28.36	25.346		
4,200.00	4,178.83	4,121.99	4,063.68	14.91	16.81	123.68	-580.74	158.22	740.32	711.25	29.08	25.462		
4,300.00	4,278.25	4,219.65	4,159.70	15.28	17.24	123.63	-598.03	162.54	761.79	732.00	29.79	25.572		
4,400.00	4,377.68	4,317.32	4,255.73	15.65	17.67	123.58	-615.33	166.86	783.25	752.75	30.50	25.677		
4,500.00	4,477.11	4,414.99	4,351.76	16.01	18.10	123.54	-632.62	171.18	804.72	773.50	31.22	25.777		
4,600.00	4,576.54	4,512.65	4,447.78	16.38	18.53	123.49	-649.91	175.50	826.19	794.26	31.93	25.873		
4,700.00	4,675.96	4,628.42	4,561.76	16.75	18.95	123.48	-669.56	180.40	847.09	814.35	32.74	25.876		
4,800.00	4,775.47	4,760.68	4,692.80	17.08	19.29	123.77	-686.88	184.73	864.09	830.58	33.51	25.784		
4,900.00	4,875.25	4,894.78	4,826.35	17.34	19.62	124.03	-698.44	187.62	875.35	841.18	34.17	25.619		
5,000.00	4,975.20	6,420.27	5,735.00	17.59	21.21	-163.93	135.92	189.11	804.52	787.62	16.89	47.626		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,075.19	6,420.35	5,735.00	17.86	21.21	-90.00	136.00	189.11	710.93	692.59	18.34	38.763		
5,200.00	5,175.19	6,420.35	5,735.00	18.16	21.21	-90.00	136.00	189.11	619.24	599.04	20.20	30.648		
5,300.00	5,275.05	6,416.76	5,735.00	18.43	21.20	101.51	132.41	189.11	530.69	508.04	22.65	23.433		
5,400.00	5,372.63	6,395.61	5,735.00	18.69	21.12	112.63	111.26	189.11	448.76	423.03	25.73	17.439		
5,500.00	5,464.39	6,356.24	5,735.00	18.94	20.99	116.16	71.89	189.11	378.56	349.12	29.44	12.857		
5,600.00	5,546.95	6,300.08	5,735.00	19.19	20.82	114.42	15.73	189.11	324.72	291.36	33.35	9.736		
5,700.00	5,617.28	6,229.21	5,735.00	19.43	20.67	108.99	-55.14	189.11	289.72	253.07	36.65	7.906		
5,800.00	5,672.80	6,146.22	5,735.00	19.68	20.56	101.69	-138.13	189.11	271.93	233.33	38.60	7.046		
5,900.00	5,711.47	6,052.10	5,732.71	19.97	20.51	94.25	-232.18	189.11	265.58	226.20	39.38	6.743		
5,955.75	5,725.16	5,999.51	5,725.16	20.16	20.51	90.00	-284.20	189.11	264.72	225.22	39.50	6.701		
6,000.00	5,731.86	5,959.16	5,715.83	20.32	20.52	86.66	-323.45	189.11	265.24	225.83	39.41	6.730		
6,100.00	5,735.00	5,872.42	5,685.68	20.74	20.57	79.45	-404.67	189.11	270.27	231.54	38.73	6.978		
6,200.00	5,735.00	5,800.00	5,650.47	21.24	20.62	72.29	-467.89	189.11	284.28	247.07	37.20	7.641		
6,300.00	5,735.00	5,733.00	5,610.39	21.84	20.67	64.79	-521.52	189.11	311.29	276.25	35.04	8.883		
6,400.00	5,735.00	5,680.31	5,574.22	22.51	20.71	58.73	-559.81	189.11	352.35	319.17	33.18	10.619		
6,500.00	5,735.00	5,636.79	5,541.56	23.27	20.73	53.84	-588.55	189.11	405.88	373.83	32.05	12.665		
6,600.00	5,735.00	5,600.00	5,512.16	24.08	20.75	49.91	-610.65	189.11	469.38	437.81	31.58	14.864		
6,700.00	5,735.00	5,570.58	5,487.58	24.97	20.76	46.93	-626.80	189.11	540.47	508.85	31.62	17.093		
6,800.00	5,735.00	5,550.00	5,469.85	25.90	20.76	44.95	-637.26	189.11	617.27	585.26	32.01	19.282		
6,900.00	5,735.00	5,523.64	5,446.57	26.88	20.76	42.55	-649.62	189.11	698.27	666.03	32.23	21.664		
7,000.00	5,735.00	5,500.00	5,425.18	27.91	20.75	40.51	-659.69	189.11	782.59	750.09	32.50	24.077		
7,100.00	5,735.00	5,500.00	5,425.18	28.98	20.75	40.51	-659.69	189.11	869.53	836.33	33.20	26.194		
7,200.00	5,735.00	5,475.18	5,402.26	30.08	20.74	38.51	-669.20	189.11	958.12	924.78	33.34	28.736		
7,300.00	5,735.00	5,450.00	5,378.57	31.21	20.73	36.60	-677.73	189.11	1,048.70	1,015.23	33.47	31.332		
7,400.00	5,735.00	5,450.00	5,378.57	32.37	20.73	36.60	-677.73	189.11	1,140.08	1,106.15	33.93	33.601		
7,500.00	5,735.00	5,450.00	5,378.57	33.55	20.73	36.60	-677.73	189.11	1,232.80	1,198.49	34.32	35.926		
7,600.00	5,735.00	5,450.00	5,378.57	34.76	20.73	36.60	-677.73	189.11	1,326.58	1,291.94	34.64	38.293		
7,700.00	5,735.00	5,425.99	5,355.63	35.98	20.71	34.91	-684.79	189.11	1,420.46	1,385.77	34.69	40.948		
7,800.00	5,735.00	5,418.96	5,348.84	37.23	20.70	34.43	-686.65	189.11	1,515.30	1,480.40	34.89	43.425		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Sec 30-T10N-R57W - Horsetail #30E-3103 - Hz - APD		Offset Site Error: 0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error: 0.00 usft			
Reference		Offset		Semi Major Axis		Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor				
0.00	0.00	0.00	0.00	0.00	0.00	-89.98	0.01	-29.99	29.99							
100.00	100.00	100.00	100.00	0.13	0.13	-89.98	0.01	-29.99	29.99	29.72	0.27	112.594				
200.00	200.00	200.00	200.00	0.47	0.47	-89.98	0.01	-29.99	29.99	29.05	0.94	31.882 CC				
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				
400.00	399.98	400.97	400.95	1.13	1.14	-162.92	0.72	-28.36	30.04	27.72	2.32	12.937				
500.00	499.84	501.93	501.77	1.47	1.48	-161.77	2.84	-23.46	30.22	27.15	3.07	9.848 ES				
600.00	599.45	602.20	601.72	1.81	1.82	-160.63	5.99	-16.17	31.33	27.60	3.73	8.399				
700.00	698.88	702.17	701.36	2.15	2.16	-160.62	9.20	-8.77	34.16	29.80	4.37	7.822				
800.00	798.31	802.12	800.99	2.50	2.50	-160.61	12.41	-1.37	37.01	32.00	5.01	7.382				
900.00	897.73	902.08	900.62	2.86	2.84	-160.61	15.62	6.04	39.86	34.19	5.67	7.032				
1,000.00	997.16	1,002.04	1,000.26	3.22	3.19	-160.60	18.83	13.44	42.70	36.38	6.33	6.750				
1,100.00	1,096.59	1,102.00	1,099.89	3.58	3.54	-160.60	22.04	20.84	45.55	38.56	6.99	6.517				
1,200.00	1,196.02	1,201.96	1,199.52	3.94	3.89	-160.59	25.25	28.25	48.40	40.74	7.66	6.322				
1,300.00	1,295.44	1,301.92	1,299.16	4.31	4.24	-160.59	28.45	35.65	51.24	42.92	8.32	6.156				
1,400.00	1,394.87	1,401.88	1,398.79	4.67	4.59	-160.59	31.66	43.06	54.09	45.09	8.99	6.014				
1,500.00	1,494.30	1,501.84	1,498.42	5.03	4.94	-160.58	34.87	50.46	56.93	47.27	9.66	5.891				
1,600.00	1,593.72	1,601.80	1,598.06	5.40	5.30	-160.58	38.08	57.86	59.78	49.44	10.34	5.784				
1,700.00	1,693.15	1,701.76	1,697.69	5.76	5.65	-160.58	41.29	65.27	62.63	51.62	11.01	5.689				
1,800.00	1,792.58	1,801.72	1,797.32	6.13	6.00	-160.58	44.50	72.67	65.47	53.79	11.68	5.604				
1,900.00	1,892.00	1,901.68	1,896.96	6.49	6.35	-160.58	47.70	80.08	68.32	55.96	12.36	5.529				
2,000.00	1,991.43	2,001.64	1,996.59	6.86	6.70	-160.57	50.91	87.48	71.17	58.13	13.03	5.461				
2,100.00	2,090.86	2,101.60	2,096.22	7.22	7.05	-160.57	54.12	94.88	74.01	60.31	13.71	5.400				
2,200.00	2,190.29	2,201.56	2,195.86	7.59	7.41	-160.57	57.33	102.29	76.86	62.48	14.38	5.344				
2,300.00	2,289.71	2,301.52	2,295.49	7.95	7.76	-160.57	60.54	109.69	79.70	64.65	15.06	5.293				
2,400.00	2,389.14	2,401.48	2,395.12	8.32	8.11	-160.57	63.75	117.10	82.55	66.82	15.73	5.247				
2,500.00	2,488.57	2,501.44	2,494.76	8.69	8.46	-160.57	66.95	124.50	85.40	68.99	16.41	5.204				
2,600.00	2,587.99	2,601.40	2,594.39	9.05	8.81	-160.57	70.16	131.90	88.24	71.16	17.09	5.164				
2,700.00	2,687.42	2,701.36	2,694.02	9.42	9.17	-160.57	73.37	139.31	91.09	73.33	17.76	5.128				
2,800.00	2,786.85	2,801.31	2,793.66	9.78	9.52	-160.57	76.58	146.71	93.94	75.50	18.44	5.094				
2,900.00	2,886.28	2,901.27	2,893.29	10.15	9.87	-160.56	79.79	154.11	96.78	77.66	19.12	5.063				
3,000.00	2,985.70	3,001.23	2,992.92	10.52	10.22	-160.56	83.00	161.52	99.63	79.83	19.79	5.033				
3,100.00	3,085.13	3,101.19	3,092.56	10.88	10.58	-160.56	86.21	168.92	102.47	82.00	20.47	5.006				
3,200.00	3,184.56	3,201.15	3,192.19	11.25	10.93	-160.56	89.41	176.33	105.32	84.17	21.15	4.980				
3,300.00	3,283.98	3,301.11	3,291.82	11.62	11.28	-160.56	92.62	183.73	108.17	86.34	21.83	4.956				
3,400.00	3,383.41	3,401.07	3,391.45	11.98	11.63	-160.56	95.83	191.13	111.01	88.51	22.50	4.933				
3,500.00	3,482.84	3,501.03	3,491.09	12.35	11.99	-160.56	99.04	198.54	113.86	90.68	23.18	4.912				
3,600.00	3,582.27	3,600.99	3,590.72	12.71	12.34	-160.56	102.25	205.94	116.71	92.85	23.86	4.891				
3,700.00	3,681.69	3,700.95	3,690.35	13.08	12.69	-160.56	105.46	213.35	119.55	95.01	24.54	4.872				
3,800.00	3,781.12	3,800.91	3,789.99	13.45	13.04	-160.56	108.66	220.75	122.40	97.18	25.22	4.854				
3,900.00	3,880.55	3,900.87	3,889.62	13.81	13.40	-160.56	111.87	228.15	125.24	99.35	25.89	4.837				
4,000.00	3,979.97	4,000.83	3,989.25	14.18	13.75	-160.56	115.08	235.56	128.09	101.52	26.57	4.821				
4,100.00	4,079.40	4,100.79	4,088.89	14.55	14.10	-160.56	118.29	242.96	130.94	103.69	27.25	4.805				
4,200.00	4,178.83	4,200.75	4,188.52	14.91	14.46	-160.56	121.50	250.36	133.78	105.86	27.93	4.790				
4,300.00	4,278.25	4,300.71	4,288.15	15.28	14.81	-160.56	124.71	257.77	136.63	108.02	28.61	4.776				
4,400.00	4,377.68	4,400.67	4,387.79	15.65	15.16	-160.56	127.92	265.17	139.47	110.19	29.28	4.763				
4,500.00	4,477.11	4,500.63	4,487.42	16.01	15.51	-160.56	131.12	272.58	142.32	112.36	29.96	4.750				
4,600.00	4,576.54	4,599.27	4,585.74	16.38	15.86	-160.55	134.29	279.88	145.17	114.54	30.63	4.739				
4,700.00	4,675.96	4,696.02	4,682.29	16.75	16.16	-160.83	136.75	285.55	149.55	118.31	31.24	4.787				
4,800.00	4,775.47	4,791.20	4,777.42	17.08	16.40	-161.53	137.90	288.21	156.18	124.43	31.75	4.919				
4,900.00	4,875.25	4,889.03	4,875.25	17.34	16.67	-162.25	138.01	288.46	162.18	129.92	32.25	5.028				
5,000.00	4,975.20	4,988.97	4,975.20	17.59	16.97	-162.59	138.01	288.46	165.13	132.31	32.82	5.031				
5,100.00	5,075.19	5,088.95	5,075.06	17.86	17.26	-90.43	134.76	288.46	165.37	131.99	33.38	4.954				

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,175.19	5,184.92	5,168.91	18.16	17.51	-97.11	115.37	288.46	166.77	132.98	33.79	4.936		
5,300.00	5,275.05	5,272.62	5,250.25	18.43	17.74	72.51	82.88	288.46	174.40	140.64	33.76	5.166		
5,400.00	5,372.63	5,355.74	5,321.29	18.69	17.95	63.18	39.91	288.46	187.28	154.23	33.05	5.667		
5,500.00	5,464.39	5,435.65	5,382.33	18.94	18.15	55.75	-11.54	288.46	202.59	170.93	31.65	6.400		
5,600.00	5,546.95	5,513.11	5,433.32	19.19	18.34	50.08	-69.76	288.46	218.10	188.34	29.75	7.330		
5,700.00	5,617.28	5,588.72	5,474.25	19.43	18.54	45.91	-133.26	288.46	232.18	204.56	27.62	8.407		
5,800.00	5,672.80	5,662.98	5,505.09	19.68	18.75	43.00	-200.75	288.46	243.71	218.15	25.56	9.536		
5,900.00	5,711.47	5,736.32	5,525.83	19.97	19.00	41.13	-271.03	288.46	251.95	228.06	23.89	10.548		
6,000.00	5,731.86	5,809.11	5,536.46	20.32	19.28	40.17	-342.98	288.46	256.43	233.48	22.95	11.175		
6,100.00	5,735.00	5,893.98	5,538.00	20.74	19.65	40.01	-427.81	288.46	257.21	234.06	23.14	11.113		
6,200.00	5,735.00	5,993.98	5,538.00	21.24	20.18	40.01	-527.81	288.46	257.21	233.24	23.97	10.732		
6,300.00	5,735.00	6,093.98	5,538.00	21.84	20.80	40.01	-627.81	288.46	257.21	232.28	24.93	10.317		
6,400.00	5,735.00	6,193.98	5,538.00	22.51	21.51	40.01	-727.81	288.46	257.21	231.19	26.02	9.885		
6,500.00	5,735.00	6,293.98	5,538.00	23.27	22.29	40.01	-827.81	288.46	257.21	229.98	27.22	9.448		
6,600.00	5,735.00	6,393.98	5,538.00	24.08	23.14	40.01	-927.81	288.46	257.21	228.68	28.53	9.017		
6,700.00	5,735.00	6,493.98	5,538.00	24.97	24.05	40.01	-1,027.81	288.46	257.21	227.30	29.91	8.599		
6,800.00	5,735.00	6,593.98	5,538.00	25.90	25.02	40.01	-1,127.81	288.46	257.21	225.84	31.37	8.198		
6,900.00	5,735.00	6,693.98	5,538.00	26.88	26.04	40.01	-1,227.81	288.46	257.21	224.31	32.90	7.818		
7,000.00	5,735.00	6,793.98	5,538.00	27.91	27.09	40.01	-1,327.81	288.46	257.21	222.73	34.48	7.460		
7,100.00	5,735.00	6,893.98	5,538.00	28.98	28.19	40.01	-1,427.81	288.46	257.21	221.10	36.11	7.123		
7,200.00	5,735.00	6,993.98	5,538.00	30.08	29.31	40.01	-1,527.81	288.46	257.21	219.43	37.78	6.808		
7,300.00	5,735.00	7,093.98	5,538.00	31.21	30.47	40.01	-1,627.81	288.46	257.21	217.72	39.49	6.514		
7,400.00	5,735.00	7,193.98	5,538.00	32.37	31.65	40.01	-1,727.81	288.46	257.21	215.98	41.23	6.239		
7,500.00	5,735.00	7,293.98	5,538.00	33.55	32.86	40.01	-1,827.81	288.46	257.21	214.22	42.99	5.983		
7,600.00	5,735.00	7,393.98	5,538.00	34.76	34.09	40.01	-1,927.81	288.46	257.21	212.42	44.79	5.743		
7,700.00	5,735.00	7,493.98	5,538.00	35.98	35.33	40.01	-2,027.81	288.46	257.21	210.61	46.60	5.519		
7,800.00	5,735.00	7,593.98	5,538.00	37.23	36.60	40.01	-2,127.81	288.46	257.21	208.77	48.44	5.310		
7,900.00	5,735.00	7,693.98	5,538.00	38.48	37.88	40.01	-2,227.81	288.46	257.21	206.92	50.29	5.115		
8,000.00	5,735.00	7,793.98	5,538.00	39.76	39.17	40.01	-2,327.81	288.46	257.21	205.06	52.15	4.932		
8,100.00	5,735.00	7,893.98	5,538.00	41.05	40.47	40.01	-2,427.81	288.46	257.21	203.17	54.04	4.760		
8,200.00	5,735.00	7,993.98	5,538.00	42.35	41.79	40.01	-2,527.81	288.46	257.21	201.28	55.93	4.599		
8,300.00	5,735.00	8,093.98	5,538.00	43.66	43.11	40.01	-2,627.81	288.46	257.21	199.38	57.84	4.447		
8,400.00	5,735.00	8,193.98	5,538.00	44.98	44.45	40.01	-2,727.81	288.46	257.21	197.46	59.75	4.305		
8,500.00	5,735.00	8,293.98	5,538.00	46.31	45.79	40.01	-2,827.81	288.46	257.21	195.54	61.68	4.170		
8,600.00	5,735.00	8,393.98	5,538.00	47.64	47.14	40.01	-2,927.81	288.46	257.21	193.60	63.61	4.044		
8,700.00	5,735.00	8,493.98	5,538.00	48.99	48.50	40.01	-3,027.81	288.46	257.21	191.66	65.55	3.924		
8,800.00	5,735.00	8,593.98	5,538.00	50.34	49.86	40.01	-3,127.81	288.46	257.21	189.71	67.50	3.811		
8,900.00	5,735.00	8,693.98	5,538.00	51.70	51.23	40.01	-3,227.81	288.46	257.21	187.76	69.45	3.703		
9,000.00	5,735.00	8,793.98	5,538.00	53.07	52.61	40.01	-3,327.81	288.46	257.21	185.80	71.41	3.602		
9,100.00	5,735.00	8,893.98	5,538.00	54.44	53.99	40.01	-3,427.81	288.46	257.21	183.83	73.38	3.505		
9,200.00	5,735.00	8,993.98	5,538.00	55.81	55.38	40.01	-3,527.81	288.46	257.21	181.86	75.35	3.414		
9,300.00	5,735.00	9,093.98	5,538.00	57.20	56.77	40.01	-3,627.81	288.46	257.21	179.89	77.32	3.326		
9,400.00	5,735.00	9,193.98	5,538.00	58.58	58.16	40.01	-3,727.81	288.46	257.21	177.91	79.30	3.243		
9,500.00	5,735.00	9,293.98	5,538.00	59.97	59.56	40.01	-3,827.81	288.46	257.21	175.93	81.29	3.164		
9,600.00	5,735.00	9,393.98	5,538.00	61.36	60.96	40.01	-3,927.81	288.46	257.21	173.94	83.27	3.089		
9,700.00	5,735.00	9,493.98	5,538.00	62.76	62.36	40.01	-4,027.81	288.46	257.21	171.95	85.26	3.017		
9,800.00	5,735.00	9,593.98	5,538.00	64.16	63.77	40.01	-4,127.81	288.46	257.21	169.95	87.26	2.948		
9,900.00	5,735.00	9,693.98	5,538.00	65.56	65.18	40.01	-4,227.81	288.46	257.21	167.96	89.25	2.882		
10,000.00	5,735.00	9,793.98	5,538.00	66.97	66.59	40.01	-4,327.81	288.46	257.21	165.96	91.25	2.819		
10,100.00	5,735.00	9,893.98	5,538.00	68.38	68.01	40.01	-4,427.81	288.46	257.21	163.96	93.26	2.758		
10,200.00	5,735.00	9,993.98	5,538.00	69.79	69.43	40.01	-4,527.81	288.46	257.21	161.95	95.26	2.700		
10,300.00	5,735.00	10,093.98	5,538.00	71.20	70.85	40.01	-4,627.81	288.46	257.21	159.95	97.27	2.644		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	5,735.00	10,193.98	5,538.00	72.62	72.27	40.01	-4,727.81	288.46	257.21	157.94	99.28	2.591		
10,500.00	5,735.00	10,293.98	5,538.00	74.04	73.69	40.01	-4,827.81	288.46	257.21	155.93	101.29	2.539		
10,600.00	5,735.00	10,393.98	5,538.00	75.46	75.12	40.01	-4,927.81	288.46	257.21	153.91	103.30	2.490		
10,700.00	5,735.00	10,493.98	5,538.00	76.88	76.55	40.01	-5,027.81	288.46	257.21	151.90	105.31	2.442		
10,800.00	5,735.00	10,593.98	5,538.00	78.31	77.98	40.01	-5,127.81	288.46	257.21	149.88	107.33	2.396		
10,900.00	5,735.00	10,693.98	5,538.00	79.73	79.41	40.01	-5,227.81	288.46	257.21	147.86	109.35	2.352		
11,000.00	5,735.00	10,793.98	5,538.00	81.16	80.84	40.01	-5,327.81	288.46	257.21	145.84	111.37	2.310		
11,100.00	5,735.00	10,893.98	5,538.00	82.59	82.27	40.01	-5,427.81	288.46	257.21	143.82	113.39	2.268		
11,200.00	5,735.00	10,993.98	5,538.00	84.02	83.71	40.01	-5,527.81	288.46	257.21	141.80	115.41	2.229		
11,300.00	5,735.00	11,093.98	5,538.00	85.45	85.14	40.01	-5,627.81	288.46	257.21	139.78	117.44	2.190		
11,400.00	5,735.00	11,193.98	5,538.00	86.88	86.58	40.01	-5,727.81	288.46	257.21	137.75	119.46	2.153		
11,500.00	5,735.00	11,293.98	5,538.00	88.32	88.02	40.01	-5,827.81	288.46	257.21	135.73	121.49	2.117		
11,600.00	5,735.00	11,393.98	5,538.00	89.76	89.46	40.01	-5,927.81	288.46	257.21	133.70	123.51	2.082		
11,700.00	5,735.00	11,493.98	5,538.00	91.19	90.90	40.01	-6,027.81	288.46	257.21	131.67	125.54	2.049		
11,800.00	5,735.00	11,593.98	5,538.00	92.63	92.34	40.01	-6,127.81	288.46	257.21	129.64	127.57	2.016		
11,900.00	5,735.00	11,693.98	5,538.00	94.07	93.78	40.01	-6,227.81	288.46	257.21	127.61	129.60	1.985		
12,000.00	5,735.00	11,793.98	5,538.00	95.51	95.23	40.01	-6,327.81	288.46	257.21	125.58	131.63	1.954		
12,100.00	5,735.00	11,893.98	5,538.00	96.95	96.67	40.01	-6,427.81	288.46	257.21	123.55	133.66	1.924		
12,200.00	5,735.00	11,993.98	5,538.00	98.39	98.12	40.01	-6,527.81	288.46	257.21	121.52	135.70	1.896		
12,300.00	5,735.00	12,093.98	5,538.00	99.84	99.56	40.01	-6,627.81	288.46	257.21	119.48	137.73	1.868		
12,400.00	5,735.00	12,193.98	5,538.00	101.28	101.01	40.01	-6,727.81	288.46	257.21	117.45	139.76	1.840		
12,500.00	5,735.00	12,293.98	5,538.00	102.72	102.46	40.01	-6,827.81	288.46	257.21	115.41	141.80	1.814		
12,600.00	5,735.00	12,393.98	5,538.00	104.17	103.90	40.01	-6,927.81	288.46	257.21	113.38	143.83	1.788		
12,700.00	5,735.00	12,493.98	5,538.00	105.61	105.35	40.01	-7,027.81	288.45	257.21	111.34	145.87	1.763		
12,800.00	5,735.00	12,593.98	5,538.00	107.06	106.80	40.01	-7,127.81	288.45	257.21	109.31	147.91	1.739		
12,900.00	5,735.00	12,693.98	5,538.00	108.51	108.25	40.01	-7,227.81	288.45	257.21	107.27	149.95	1.715		
13,000.00	5,735.00	12,793.98	5,538.00	109.96	109.70	40.01	-7,327.81	288.45	257.21	105.23	151.98	1.692		
13,100.00	5,735.00	12,893.98	5,538.00	111.40	111.15	40.01	-7,427.81	288.45	257.21	103.19	154.02	1.670		
13,200.00	5,735.00	12,993.98	5,538.00	112.85	112.61	40.01	-7,527.81	288.45	257.21	101.15	156.06	1.648		
13,300.00	5,735.00	13,093.98	5,538.00	114.30	114.06	40.01	-7,627.81	288.45	257.21	99.11	158.10	1.627		
13,400.00	5,735.00	13,193.98	5,538.00	115.75	115.51	40.01	-7,727.81	288.45	257.21	97.07	160.14	1.606		
13,500.00	5,735.00	13,293.98	5,538.00	117.21	116.96	40.01	-7,827.81	288.45	257.21	95.03	162.18	1.586		
13,600.00	5,735.00	13,393.98	5,538.00	118.66	118.42	40.01	-7,927.81	288.45	257.21	92.99	164.22	1.566		
13,700.00	5,735.00	13,493.98	5,538.00	120.11	119.87	40.01	-8,027.81	288.45	257.22	90.95	166.27	1.547		
13,800.00	5,735.00	13,593.98	5,538.00	121.56	121.33	40.01	-8,127.81	288.45	257.22	88.91	168.31	1.528		
13,855.60	5,735.00	13,649.58	5,538.00	122.37	122.06	40.01	-8,183.40	288.45	257.22	87.85	169.36	1.519 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.02	-0.01	29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	90.02	-0.01	29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	90.02	-0.01	29.99	29.99	29.05	0.94	31.882		
300.00	300.00	300.00	300.00	0.81	0.81	90.02	-0.01	29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	398.99	398.97	1.13	1.13	16.91	0.38	31.66	30.00	27.68	2.32	12.942		
500.00	499.84	497.98	497.82	1.47	1.46	17.54	1.53	36.65	30.04	26.97	3.07	9.799		
600.00	599.45	596.97	596.44	1.81	1.80	18.59	3.46	44.97	30.11	26.27	3.84	7.847		
700.00	698.88	695.94	694.68	2.15	2.15	19.12	6.14	56.60	31.65	27.04	4.61	6.860		
800.00	798.31	795.70	793.42	2.50	2.51	18.62	9.35	70.49	35.35	30.10	5.25	6.736		
900.00	897.73	895.63	892.31	2.86	2.88	18.19	12.58	84.43	39.09	33.22	5.87	6.660		
1,000.00	997.16	995.56	991.21	3.22	3.25	17.83	15.80	98.38	42.83	36.33	6.50	6.587		
1,100.00	1,096.59	1,095.49	1,090.11	3.58	3.63	17.54	19.02	112.33	46.57	39.43	7.14	6.520		
1,200.00	1,196.02	1,195.42	1,189.01	3.94	4.02	17.29	22.25	126.28	50.31	42.52	7.79	6.457		
1,300.00	1,295.44	1,295.35	1,287.91	4.31	4.40	17.07	25.47	140.23	54.06	45.61	8.45	6.401		
1,400.00	1,394.87	1,395.28	1,386.81	4.67	4.79	16.88	28.69	154.17	57.80	48.70	9.10	6.349		
1,500.00	1,494.30	1,495.21	1,485.71	5.03	5.17	16.71	31.92	168.12	61.55	51.78	9.76	6.303		
1,600.00	1,593.72	1,595.13	1,584.61	5.40	5.56	16.57	35.14	182.07	65.29	54.86	10.43	6.261		
1,700.00	1,693.15	1,695.06	1,683.51	5.76	5.95	16.44	38.36	196.02	69.04	57.94	11.09	6.223		
1,800.00	1,792.58	1,794.99	1,782.41	6.13	6.33	16.32	41.59	209.97	72.78	61.02	11.76	6.188		
1,900.00	1,892.00	1,894.92	1,881.30	6.49	6.72	16.21	44.81	223.91	76.53	64.10	12.43	6.156		
2,000.00	1,991.43	1,994.85	1,980.20	6.86	7.11	16.12	48.03	237.86	80.28	67.18	13.10	6.127		
2,100.00	2,090.86	2,094.78	2,079.10	7.22	7.50	16.03	51.26	251.81	84.03	70.25	13.77	6.100		
2,200.00	2,190.29	2,194.71	2,178.00	7.59	7.89	15.95	54.48	265.76	87.77	73.33	14.45	6.075		
2,300.00	2,289.71	2,294.64	2,276.90	7.95	8.28	15.87	57.71	279.70	91.52	76.40	15.12	6.052		
2,400.00	2,389.14	2,394.57	2,375.80	8.32	8.67	15.81	60.93	293.65	95.27	79.47	15.80	6.031		
2,500.00	2,488.57	2,494.50	2,474.70	8.69	9.06	15.74	64.15	307.60	99.02	82.55	16.47	6.012		
2,600.00	2,587.99	2,594.43	2,573.60	9.05	9.45	15.69	67.38	321.55	102.76	85.62	17.15	5.993		
2,700.00	2,687.42	2,694.36	2,672.50	9.42	9.84	15.63	70.60	335.50	106.51	88.69	17.82	5.976		
2,800.00	2,786.85	2,794.29	2,771.39	9.78	10.22	15.58	73.82	349.44	110.26	91.76	18.50	5.960		
2,900.00	2,886.28	2,894.22	2,870.29	10.15	10.61	15.53	77.05	363.39	114.01	94.83	19.18	5.945		
3,000.00	2,985.70	2,994.15	2,969.19	10.52	11.00	15.49	80.27	377.34	117.76	97.90	19.85	5.931		
3,100.00	3,085.13	3,094.08	3,068.09	10.88	11.39	15.45	83.49	391.29	121.51	100.97	20.53	5.918		
3,200.00	3,184.56	3,194.01	3,166.99	11.25	11.79	15.41	86.72	405.24	125.25	104.04	21.21	5.906		
3,300.00	3,283.98	3,293.94	3,265.89	11.62	12.18	15.37	89.94	419.18	129.00	107.12	21.89	5.894		
3,400.00	3,383.41	3,393.87	3,364.79	11.98	12.57	15.34	93.17	433.13	132.75	110.19	22.57	5.883		
3,500.00	3,482.84	3,493.80	3,463.69	12.35	12.96	15.31	96.39	447.08	136.50	113.26	23.24	5.872		
3,600.00	3,582.27	3,593.73	3,562.59	12.71	13.35	15.27	99.61	461.03	140.25	116.32	23.92	5.863		
3,700.00	3,681.69	3,693.66	3,661.49	13.08	13.74	15.25	102.84	474.97	144.00	119.39	24.60	5.853		
3,800.00	3,781.12	3,793.59	3,760.38	13.45	14.13	15.22	106.06	488.92	147.74	122.46	25.28	5.844		
3,900.00	3,880.55	3,893.52	3,859.28	13.81	14.52	15.19	109.28	502.87	151.49	125.53	25.96	5.836		
4,000.00	3,979.97	3,993.45	3,958.18	14.18	14.91	15.17	112.51	516.82	155.24	128.60	26.64	5.827		
4,100.00	4,079.40	4,093.38	4,057.08	14.55	15.30	15.14	115.73	530.77	158.99	131.67	27.32	5.820		
4,200.00	4,178.83	4,193.31	4,155.98	14.91	15.69	15.12	118.95	544.71	162.74	134.74	28.00	5.812		
4,300.00	4,278.25	4,293.24	4,254.88	15.28	16.08	15.10	122.18	558.66	166.49	137.81	28.68	5.805		
4,400.00	4,377.68	4,393.17	4,353.78	15.65	16.47	15.08	125.40	572.61	170.24	140.88	29.36	5.798		
4,500.00	4,477.11	4,493.10	4,452.68	16.01	16.86	15.06	128.62	586.56	173.99	143.95	30.04	5.792		
4,600.00	4,576.54	4,598.04	4,556.70	16.38	17.23	15.11	131.74	600.05	176.63	145.92	30.72	5.750		
4,700.00	4,675.96	4,704.45	4,662.61	16.75	17.52	15.42	134.05	610.02	175.73	144.41	31.32	5.610		
4,800.00	4,775.47	4,810.67	4,768.64	17.08	17.79	15.91	135.46	616.14	171.99	140.13	31.86	5.398		
4,900.00	4,875.25	4,916.72	4,874.66	17.34	18.05	16.37	135.99	618.42	167.82	135.51	32.31	5.194		
5,000.00	4,975.20	5,017.26	4,975.20	17.59	18.32	16.66	135.99	618.44	164.86	132.01	32.85	5.018		
5,094.97	5,070.16	5,112.23	5,070.16	17.85	18.59	16.73	135.99	618.44	164.21	130.80	33.41	4.915		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,075.19	5,117.26	5,075.19	17.86	18.60	90.00	135.99	618.44	164.61	131.17	33.44	4.922	
5,108.84	5,084.03	5,126.10	5,084.03	17.89	18.63	90.00	135.99	618.44	164.61	131.11	33.50	4.914	
5,200.00	5,175.19	5,216.37	5,173.87	18.16	18.85	92.66	128.36	618.44	164.79	130.71	34.09	4.835	
5,300.00	5,275.05	5,310.46	5,264.63	18.43	19.08	-79.88	104.05	618.44	167.36	132.51	34.85	4.803	
5,400.00	5,372.63	5,400.00	5,345.62	18.69	19.30	-72.72	66.12	618.44	172.81	137.49	35.32	4.893	
5,500.00	5,464.39	5,488.11	5,417.83	18.94	19.50	-66.51	15.82	618.44	180.02	144.75	35.27	5.104	
5,600.00	5,546.95	5,573.16	5,478.55	19.19	19.69	-61.51	-43.60	618.44	187.87	153.19	34.68	5.417	
5,700.00	5,617.28	5,656.40	5,527.85	19.43	19.88	-57.64	-110.56	618.44	195.36	161.57	33.79	5.781	
5,800.00	5,672.80	5,738.28	5,565.35	19.68	20.10	-54.83	-183.26	618.44	201.69	168.75	32.94	6.123	
5,900.00	5,711.47	5,819.22	5,590.78	19.97	20.34	-52.99	-260.01	618.44	206.28	173.80	32.47	6.352	
6,000.00	5,731.86	5,900.00	5,604.02	20.32	20.62	-52.05	-339.62	618.44	208.75	176.07	32.69	6.387	
6,100.00	5,735.00	5,988.25	5,606.00	20.74	20.98	-51.92	-427.81	618.44	209.13	175.60	33.53	6.237	
6,200.00	5,735.00	6,088.25	5,606.00	21.24	21.47	-51.92	-527.81	618.44	209.13	174.64	34.49	6.064	
6,300.00	5,735.00	6,188.25	5,606.00	21.84	22.06	-51.92	-627.81	618.44	209.13	173.55	35.59	5.877	
6,400.00	5,735.00	6,288.25	5,606.00	22.51	22.72	-51.92	-727.81	618.44	209.13	172.33	36.81	5.682	
6,500.00	5,735.00	6,388.25	5,606.00	23.27	23.47	-51.92	-827.81	618.44	209.13	170.99	38.14	5.483	
6,600.00	5,735.00	6,488.25	5,606.00	24.08	24.28	-51.92	-927.81	618.44	209.13	169.55	39.58	5.284	
6,700.00	5,735.00	6,588.25	5,606.00	24.97	25.15	-51.92	-1,027.81	618.44	209.13	168.02	41.11	5.087	
6,800.00	5,735.00	6,688.25	5,606.00	25.90	26.08	-51.92	-1,127.81	618.44	209.13	166.41	42.72	4.895	
6,900.00	5,735.00	6,788.25	5,606.00	26.88	27.06	-51.92	-1,227.81	618.44	209.13	164.73	44.40	4.710	
7,000.00	5,735.00	6,888.25	5,606.00	27.91	28.08	-51.92	-1,327.81	618.44	209.13	162.98	46.15	4.531	
7,100.00	5,735.00	6,988.25	5,606.00	28.98	29.14	-51.92	-1,427.81	618.44	209.13	161.18	47.96	4.361	
7,200.00	5,735.00	7,088.25	5,606.00	30.08	30.24	-51.92	-1,527.81	618.44	209.13	159.32	49.82	4.198	
7,300.00	5,735.00	7,188.25	5,606.00	31.21	31.37	-51.92	-1,627.81	618.44	209.13	157.41	51.72	4.044	
7,400.00	5,735.00	7,288.25	5,606.00	32.37	32.52	-51.92	-1,727.81	618.44	209.13	155.47	53.67	3.897	
7,500.00	5,735.00	7,388.25	5,606.00	33.55	33.70	-51.92	-1,827.81	618.44	209.13	153.49	55.65	3.758	
7,600.00	5,735.00	7,488.25	5,606.00	34.76	34.90	-51.92	-1,927.81	618.44	209.13	151.47	57.66	3.627	
7,700.00	5,735.00	7,588.25	5,606.00	35.98	36.12	-51.92	-2,027.81	618.44	209.13	149.43	59.71	3.503	
7,800.00	5,735.00	7,688.25	5,606.00	37.23	37.36	-51.92	-2,127.81	618.44	209.13	147.36	61.78	3.385	
7,900.00	5,735.00	7,788.25	5,606.00	38.48	38.62	-51.92	-2,227.81	618.44	209.13	145.26	63.87	3.274	
8,000.00	5,735.00	7,888.25	5,606.00	39.76	39.89	-51.92	-2,327.81	618.44	209.13	143.15	65.99	3.169	
8,100.00	5,735.00	7,988.25	5,606.00	41.05	41.18	-51.92	-2,427.81	618.44	209.13	141.01	68.13	3.070	
8,200.00	5,735.00	8,088.25	5,606.00	42.35	42.48	-51.92	-2,527.81	618.44	209.13	138.85	70.28	2.976	
8,300.00	5,735.00	8,188.25	5,606.00	43.66	43.78	-51.92	-2,627.81	618.44	209.13	136.68	72.45	2.887	
8,400.00	5,735.00	8,288.25	5,606.00	44.98	45.10	-51.92	-2,727.81	618.44	209.13	134.50	74.64	2.802	
8,500.00	5,735.00	8,388.25	5,606.00	46.31	46.43	-51.92	-2,827.81	618.44	209.13	132.30	76.84	2.722	
8,600.00	5,735.00	8,488.25	5,606.00	47.64	47.77	-51.92	-2,927.81	618.44	209.13	130.09	79.05	2.646	
8,700.00	5,735.00	8,588.25	5,606.00	48.99	49.11	-51.92	-3,027.81	618.44	209.13	127.86	81.27	2.573	
8,800.00	5,735.00	8,688.25	5,606.00	50.34	50.46	-51.92	-3,127.81	618.44	209.13	125.63	83.51	2.504	
8,900.00	5,735.00	8,788.25	5,606.00	51.70	51.82	-51.92	-3,227.81	618.44	209.13	123.39	85.75	2.439	
9,000.00	5,735.00	8,888.25	5,606.00	53.07	53.18	-51.92	-3,327.81	618.44	209.13	121.13	88.00	2.376	
9,100.00	5,735.00	8,988.25	5,606.00	54.44	54.55	-51.92	-3,427.81	618.44	209.13	118.87	90.26	2.317	
9,200.00	5,735.00	9,088.25	5,606.00	55.81	55.93	-51.92	-3,527.81	618.44	209.13	116.60	92.53	2.260	
9,300.00	5,735.00	9,188.25	5,606.00	57.20	57.31	-51.92	-3,627.81	618.44	209.13	114.33	94.81	2.206	
9,400.00	5,735.00	9,288.25	5,606.00	58.58	58.69	-51.92	-3,727.81	618.44	209.14	112.05	97.09	2.154	
9,500.00	5,735.00	9,388.25	5,606.00	59.97	60.08	-51.92	-3,827.81	618.44	209.14	109.76	99.38	2.104	
9,600.00	5,735.00	9,488.25	5,606.00	61.36	61.47	-51.92	-3,927.81	618.44	209.14	107.46	101.67	2.057	
9,700.00	5,735.00	9,588.25	5,606.00	62.76	62.86	-51.92	-4,027.81	618.44	209.14	105.16	103.97	2.011	
9,800.00	5,735.00	9,688.25	5,606.00	64.16	64.26	-51.92	-4,127.81	618.44	209.14	102.86	106.28	1.968	
9,900.00	5,735.00	9,788.25	5,606.00	65.56	65.67	-51.92	-4,227.81	618.44	209.14	100.55	108.59	1.926	
10,000.00	5,735.00	9,888.25	5,606.00	66.97	67.07	-51.92	-4,327.81	618.44	209.14	98.23	110.90	1.886	
10,100.00	5,735.00	9,988.25	5,606.00	68.38	68.48	-51.92	-4,427.81	618.44	209.14	95.91	113.22	1.847	

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
10,200.00	5,735.00	10,088.25	5,606.00	69.79	69.89	-51.92	-4,527.81	618.44	209.14	93.59	115.54	1.810	
10,300.00	5,735.00	10,188.25	5,606.00	71.20	71.30	-51.92	-4,627.81	618.44	209.14	91.27	117.87	1.774	
10,400.00	5,735.00	10,288.25	5,606.00	72.62	72.72	-51.92	-4,727.81	618.44	209.14	88.94	120.20	1.740	
10,500.00	5,735.00	10,388.25	5,606.00	74.04	74.14	-51.92	-4,827.81	618.44	209.14	86.60	122.53	1.707	
10,600.00	5,735.00	10,488.25	5,606.00	75.46	75.56	-51.92	-4,927.81	618.44	209.14	84.27	124.87	1.675	
10,700.00	5,735.00	10,588.25	5,606.00	76.88	76.98	-51.92	-5,027.81	618.44	209.14	81.93	127.20	1.644	
10,800.00	5,735.00	10,688.25	5,606.00	78.31	78.40	-51.92	-5,127.81	618.44	209.14	79.59	129.55	1.614	
10,900.00	5,735.00	10,788.25	5,606.00	79.73	79.83	-51.92	-5,227.81	618.44	209.14	77.25	131.89	1.586	
11,000.00	5,735.00	10,888.25	5,606.00	81.16	81.25	-51.92	-5,327.81	618.44	209.14	74.90	134.24	1.558	
11,100.00	5,735.00	10,988.25	5,606.00	82.59	82.68	-51.92	-5,427.81	618.44	209.14	72.55	136.59	1.531	
11,200.00	5,735.00	11,088.25	5,606.00	84.02	84.11	-51.92	-5,527.81	618.44	209.14	70.20	138.94	1.505	
11,300.00	5,735.00	11,188.25	5,606.00	85.45	85.54	-51.92	-5,627.81	618.44	209.14	67.85	141.29	1.480 Level 3	
11,400.00	5,735.00	11,288.25	5,606.00	86.88	86.98	-51.92	-5,727.81	618.44	209.14	65.49	143.64	1.456 Level 3	
11,500.00	5,735.00	11,388.25	5,606.00	88.32	88.41	-51.92	-5,827.81	618.44	209.14	63.13	146.00	1.432 Level 3	
11,600.00	5,735.00	11,488.25	5,606.00	89.76	89.84	-51.92	-5,927.81	618.44	209.14	60.77	148.36	1.410 Level 3	
11,700.00	5,735.00	11,588.25	5,606.00	91.19	91.28	-51.92	-6,027.81	618.44	209.14	58.41	150.72	1.388 Level 3	
11,800.00	5,735.00	11,688.25	5,606.00	92.63	92.72	-51.92	-6,127.81	618.44	209.14	56.05	153.08	1.366 Level 3	
11,900.00	5,735.00	11,788.25	5,606.00	94.07	94.16	-51.92	-6,227.81	618.44	209.14	53.69	155.45	1.345 Level 3	
12,000.00	5,735.00	11,888.25	5,606.00	95.51	95.60	-51.92	-6,327.81	618.44	209.14	51.32	157.81	1.325 Level 3	
12,100.00	5,735.00	11,988.25	5,606.00	96.95	97.04	-51.92	-6,427.81	618.44	209.14	48.96	160.18	1.306 Level 3	
12,200.00	5,735.00	12,088.25	5,606.00	98.39	98.48	-51.92	-6,527.81	618.44	209.14	46.59	162.55	1.287 Level 3	
12,300.00	5,735.00	12,188.25	5,606.00	99.84	99.92	-51.92	-6,627.81	618.44	209.14	44.22	164.92	1.268 Level 3	
12,400.00	5,735.00	12,288.25	5,606.00	101.28	101.36	-51.92	-6,727.81	618.44	209.14	41.85	167.29	1.250 Level 3	
12,500.00	5,735.00	12,388.25	5,606.00	102.72	102.81	-51.92	-6,827.81	618.44	209.14	39.48	169.66	1.233 Level 2	
12,600.00	5,735.00	12,488.25	5,606.00	104.17	104.25	-51.92	-6,927.81	618.44	209.14	37.10	172.03	1.216 Level 2	
12,700.00	5,735.00	12,588.25	5,606.00	105.61	105.70	-51.92	-7,027.81	618.44	209.14	34.73	174.41	1.199 Level 2	
12,800.00	5,735.00	12,688.25	5,606.00	107.06	107.14	-51.92	-7,127.81	618.44	209.14	32.35	176.78	1.183 Level 2	
12,900.00	5,735.00	12,788.25	5,606.00	108.51	108.59	-51.92	-7,227.81	618.44	209.14	29.98	179.16	1.167 Level 2	
13,000.00	5,735.00	12,888.25	5,606.00	109.96	110.04	-51.92	-7,327.81	618.44	209.14	27.60	181.54	1.152 Level 2	
13,100.00	5,735.00	12,988.25	5,606.00	111.40	111.49	-51.92	-7,427.81	618.44	209.14	25.22	183.92	1.137 Level 2	
13,200.00	5,735.00	13,088.25	5,606.00	112.85	112.94	-51.92	-7,527.81	618.44	209.14	22.84	186.29	1.123 Level 2	
13,300.00	5,735.00	13,188.25	5,606.00	114.30	114.39	-51.92	-7,627.81	618.44	209.14	20.46	188.67	1.108 Level 2	
13,400.00	5,735.00	13,288.25	5,606.00	115.75	115.84	-51.92	-7,727.81	618.45	209.14	18.08	191.06	1.095 Level 2	
13,500.00	5,735.00	13,388.25	5,606.00	117.21	117.29	-51.92	-7,827.81	618.45	209.14	15.70	193.44	1.081 Level 2	
13,600.00	5,735.00	13,488.25	5,606.00	118.66	118.74	-51.92	-7,927.81	618.45	209.14	13.32	195.82	1.068 Level 2	
13,700.00	5,735.00	13,588.25	5,606.00	120.11	120.19	-51.92	-8,027.81	618.45	209.14	10.93	198.20	1.055 Level 2	
13,800.00	5,735.00	13,688.25	5,606.00	121.56	121.64	-51.92	-8,127.81	618.45	209.14	8.55	200.59	1.043 Level 2	
13,805.83	5,735.00	13,694.08	5,606.00	121.65	121.72	-51.92	-8,133.64	618.45	209.14	8.41	200.73	1.042 Level 2	
13,855.60	5,735.00	13,742.83	5,606.00	122.37	122.43	-51.92	-8,182.39	618.45	209.14	7.18	201.96	1.036 Level 2, ES, SF	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.99	0.01	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.01	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.01	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.01	-59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	401.64	401.62	1.13	1.15	-162.71	1.15	-58.58	60.28	57.97	2.31	26.063 ES		
500.00	499.84	502.15	502.03	1.47	1.49	-161.45	4.02	-55.07	61.83	58.85	2.97	20.783		
600.00	599.45	602.03	601.80	1.81	1.82	-161.15	6.99	-51.44	66.56	62.93	3.63	18.333		
700.00	698.88	701.82	701.47	2.15	2.15	-161.41	9.96	-47.80	73.15	68.86	4.29	17.048		
800.00	798.31	801.60	801.14	2.50	2.49	-161.64	12.93	-44.17	79.76	74.81	4.95	16.114		
900.00	897.73	901.38	900.81	2.86	2.82	-161.83	15.90	-40.54	86.36	80.75	5.61	15.388		
1,000.00	997.16	1,001.16	1,000.48	3.22	3.16	-161.99	18.87	-36.91	92.97	86.69	6.28	14.809		
1,100.00	1,096.59	1,100.94	1,100.15	3.58	3.50	-162.14	21.85	-33.27	99.58	92.63	6.95	14.337		
1,200.00	1,196.02	1,200.72	1,199.83	3.94	3.84	-162.26	24.82	-29.64	106.19	98.57	7.61	13.946		
1,300.00	1,295.44	1,300.50	1,299.50	4.31	4.18	-162.37	27.79	-26.01	112.79	104.51	8.28	13.615		
1,400.00	1,394.87	1,400.29	1,399.17	4.67	4.52	-162.47	30.76	-22.37	119.40	110.45	8.96	13.333		
1,500.00	1,494.30	1,500.07	1,498.84	5.03	4.86	-162.56	33.73	-18.74	126.01	116.39	9.63	13.089		
1,600.00	1,593.72	1,599.85	1,598.51	5.40	5.20	-162.64	36.70	-15.11	132.62	122.32	10.30	12.877		
1,700.00	1,693.15	1,699.63	1,698.18	5.76	5.54	-162.71	39.67	-11.48	139.23	128.26	10.97	12.690		
1,800.00	1,792.58	1,799.41	1,797.85	6.13	5.88	-162.77	42.64	-7.84	145.84	134.20	11.64	12.524		
1,900.00	1,892.00	1,899.19	1,897.52	6.49	6.21	-162.83	45.61	-4.21	152.45	140.13	12.32	12.376		
2,000.00	1,991.43	1,998.97	1,997.19	6.86	6.55	-162.89	48.58	-0.58	159.06	146.07	12.99	12.243		
2,100.00	2,090.86	2,098.75	2,096.86	7.22	6.89	-162.94	51.55	3.05	165.67	152.01	13.67	12.123		
2,200.00	2,190.29	2,198.53	2,196.53	7.59	7.23	-162.98	54.52	6.69	172.28	157.94	14.34	12.015		
2,300.00	2,289.71	2,298.32	2,296.20	7.95	7.57	-163.03	57.49	10.32	178.89	163.88	15.01	11.915		
2,400.00	2,389.14	2,398.10	2,395.88	8.32	7.91	-163.07	60.46	13.95	185.50	169.82	15.69	11.825		
2,500.00	2,488.57	2,497.88	2,495.55	8.69	8.25	-163.10	63.43	17.58	192.11	175.75	16.36	11.741		
2,600.00	2,587.99	2,597.66	2,595.22	9.05	8.59	-163.14	66.40	21.22	198.72	181.69	17.04	11.665		
2,700.00	2,687.42	2,697.44	2,694.89	9.42	8.93	-163.17	69.37	24.85	205.34	187.62	17.71	11.594		
2,800.00	2,786.85	2,797.22	2,794.56	9.78	9.27	-163.20	72.34	28.48	211.95	193.56	18.39	11.528		
2,900.00	2,886.28	2,897.00	2,894.23	10.15	9.61	-163.23	75.31	32.11	218.56	199.50	19.06	11.466		
3,000.00	2,985.70	2,996.78	2,993.90	10.52	9.95	-163.26	78.28	35.75	225.17	205.43	19.74	11.409		
3,100.00	3,085.13	3,096.57	3,093.57	10.88	10.29	-163.28	81.25	39.38	231.78	211.37	20.41	11.356		
3,200.00	3,184.56	3,196.35	3,193.24	11.25	10.63	-163.31	84.22	43.01	238.39	217.31	21.09	11.306		
3,300.00	3,283.98	3,296.13	3,292.91	11.62	10.97	-163.33	87.19	46.64	245.00	223.24	21.76	11.259		
3,400.00	3,383.41	3,395.91	3,392.58	11.98	11.31	-163.35	90.16	50.28	251.61	229.18	22.44	11.215		
3,500.00	3,482.84	3,495.69	3,492.25	12.35	11.65	-163.37	93.13	53.91	258.22	235.11	23.11	11.173		
3,600.00	3,582.27	3,595.47	3,591.92	12.71	12.00	-163.39	96.10	57.54	264.84	241.05	23.79	11.134		
3,700.00	3,681.69	3,695.25	3,691.60	13.08	12.34	-163.41	99.07	61.17	271.45	246.99	24.46	11.097		
3,800.00	3,781.12	3,795.03	3,791.27	13.45	12.68	-163.43	102.04	64.81	278.06	252.92	25.14	11.062		
3,900.00	3,880.55	3,894.81	3,890.94	13.81	13.02	-163.44	105.01	68.44	284.67	258.86	25.81	11.029		
4,000.00	3,979.97	3,994.60	3,990.61	14.18	13.36	-163.46	107.98	72.07	291.28	264.79	26.49	10.997		
4,100.00	4,079.40	4,094.38	4,090.28	14.55	13.70	-163.47	110.95	75.70	297.89	270.73	27.16	10.967		
4,200.00	4,178.83	4,194.16	4,189.95	14.91	14.04	-163.49	113.93	79.34	304.50	276.67	27.84	10.939		
4,300.00	4,278.25	4,293.94	4,289.62	15.28	14.38	-163.50	116.90	82.97	311.11	282.60	28.51	10.912		
4,400.00	4,377.68	4,393.72	4,389.29	15.65	14.72	-163.52	119.87	86.60	317.73	288.54	29.19	10.886		
4,500.00	4,477.11	4,493.50	4,488.96	16.01	15.06	-163.53	122.84	90.23	324.34	294.47	29.86	10.861		
4,600.00	4,576.54	4,593.28	4,588.63	16.38	15.40	-163.54	125.81	93.87	330.95	300.41	30.54	10.837		
4,700.00	4,675.96	4,693.06	4,688.30	16.75	15.74	-163.55	128.78	97.50	337.56	306.35	31.21	10.814		
4,800.00	4,775.47	4,792.89	4,788.02	17.08	16.08	-163.55	131.75	101.13	343.40	311.54	31.86	10.777		
4,900.00	4,875.25	4,892.84	4,887.86	17.34	16.42	-163.58	134.72	104.77	346.07	313.60	32.46	10.660		
5,000.00	4,975.20	4,990.82	4,985.73	17.59	16.74	-163.05	137.59	108.28	345.47	312.42	33.04	10.455		
5,100.00	5,075.19	5,082.32	5,077.20	17.86	16.98	-89.51	138.96	109.95	343.90	310.36	33.54	10.254		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	
5,143.75	5,118.94	5,124.06	5,118.94	17.99	17.10	-89.50	139.01	110.01	343.83	310.05	33.78	10.179	
5,200.00	5,175.19	5,180.31	5,175.19	18.16	17.26	-89.50	139.01	110.01	343.83	309.71	34.12	10.078	
5,204.28	5,179.47	5,184.59	5,179.47	18.17	17.27	90.50	139.01	110.01	343.83	309.69	34.14	10.071	
5,300.00	5,275.05	5,280.17	5,275.05	18.43	17.58	91.09	139.01	110.01	343.88	309.16	34.72	9.903	
5,400.00	5,372.63	5,381.41	5,376.01	18.69	17.87	93.66	133.28	110.02	344.53	309.24	35.29	9.762	
5,500.00	5,464.39	5,486.38	5,477.57	18.94	18.15	96.23	107.45	110.06	345.85	310.06	35.79	9.664	
5,600.00	5,546.95	5,594.89	5,574.91	19.19	18.44	98.58	59.95	110.14	347.65	311.45	36.20	9.604	
5,700.00	5,617.28	5,706.84	5,662.80	19.43	18.71	100.62	-9.04	110.26	349.63	313.10	36.53	9.571	
5,800.00	5,672.80	5,821.89	5,735.66	19.68	18.98	102.23	-97.79	110.41	351.45	314.59	36.86	9.535	
5,900.00	5,711.47	5,939.40	5,788.15	19.97	19.28	103.34	-202.63	110.58	352.79	315.46	37.33	9.450	
6,000.00	5,731.86	6,058.44	5,816.07	20.32	19.66	103.88	-318.09	110.77	353.38	315.30	38.08	9.279	
6,100.00	5,735.00	6,168.89	5,820.00	20.74	20.11	103.92	-428.38	110.95	353.25	314.21	39.05	9.046	
6,200.00	5,735.00	6,268.89	5,820.00	21.24	20.61	103.93	-528.38	111.12	353.09	312.99	40.10	8.805	
6,300.00	5,735.00	6,368.89	5,820.00	21.84	21.21	103.94	-628.38	111.29	352.93	311.61	41.32	8.541	
6,400.00	5,735.00	6,468.89	5,820.00	22.51	21.89	103.94	-728.38	111.45	352.77	310.07	42.70	8.261	
6,500.00	5,735.00	6,568.89	5,820.00	23.27	22.65	103.95	-828.38	111.62	352.61	308.38	44.23	7.973	
6,600.00	5,735.00	6,668.89	5,820.00	24.08	23.47	103.96	-928.38	111.79	352.45	306.57	45.88	7.682	
6,700.00	5,735.00	6,768.89	5,820.00	24.97	24.36	103.96	-1,028.38	111.95	352.29	304.64	47.65	7.393	
6,800.00	5,735.00	6,868.89	5,820.00	25.90	25.31	103.97	-1,128.38	112.12	352.13	302.61	49.52	7.111	
6,900.00	5,735.00	6,968.89	5,820.00	26.88	26.30	103.98	-1,228.38	112.28	351.97	300.48	51.48	6.836	
7,000.00	5,735.00	7,068.89	5,820.00	27.91	27.34	103.98	-1,328.38	112.45	351.80	298.28	53.53	6.572	
7,100.00	5,735.00	7,168.89	5,820.00	28.98	28.41	103.99	-1,428.38	112.62	351.64	296.00	55.65	6.319	
7,200.00	5,735.00	7,268.89	5,820.00	30.08	29.52	103.99	-1,528.38	112.78	351.48	293.65	57.83	6.078	
7,300.00	5,735.00	7,368.89	5,820.00	31.21	30.66	104.00	-1,628.38	112.95	351.32	291.25	60.07	5.849	
7,400.00	5,735.00	7,468.89	5,820.00	32.37	31.83	104.01	-1,728.37	113.11	351.16	288.80	62.36	5.631	
7,500.00	5,735.00	7,568.89	5,820.00	33.55	33.02	104.01	-1,828.37	113.28	351.00	286.30	64.70	5.425	
7,600.00	5,735.00	7,668.89	5,820.00	34.76	34.23	104.02	-1,928.37	113.45	350.84	283.76	67.08	5.230	
7,700.00	5,735.00	7,768.89	5,820.00	35.98	35.47	104.03	-2,028.37	113.61	350.68	281.18	69.49	5.046	
7,800.00	5,735.00	7,868.89	5,820.00	37.23	36.72	104.03	-2,128.37	113.78	350.51	278.57	71.94	4.872	
7,900.00	5,735.00	7,968.89	5,820.00	38.48	37.99	104.04	-2,228.37	113.95	350.35	275.93	74.42	4.708	
8,000.00	5,735.00	8,068.89	5,820.00	39.76	39.27	104.05	-2,328.37	114.11	350.19	273.27	76.93	4.552	
8,100.00	5,735.00	8,168.89	5,820.00	41.05	40.56	104.05	-2,428.37	114.28	350.03	270.58	79.46	4.405	
8,200.00	5,735.00	8,268.89	5,820.00	42.35	41.87	104.06	-2,528.37	114.44	349.87	267.86	82.01	4.266	
8,300.00	5,735.00	8,368.89	5,820.00	43.66	43.18	104.07	-2,628.37	114.61	349.71	265.13	84.58	4.135	
8,400.00	5,735.00	8,468.89	5,820.00	44.98	44.51	104.07	-2,728.37	114.78	349.55	262.38	87.17	4.010	
8,500.00	5,735.00	8,568.88	5,820.00	46.31	45.85	104.08	-2,828.37	114.94	349.39	259.61	89.78	3.892	
8,600.00	5,735.00	8,668.88	5,820.00	47.64	47.19	104.09	-2,928.37	115.11	349.23	256.83	92.40	3.779	
8,700.00	5,735.00	8,768.88	5,820.00	48.99	48.54	104.09	-3,028.37	115.27	349.06	254.03	95.04	3.673	
8,800.00	5,735.00	8,868.88	5,820.00	50.34	49.90	104.10	-3,128.37	115.44	348.90	251.22	97.69	3.572	
8,900.00	5,735.00	8,968.88	5,820.00	51.70	51.26	104.11	-3,228.37	115.61	348.74	248.40	100.35	3.475	
9,000.00	5,735.00	9,068.88	5,820.00	53.07	52.63	104.11	-3,328.37	115.77	348.58	245.56	103.02	3.384	
9,100.00	5,735.00	9,168.88	5,820.00	54.44	54.01	104.12	-3,428.37	115.94	348.42	242.72	105.70	3.296	
9,200.00	5,735.00	9,268.88	5,820.00	55.81	55.39	104.13	-3,528.37	116.11	348.26	239.87	108.39	3.213	
9,300.00	5,735.00	9,368.88	5,820.00	57.20	56.77	104.13	-3,628.37	116.27	348.10	237.01	111.09	3.133	
9,400.00	5,735.00	9,468.88	5,820.00	58.58	58.16	104.14	-3,728.37	116.44	347.94	234.14	113.80	3.057	
9,500.00	5,735.00	9,568.88	5,820.00	59.97	59.56	104.15	-3,828.37	116.60	347.78	231.26	116.52	2.985	
9,600.00	5,735.00	9,668.88	5,820.00	61.36	60.95	104.15	-3,928.37	116.77	347.62	228.38	119.24	2.915	
9,700.00	5,735.00	9,768.88	5,820.00	62.76	62.35	104.16	-4,028.37	116.94	347.45	225.49	121.97	2.849	
9,800.00	5,735.00	9,868.88	5,820.00	64.16	63.76	104.17	-4,128.37	117.10	347.29	222.59	124.70	2.785	
9,900.00	5,735.00	9,968.88	5,820.00	65.56	65.16	104.17	-4,228.37	117.27	347.13	219.69	127.44	2.724	
10,000.00	5,735.00	10,068.88	5,820.00	66.97	66.57	104.18	-4,328.37	117.43	346.97	216.78	130.19	2.665	
10,100.00	5,735.00	10,168.88	5,820.00	68.38	67.99	104.19	-4,428.37	117.60	346.81	213.87	132.94	2.609	

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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											
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning				
10,200.00	5,735.00	10,268.88	5,820.00	69.79	69.40	104.19	-4,528.37	117.77	346.65	210.96	135.69	2.555					
10,300.00	5,735.00	10,368.88	5,820.00	71.20	70.82	104.20	-4,628.37	117.93	346.49	208.04	138.45	2.503					
10,400.00	5,735.00	10,468.88	5,820.00	72.62	72.24	104.21	-4,728.37	118.10	346.33	205.11	141.21	2.452					
10,500.00	5,735.00	10,568.88	5,820.00	74.04	73.66	104.21	-4,828.37	118.27	346.17	202.18	143.98	2.404					
10,600.00	5,735.00	10,668.88	5,820.00	75.46	75.08	104.22	-4,928.37	118.43	346.00	199.25	146.75	2.358					
10,700.00	5,735.00	10,768.88	5,820.00	76.88	76.51	104.23	-5,028.37	118.60	345.84	196.32	149.53	2.313					
10,800.00	5,735.00	10,868.88	5,820.00	78.31	77.93	104.23	-5,128.37	118.76	345.68	193.38	152.30	2.270					
10,900.00	5,735.00	10,968.88	5,820.00	79.73	79.36	104.24	-5,228.37	118.93	345.52	190.44	155.08	2.228					
11,000.00	5,735.00	11,068.88	5,820.00	81.16	80.79	104.25	-5,328.37	119.10	345.36	187.49	157.87	2.188					
11,100.00	5,735.00	11,168.88	5,820.00	82.59	82.22	104.25	-5,428.36	119.26	345.20	184.55	160.65	2.149					
11,200.00	5,735.00	11,268.88	5,820.00	84.02	83.66	104.26	-5,528.36	119.43	345.04	181.60	163.44	2.111					
11,300.00	5,735.00	11,368.88	5,820.00	85.45	85.09	104.27	-5,628.36	119.59	344.88	178.65	166.23	2.075					
11,400.00	5,735.00	11,468.88	5,820.00	86.88	86.53	104.28	-5,728.36	119.76	344.72	175.69	169.02	2.039					
11,500.00	5,735.00	11,568.88	5,820.00	88.32	87.96	104.28	-5,828.36	119.93	344.56	172.74	171.82	2.005					
11,600.00	5,735.00	11,668.88	5,820.00	89.76	89.40	104.29	-5,928.36	120.09	344.39	169.78	174.62	1.972					
11,700.00	5,735.00	11,768.88	5,820.00	91.19	90.84	104.30	-6,028.36	120.26	344.23	166.82	177.42	1.940					
11,800.00	5,735.00	11,868.88	5,820.00	92.63	92.28	104.30	-6,128.36	120.43	344.07	163.86	180.22	1.909					
11,900.00	5,735.00	11,968.88	5,820.00	94.07	93.72	104.31	-6,228.36	120.59	343.91	160.89	183.02	1.879					
12,000.00	5,735.00	12,068.88	5,820.00	95.51	95.16	104.32	-6,328.36	120.76	343.75	157.93	185.82	1.850					
12,100.00	5,735.00	12,168.88	5,820.00	96.95	96.61	104.32	-6,428.36	120.92	343.59	154.96	188.63	1.822					
12,200.00	5,735.00	12,268.88	5,820.00	98.39	98.05	104.33	-6,528.36	121.09	343.43	151.99	191.44	1.794					
12,300.00	5,735.00	12,368.88	5,820.00	99.84	99.49	104.34	-6,628.36	121.26	343.27	149.02	194.24	1.767					
12,400.00	5,735.00	12,468.88	5,820.00	101.28	100.94	104.34	-6,728.36	121.42	343.11	146.05	197.06	1.741					
12,500.00	5,735.00	12,568.88	5,820.00	102.72	102.39	104.35	-6,828.36	121.59	342.95	143.08	199.87	1.716					
12,600.00	5,735.00	12,668.88	5,820.00	104.17	103.83	104.36	-6,928.36	121.75	342.79	140.11	202.68	1.691					
12,700.00	5,735.00	12,768.88	5,820.00	105.61	105.28	104.36	-7,028.36	121.92	342.62	137.13	205.49	1.667					
12,800.00	5,735.00	12,868.88	5,820.00	107.06	106.73	104.37	-7,128.36	122.09	342.46	134.16	208.31	1.644					
12,900.00	5,735.00	12,968.88	5,820.00	108.51	108.18	104.38	-7,228.36	122.25	342.30	131.18	211.12	1.621					
13,000.00	5,735.00	13,068.88	5,820.00	109.96	109.63	104.38	-7,328.36	122.42	342.14	128.20	213.94	1.599					
13,100.00	5,735.00	13,168.88	5,820.00	111.40	111.08	104.39	-7,428.36	122.59	341.98	125.22	216.76	1.578					
13,200.00	5,735.00	13,268.88	5,820.00	112.85	112.53	104.40	-7,528.36	122.75	341.82	122.24	219.58	1.557					
13,300.00	5,735.00	13,368.88	5,820.00	114.30	113.98	104.41	-7,628.36	122.92	341.66	119.26	222.40	1.536					
13,400.00	5,735.00	13,468.88	5,820.00	115.75	115.43	104.41	-7,728.36	123.08	341.50	116.28	225.22	1.516					
13,500.00	5,735.00	13,568.88	5,820.00	117.21	116.88	104.42	-7,828.36	123.25	341.34	113.30	228.04	1.497	Level 3				
13,600.00	5,735.00	13,668.88	5,820.00	118.66	118.34	104.43	-7,928.36	123.42	341.18	110.31	230.86	1.478	Level 3				
13,700.00	5,735.00	13,768.88	5,820.00	120.11	119.79	104.43	-8,028.36	123.58	341.02	107.33	233.69	1.459	Level 3				
13,800.00	5,735.00	13,868.88	5,820.00	121.56	121.24	104.44	-8,128.36	123.75	340.86	104.35	236.51	1.441	Level 3				
13,855.60	5,735.00	13,924.47	5,820.00	122.37	122.05	104.44	-8,183.95	123.84	340.77	102.69	238.08	1.431	Level 3, SF				



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	90.00	0.00	89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	90.00	0.00	89.97	89.97	89.03	0.94	95.645		
300.00	300.00	300.00	300.00	0.81	0.81	90.00	0.00	89.97	89.97	88.35	1.61	55.709 CC		
400.00	399.98	396.98	396.96	1.13	1.12	16.86	0.21	91.60	89.97	87.66	2.31	38.951		
500.00	499.84	493.96	493.81	1.47	1.44	17.38	0.84	96.48	90.00	86.95	3.05	29.507		
600.00	599.45	590.93	590.43	1.81	1.77	18.26	1.89	104.61	90.06	86.25	3.82	23.604 ES		
700.00	698.88	687.88	686.70	2.15	2.11	19.17	3.36	115.97	91.62	87.03	4.59	19.976		
800.00	798.31	784.64	782.33	2.50	2.47	19.69	5.24	130.53	96.51	91.15	5.36	18.009		
900.00	897.73	880.98	877.00	2.86	2.84	19.82	7.52	148.19	104.71	98.58	6.13	17.094		
1,000.00	997.16	976.69	970.42	3.22	3.24	19.64	10.19	168.86	116.19	109.31	6.88	16.885		
1,100.00	1,096.59	1,073.38	1,064.10	3.58	3.67	19.25	13.25	192.58	130.63	123.08	7.56	17.286		
1,200.00	1,196.02	1,172.24	1,159.76	3.94	4.13	18.90	16.45	217.34	145.62	137.47	8.15	17.861		
1,300.00	1,295.44	1,271.11	1,255.42	4.31	4.59	18.61	19.65	242.11	160.61	151.85	8.75	18.347		
1,400.00	1,394.87	1,369.98	1,351.08	4.67	5.06	18.37	22.84	266.88	175.60	166.22	9.37	18.733		
1,500.00	1,494.30	1,468.85	1,446.74	5.03	5.53	18.17	26.04	291.64	190.59	180.59	10.00	19.056		
1,600.00	1,593.72	1,567.71	1,542.41	5.40	6.01	18.00	29.24	316.41	205.59	194.95	10.64	19.328		
1,700.00	1,693.15	1,666.58	1,638.07	5.76	6.49	17.85	32.44	341.17	220.59	209.31	11.28	19.559		
1,800.00	1,792.58	1,765.45	1,733.73	6.13	6.97	17.72	35.64	365.94	235.58	223.66	11.92	19.756		
1,900.00	1,892.00	1,864.32	1,829.39	6.49	7.45	17.61	38.83	390.71	250.58	238.01	12.58	19.927		
2,000.00	1,991.43	1,963.18	1,925.05	6.86	7.94	17.51	42.03	415.47	265.59	252.35	13.23	20.074		
2,100.00	2,090.86	2,062.05	2,020.71	7.22	8.42	17.42	45.23	440.24	280.59	266.70	13.89	20.203		
2,200.00	2,190.29	2,160.92	2,116.38	7.59	8.91	17.34	48.43	465.00	295.59	281.04	14.55	20.317		
2,300.00	2,289.71	2,259.79	2,212.04	7.95	9.40	17.27	51.63	489.77	310.59	295.38	15.21	20.417		
2,400.00	2,389.14	2,358.65	2,307.70	8.32	9.88	17.20	54.82	514.54	325.59	309.72	15.88	20.506		
2,500.00	2,488.57	2,457.52	2,403.36	8.69	10.37	17.14	58.02	539.30	340.60	324.05	16.55	20.586		
2,600.00	2,587.99	2,556.39	2,499.02	9.05	10.86	17.08	61.22	564.07	355.60	338.39	17.21	20.657		
2,700.00	2,687.42	2,655.26	2,594.69	9.42	11.35	17.03	64.42	588.83	370.61	352.72	17.88	20.722		
2,800.00	2,786.85	2,754.12	2,690.35	9.78	11.84	16.98	67.62	613.60	385.61	367.05	18.56	20.780		
2,900.00	2,886.28	2,852.99	2,786.01	10.15	12.33	16.94	70.81	638.37	400.61	381.38	19.23	20.833		
3,000.00	2,985.70	2,951.86	2,881.67	10.52	12.82	16.90	74.01	663.13	415.62	395.72	19.90	20.881		
3,100.00	3,085.13	3,050.73	2,977.33	10.88	13.31	16.86	77.21	687.90	430.62	410.05	20.58	20.925		
3,200.00	3,184.56	3,149.59	3,073.00	11.25	13.80	16.83	80.41	712.67	445.63	424.37	21.26	20.966		
3,300.00	3,283.98	3,248.46	3,168.66	11.62	14.29	16.80	83.61	737.43	460.63	438.70	21.93	21.003		
3,400.00	3,383.41	3,347.33	3,264.32	11.98	14.78	16.77	86.81	762.20	475.64	453.03	22.61	21.037		
3,500.00	3,482.84	3,446.20	3,359.98	12.35	15.27	16.74	90.00	786.96	490.65	467.36	23.29	21.069		
3,600.00	3,582.27	3,545.06	3,455.64	12.71	15.76	16.71	93.20	811.73	505.65	481.68	23.97	21.098		
3,700.00	3,681.69	3,643.93	3,551.30	13.08	16.25	16.68	96.40	836.50	520.66	496.01	24.65	21.125		
3,800.00	3,781.12	3,742.80	3,646.97	13.45	16.74	16.66	99.60	861.26	535.66	510.34	25.33	21.151		
3,900.00	3,880.55	3,841.67	3,742.63	13.81	17.24	16.64	102.80	886.03	550.67	524.66	26.01	21.174		
4,000.00	3,979.97	3,940.53	3,838.29	14.18	17.73	16.62	105.99	910.79	565.67	538.99	26.69	21.197		
4,100.00	4,079.40	4,039.40	3,933.95	14.55	18.22	16.59	109.19	935.56	580.68	553.31	27.37	21.217		
4,200.00	4,178.83	4,138.27	4,029.61	14.91	18.71	16.58	112.39	960.33	595.69	567.64	28.05	21.237		
4,300.00	4,278.25	4,237.14	4,125.28	15.28	19.20	16.56	115.59	985.09	610.69	581.96	28.73	21.255		
4,400.00	4,377.68	4,336.00	4,220.94	15.65	19.70	16.54	118.79	1,009.86	625.70	596.29	29.41	21.272		
4,500.00	4,477.11	4,442.58	4,324.11	16.01	20.20	16.52	122.21	1,036.35	640.54	610.40	30.14	21.251		
4,600.00	4,576.54	4,570.55	4,448.96	16.38	20.68	16.55	125.80	1,064.15	652.16	621.23	30.93	21.083		
4,700.00	4,675.96	4,699.59	4,575.99	16.75	21.09	16.64	128.69	1,086.56	659.36	627.70	31.65	20.832		
4,800.00	4,775.47	4,829.18	4,704.47	17.08	21.46	16.79	130.86	1,103.33	662.85	630.57	32.28	20.534		
4,900.00	4,875.25	4,958.98	4,833.78	17.34	21.79	16.89	132.28	1,114.34	665.03	632.24	32.79	20.281		
5,000.00	4,975.20	5,088.89	4,963.57	17.59	22.09	16.94	132.95	1,119.53	666.06	632.83	33.23	20.046		
5,100.00	5,075.19	5,200.51	5,075.19	17.86	22.33	90.26	133.00	1,119.97	666.14	632.41	33.74	19.744		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	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	5,175.19	5,300.51	5,175.19	18.16	22.57	90.26	133.00	1,119.97	666.14	631.81	34.34	19.401		
5,300.00	5,275.05	5,400.34	5,274.88	18.43	22.79	-89.74	129.43	1,119.96	666.14	631.23	34.90	19.085		
5,400.00	5,372.63	5,500.07	5,372.21	18.69	22.99	-89.75	108.40	1,119.91	666.09	630.68	35.40	18.814		
5,500.00	5,464.39	5,599.81	5,463.78	18.94	23.19	-89.77	69.23	1,119.82	666.00	630.13	35.86	18.571		
5,600.00	5,546.95	5,699.58	5,546.23	19.19	23.37	-89.80	13.33	1,119.69	665.87	629.55	36.31	18.338		
5,700.00	5,617.28	5,799.39	5,616.57	19.43	23.55	-89.84	-57.27	1,119.53	665.70	628.91	36.79	18.093		
5,800.00	5,672.80	5,899.23	5,672.19	19.68	23.74	-89.88	-140.00	1,119.34	665.51	628.16	37.35	17.818		
5,900.00	5,711.47	5,999.12	5,711.05	19.97	23.95	-89.92	-231.85	1,119.12	665.30	627.28	38.02	17.500		
6,000.00	5,731.86	6,099.06	5,731.70	20.32	24.21	-89.97	-329.48	1,118.90	665.07	626.27	38.80	17.142		
6,100.00	5,735.00	6,199.05	5,735.00	20.74	24.52	-90.00	-429.35	1,118.67	664.84	625.14	39.69	16.749		
6,200.00	5,735.00	6,299.05	5,735.00	21.24	24.91	-90.00	-529.35	1,118.44	664.61	623.83	40.78	16.297		
6,300.00	5,735.00	6,399.05	5,735.00	21.84	25.38	-90.00	-629.35	1,118.20	664.38	622.33	42.05	15.801		
6,400.00	5,735.00	6,499.05	5,735.00	22.51	25.92	-90.00	-729.35	1,117.97	664.14	620.67	43.48	15.276		
6,500.00	5,735.00	6,599.05	5,735.00	23.27	26.54	-90.00	-829.34	1,117.74	663.91	618.86	45.05	14.737		
6,600.00	5,735.00	6,699.05	5,735.00	24.08	27.23	-90.00	-929.34	1,117.51	663.68	616.92	46.76	14.193		
6,700.00	5,735.00	6,799.05	5,735.00	24.97	27.98	-90.00	-1,029.34	1,117.28	663.45	614.86	48.59	13.655		
6,800.00	5,735.00	6,899.05	5,735.00	25.90	28.80	-90.00	-1,129.34	1,117.05	663.22	612.70	50.52	13.128		
6,900.00	5,735.00	6,999.05	5,735.00	26.88	29.67	-90.00	-1,229.34	1,116.82	662.99	610.44	52.54	12.618		
7,000.00	5,735.00	7,099.05	5,735.00	27.91	30.58	-90.00	-1,329.34	1,116.58	662.76	608.10	54.65	12.127		
7,100.00	5,735.00	7,199.05	5,735.00	28.98	31.55	-90.00	-1,429.34	1,116.35	662.52	605.69	56.84	11.657		
7,200.00	5,735.00	7,299.05	5,735.00	30.08	32.55	-90.00	-1,529.34	1,116.12	662.29	603.21	59.09	11.209		
7,300.00	5,735.00	7,399.05	5,735.00	31.21	33.59	-90.00	-1,629.34	1,115.89	662.06	600.67	61.39	10.784		
7,400.00	5,735.00	7,499.05	5,735.00	32.37	34.66	-90.00	-1,729.34	1,115.66	661.83	598.08	63.75	10.381		
7,500.00	5,735.00	7,599.05	5,735.00	33.55	35.76	-90.00	-1,829.34	1,115.43	661.60	595.44	66.16	10.000		
7,600.00	5,735.00	7,699.05	5,735.00	34.76	36.89	-90.00	-1,929.34	1,115.20	661.37	592.76	68.61	9.640		
7,700.00	5,735.00	7,799.05	5,735.00	35.98	38.05	-90.00	-2,029.34	1,114.97	661.14	590.04	71.10	9.299		
7,800.00	5,735.00	7,899.05	5,735.00	37.23	39.22	-90.00	-2,129.34	1,114.73	660.90	587.29	73.62	8.978		
7,900.00	5,735.00	7,999.05	5,735.00	38.48	40.42	-90.00	-2,229.34	1,114.50	660.67	584.51	76.17	8.674		
8,000.00	5,735.00	8,099.05	5,735.00	39.76	41.63	-90.00	-2,329.34	1,114.27	660.44	581.70	78.74	8.387		
8,100.00	5,735.00	8,199.05	5,735.00	41.05	42.86	-90.00	-2,429.34	1,114.04	660.21	578.86	81.35	8.116		
8,200.00	5,735.00	8,299.05	5,735.00	42.35	44.11	-90.00	-2,529.34	1,113.81	659.98	576.01	83.97	7.860		
8,300.00	5,735.00	8,399.05	5,735.00	43.66	45.37	-90.00	-2,629.33	1,113.58	659.75	573.13	86.62	7.617		
8,400.00	5,735.00	8,499.05	5,735.00	44.98	46.64	-90.00	-2,729.33	1,113.35	659.52	570.24	89.28	7.387		
8,500.00	5,735.00	8,599.05	5,735.00	46.31	47.92	-90.00	-2,829.33	1,113.12	659.29	567.32	91.96	7.169		
8,600.00	5,735.00	8,699.05	5,735.00	47.64	49.22	-90.00	-2,929.33	1,112.88	659.05	564.40	94.66	6.962		
8,700.00	5,735.00	8,799.05	5,735.00	48.99	50.52	-90.00	-3,029.33	1,112.65	658.82	561.45	97.37	6.766		
8,800.00	5,735.00	8,899.05	5,735.00	50.34	51.83	-90.00	-3,129.33	1,112.42	658.59	558.50	100.09	6.580		
8,900.00	5,735.00	8,999.05	5,735.00	51.70	53.16	-90.00	-3,229.33	1,112.19	658.36	555.53	102.83	6.402		
9,000.00	5,735.00	9,099.05	5,735.00	53.07	54.49	-90.00	-3,329.33	1,111.96	658.13	552.55	105.58	6.234		
9,100.00	5,735.00	9,199.05	5,735.00	54.44	55.82	-90.00	-3,429.33	1,111.73	657.90	549.56	108.33	6.073		
9,200.00	5,735.00	9,299.05	5,735.00	55.81	57.17	-90.00	-3,529.33	1,111.50	657.67	546.56	111.10	5.920		
9,300.00	5,735.00	9,399.05	5,735.00	57.20	58.52	-90.00	-3,629.33	1,111.26	657.43	543.56	113.88	5.773		
9,400.00	5,735.00	9,499.05	5,735.00	58.58	59.87	-90.00	-3,729.33	1,111.03	657.20	540.54	116.66	5.633		
9,500.00	5,735.00	9,599.05	5,735.00	59.97	61.23	-90.00	-3,829.33	1,110.80	656.97	537.52	119.45	5.500		
9,600.00	5,735.00	9,699.05	5,735.00	61.36	62.60	-90.00	-3,929.33	1,110.57	656.74	534.49	122.25	5.372		
9,700.00	5,735.00	9,799.04	5,735.00	62.76	63.97	-90.00	-4,029.33	1,110.34	656.51	531.45	125.06	5.250		
9,800.00	5,735.00	9,899.04	5,735.00	64.16	65.34	-90.00	-4,129.33	1,110.11	656.28	528.41	127.87	5.132		
9,900.00	5,735.00	9,999.04	5,735.00	65.56	66.72	-90.00	-4,229.33	1,109.88	656.05	525.36	130.69	5.020		
10,000.00	5,735.00	10,099.04	5,735.00	66.97	68.10	-90.00	-4,329.33	1,109.65	655.82	522.31	133.51	4.912		
10,100.00	5,735.00	10,199.04	5,735.00	68.38	69.49	-90.00	-4,429.33	1,109.41	655.58	519.25	136.34	4.809		
10,200.00	5,735.00	10,299.04	5,735.00	69.79	70.88	-90.00	-4,529.32	1,109.18	655.35	516.18	139.17	4.709		
10,300.00	5,735.00	10,399.04	5,735.00	71.20	72.28	-90.00	-4,629.32	1,108.95	655.12	513.12	142.01	4.613		

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



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	5,735.00	10,499.04	5,735.00	72.62	73.67	-90.00	-4,729.32	1,108.72	654.89	510.04	144.85	4.521		
10,500.00	5,735.00	10,599.04	5,735.00	74.04	75.07	-90.00	-4,829.32	1,108.49	654.66	506.97	147.69	4.433		
10,600.00	5,735.00	10,699.04	5,735.00	75.46	76.47	-90.00	-4,929.32	1,108.26	654.43	503.89	150.54	4.347		
10,700.00	5,735.00	10,799.04	5,735.00	76.88	77.88	-90.00	-5,029.32	1,108.03	654.20	500.80	153.39	4.265		
10,800.00	5,735.00	10,899.04	5,735.00	78.31	79.28	-90.00	-5,129.32	1,107.80	653.96	497.71	156.25	4.185		
10,900.00	5,735.00	10,999.04	5,735.00	79.73	80.69	-90.00	-5,229.32	1,107.56	653.73	494.62	159.11	4.109		
11,000.00	5,735.00	11,099.04	5,735.00	81.16	82.11	-90.00	-5,329.32	1,107.33	653.50	491.53	161.97	4.035		
11,100.00	5,735.00	11,199.04	5,735.00	82.59	83.52	-90.00	-5,429.32	1,107.10	653.27	488.43	164.84	3.963		
11,200.00	5,735.00	11,299.04	5,735.00	84.02	84.93	-90.00	-5,529.32	1,106.87	653.04	485.34	167.70	3.894		
11,300.00	5,735.00	11,399.04	5,735.00	85.45	86.35	-90.00	-5,629.32	1,106.64	652.81	482.23	170.57	3.827		
11,400.00	5,735.00	11,499.04	5,735.00	86.88	87.77	-90.00	-5,729.32	1,106.41	652.58	479.13	173.45	3.762		
11,500.00	5,735.00	11,599.04	5,735.00	88.32	89.19	-90.00	-5,829.32	1,106.18	652.34	476.02	176.32	3.700		
11,600.00	5,735.00	11,699.04	5,735.00	89.76	90.61	-90.00	-5,929.32	1,105.94	652.11	472.92	179.20	3.639		
11,700.00	5,735.00	11,799.04	5,735.00	91.19	92.04	-90.00	-6,029.32	1,105.71	651.88	469.80	182.08	3.580		
11,800.00	5,735.00	11,899.04	5,735.00	92.63	93.46	-90.00	-6,129.32	1,105.48	651.65	466.69	184.96	3.523		
11,900.00	5,735.00	11,999.04	5,735.00	94.07	94.89	-90.00	-6,229.32	1,105.25	651.42	463.58	187.84	3.468		
12,000.00	5,735.00	12,099.04	5,735.00	95.51	96.32	-90.00	-6,329.32	1,105.02	651.19	460.46	190.73	3.414		
12,100.00	5,735.00	12,199.04	5,735.00	96.95	97.75	-90.00	-6,429.31	1,104.79	650.96	457.34	193.61	3.362		
12,200.00	5,735.00	12,299.04	5,735.00	98.39	99.18	-90.00	-6,529.31	1,104.56	650.73	454.22	196.50	3.312		
12,300.00	5,735.00	12,399.04	5,735.00	99.84	100.61	-90.00	-6,629.31	1,104.33	650.49	451.10	199.39	3.262		
12,400.00	5,735.00	12,499.04	5,735.00	101.28	102.04	-90.00	-6,729.31	1,104.09	650.26	447.98	202.28	3.215		
12,500.00	5,735.00	12,599.04	5,735.00	102.72	103.48	-90.00	-6,829.31	1,103.86	650.03	444.86	205.18	3.168		
12,600.00	5,735.00	12,699.04	5,735.00	104.17	104.91	-90.00	-6,929.31	1,103.63	649.80	441.73	208.07	3.123		
12,700.00	5,735.00	12,799.04	5,735.00	105.61	106.35	-90.00	-7,029.31	1,103.40	649.57	438.60	210.97	3.079		
12,800.00	5,735.00	12,899.04	5,735.00	107.06	107.79	-90.00	-7,129.31	1,103.17	649.34	435.47	213.86	3.036		
12,900.00	5,735.00	12,999.04	5,735.00	108.51	109.22	-90.00	-7,229.31	1,102.94	649.11	432.34	216.76	2.995		
13,000.00	5,735.00	13,099.04	5,735.00	109.96	110.66	-90.00	-7,329.31	1,102.71	648.87	429.21	219.66	2.954		
13,100.00	5,735.00	13,199.04	5,735.00	111.40	112.10	-90.00	-7,429.31	1,102.48	648.64	426.08	222.56	2.914		
13,200.00	5,735.00	13,299.04	5,735.00	112.85	113.54	-90.00	-7,529.31	1,102.24	648.41	422.95	225.46	2.876		
13,300.00	5,735.00	13,399.04	5,735.00	114.30	114.98	-90.00	-7,629.31	1,102.01	648.18	419.81	228.37	2.838		
13,400.00	5,735.00	13,499.04	5,735.00	115.75	116.43	-90.00	-7,729.31	1,101.78	647.95	416.68	231.27	2.802		
13,500.00	5,735.00	13,599.03	5,735.00	117.21	117.87	-90.00	-7,829.31	1,101.55	647.72	413.54	234.17	2.766		
13,600.00	5,735.00	13,699.03	5,735.00	118.66	119.31	-90.00	-7,929.31	1,101.32	647.49	410.41	237.08	2.731		
13,700.00	5,735.00	13,799.03	5,735.00	120.11	120.76	-90.00	-8,029.31	1,101.09	647.25	407.27	239.99	2.697		
13,800.00	5,735.00	13,899.03	5,735.00	121.56	122.20	-90.00	-8,129.31	1,100.86	647.02	404.13	242.89	2.664		
13,853.09	5,735.00	13,949.06	5,735.00	122.33	122.92	-90.00	-8,179.34	1,100.74	646.91	402.43	244.48	2.646		
13,855.60	5,735.00	13,949.06	5,735.00	122.37	122.92	-90.00	-8,179.34	1,100.74	646.92	402.34	244.58	2.645 SF		



WOG

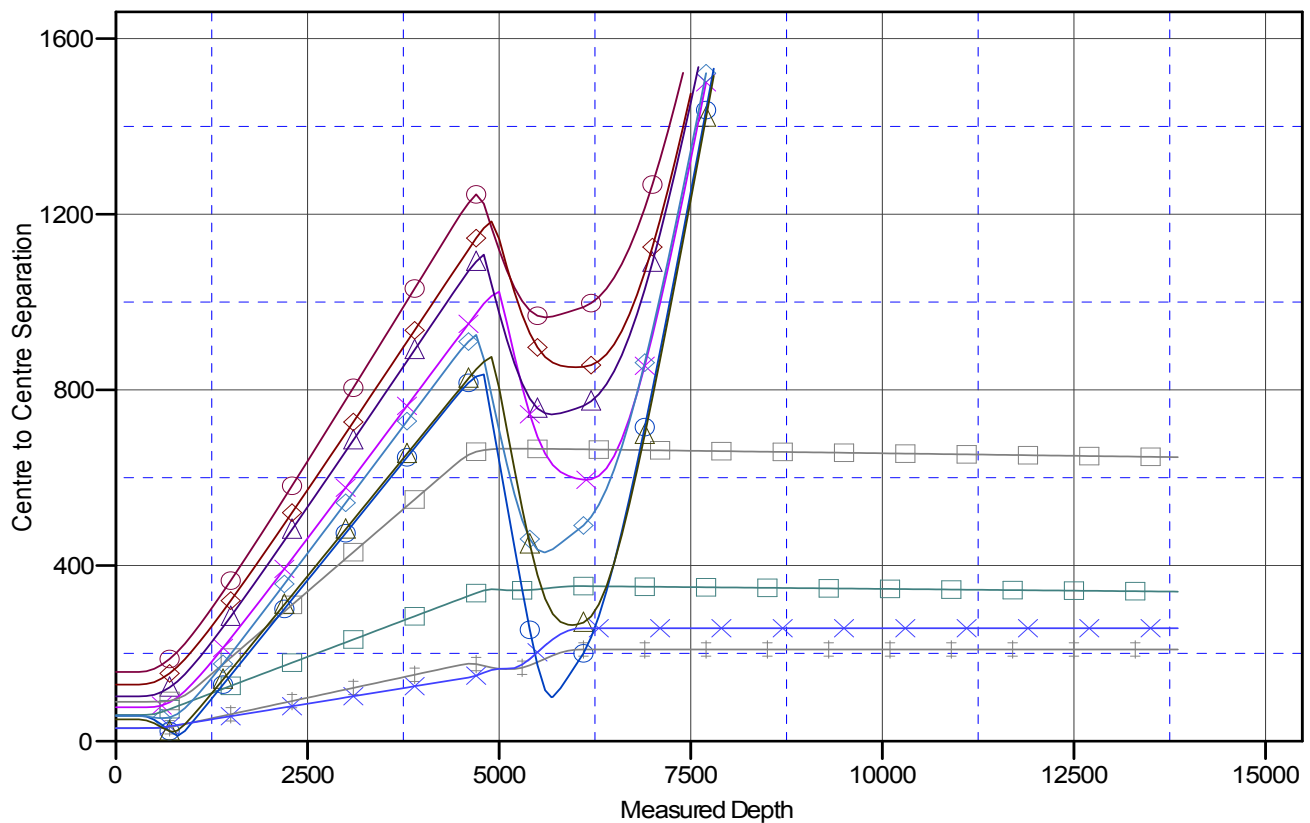
Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3136
Project:	Weld County, CO	TVD Reference:	KBE @ 4827.40usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4827.40usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30E-3136	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	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-3136
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Ladder Plot



LEGEND

- ✱ Horsetail #30E-1935, Hz, APDV0
- ✱ Horsetail #30E-1902, Hz, APDV0
- ✱ Horsetail #30E-3104, Hz, APDV0
- ✱ Horsetail #30E-3135, Hz, APDV0
- ✱ Horsetail #30E-3138, Hz, APDV0
- ✱ Horsetail #30E-1904, Hz, APDV0
- ✱ Horsetail #30E-1901, Hz, APDV0
- ✱ Horsetail #30E-1903, Hz, APDV0
- ✱ Horsetail #30E-1934, Hz, APDV0
- ✱ Horsetail #30E-3103, Hz, APDV0
- ✱ Horsetail #30E-1936, Hz, APDV0



WOG
Anticollision Report

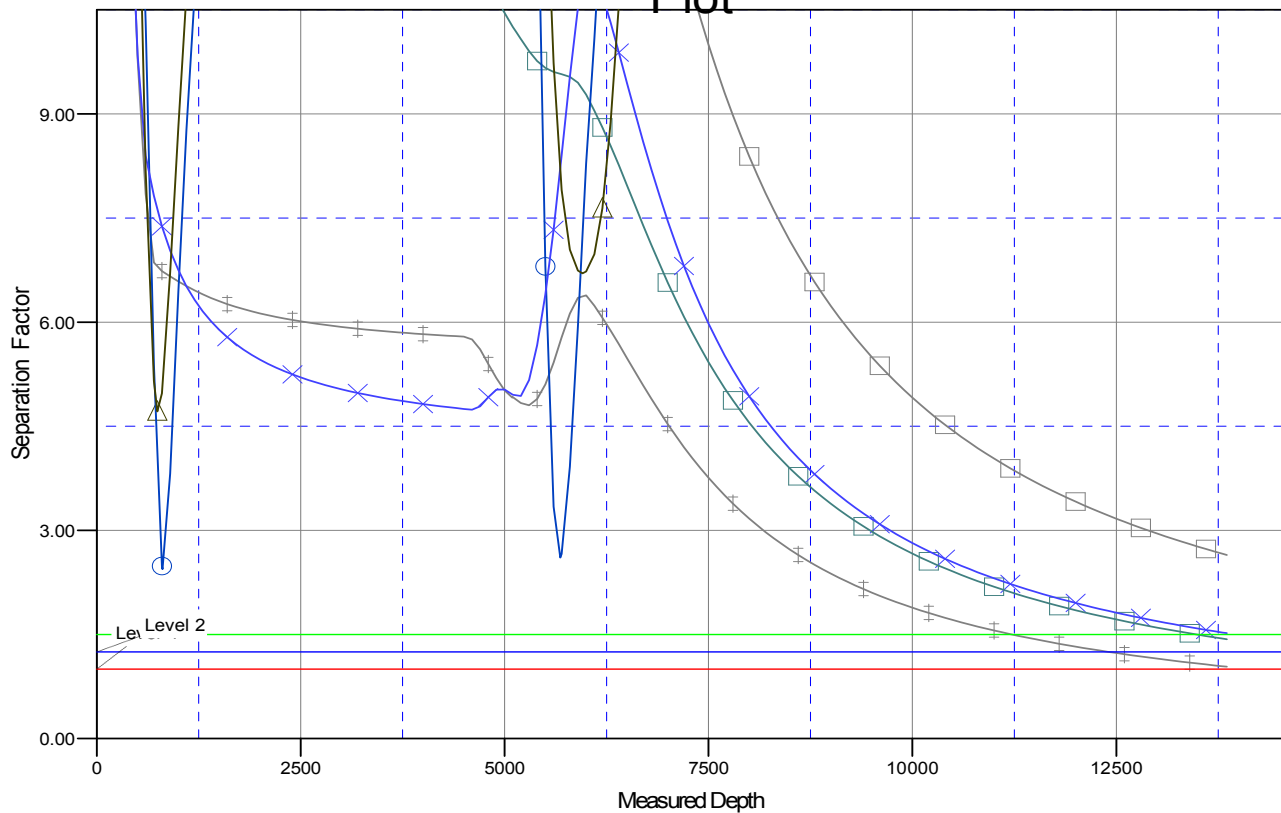
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30E-3136
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30E-3136
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-3136
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Separation Factor Plot



LEGEND

- ✱ Horsetail #30E-1935, Hz, APDV0
- ✱ Horsetail #30E-1902, Hz, APDV0
- ✱ Horsetail #30E-3104, Hz, APDV0
- ✱ Horsetail #30E-3135, Hz, APDV0
- ✱ Horsetail #30E-3138, Hz, APDV0
- ✱ Horsetail #30E-1904, Hz, APDV0
- ✱ Horsetail #30E-1901, Hz, APDV0
- ✱ Horsetail #30E-1903, Hz, APDV0
- ✱ Horsetail #30E-1934, Hz, APDV0
- ✱ Horsetail #30E-3103, Hz, APDV0
- ✱ Horsetail #30E-1936, Hz, APDV0