



Whiting Petroleum Corp.

Weld County, CO

Sec 30-T10N-R57W

Horsetail #30E-3135

Hz

APD

Anticollision Report

22 October, 2015



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	13,925.95	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	102.73	101.11	63.612	CC
Horsetail #30E-1901 - Hz - APD	400.00	400.12	103.32	101.07	46.014	ES
Horsetail #30E-1901 - Hz - APD	5,557.91	6,165.19	622.79	584.55	16.286	SF
Horsetail #30E-1902 - Hz - APD	648.35	649.96	49.45	45.60	12.831	CC, ES
Horsetail #30E-1902 - Hz - APD	5,632.55	6,192.65	400.88	362.33	10.398	SF
Horsetail #30E-1903 - Hz - APD	777.01	778.19	18.80	14.05	3.958	CC, ES
Horsetail #30E-1903 - Hz - APD	5,552.32	6,166.60	86.29	47.91	2.248	SF
Horsetail #30E-1904 - Hz - APD	718.01	715.49	90.60	86.26	20.857	CC, ES
Horsetail #30E-1904 - Hz - APD	5,632.78	6,205.91	243.44	204.80	6.301	SF
Horsetail #30E-1934 - Hz - APD	472.54	473.60	76.90	74.19	28.446	CC, ES
Horsetail #30E-1934 - Hz - APD	5,832.35	6,174.20	510.17	471.11	13.060	SF
Horsetail #30E-1935 - Hz - APD	739.57	741.39	17.16	12.68	3.828	CC, ES, SF
Horsetail #30E-1936 - Hz - APD	766.61	766.20	55.43	50.75	11.844	CC
Horsetail #30E-1936 - Hz - APD	5,821.06	6,187.26	78.70	39.52	2.009	ES, SF
Horsetail #30E-3103 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30E-3103 - Hz - APD	400.00	399.05	30.23	27.91	13.030	ES
Horsetail #30E-3103 - Hz - APD	13,925.95	13,650.59	326.53	180.40	2.235	SF
Horsetail #30E-3104 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC
Horsetail #30E-3104 - Hz - APD	400.00	397.03	90.27	87.95	38.986	ES
Horsetail #30E-3104 - Hz - APD	13,925.95	13,742.83	538.92	311.01	2.365	SF
Horsetail #30E-3136 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30E-3136 - Hz - APD	400.00	398.03	60.27	57.95	25.993	ES
Horsetail #30E-3136 - Hz - APD	13,925.95	13,855.60	340.77	102.64	1.431	Level 3, SF
Horsetail #30E-3138 - Hz - APD	300.00	300.00	149.95	148.33	92.849	CC
Horsetail #30E-3138 - Hz - APD	400.00	395.06	150.24	147.94	65.108	ES
Horsetail #30E-3138 - Hz - APD	13,925.95	13,949.06	980.61	736.72	4.021	SF

Offset Design												Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance					Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)		Separation Factor
0.00	0.00	0.00	0.00	0.00	0.00	-61.14	49.59	-89.97	102.73				
100.00	100.00	100.00	100.00	0.13	0.13	-61.14	49.59	-89.97	102.73	102.46	0.27	385.697	

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-3135
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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-3135	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		
200.00	200.00	200.00	200.00	0.47	0.47	-61.14	49.59	-89.97	102.73	101.79	0.94	109.212		
300.00	300.00	300.00	300.00	0.81	0.81	-61.14	49.59	-89.97	102.73	101.11	1.61	63.612 CC		
400.00	399.98	400.12	400.10	1.14	1.11	-113.72	48.01	-90.71	103.32	101.07	2.25	46.014 ES		
500.00	499.88	499.64	499.48	1.48	1.41	-118.77	43.29	-92.91	105.36	102.49	2.87	36.774		
600.00	599.77	598.37	597.83	1.81	1.73	-125.42	35.52	-96.53	108.84	105.32	3.52	30.907		
700.00	699.66	696.11	694.85	2.14	2.06	-133.14	24.81	-101.53	114.71	110.49	4.22	27.155		
800.00	799.55	792.65	790.22	2.48	2.41	-141.30	11.30	-107.84	123.95	118.97	4.98	24.903		
900.00	899.44	887.78	883.67	2.82	2.79	-149.28	-4.86	-115.38	137.26	131.49	5.77	23.801		
1,000.00	999.32	984.41	978.21	3.16	3.19	-156.44	-22.94	-123.82	154.13	147.63	6.50	23.717		
1,100.00	1,099.21	1,081.27	1,072.98	3.50	3.61	-162.17	-41.08	-132.28	172.94	165.75	7.19	24.045		
1,200.00	1,199.10	1,178.13	1,167.75	3.84	4.04	-166.77	-59.22	-140.75	193.14	185.28	7.86	24.572		
1,300.00	1,298.99	1,274.98	1,262.51	4.18	4.46	-170.49	-77.36	-149.21	214.31	205.79	8.52	25.152		
1,400.00	1,398.88	1,371.84	1,357.28	4.52	4.90	-173.55	-95.50	-157.68	236.21	227.04	9.17	25.754		
1,500.00	1,498.77	1,468.70	1,452.05	4.86	5.33	-176.09	-113.63	-166.14	258.65	248.83	9.82	26.342		
1,600.00	1,598.66	1,565.56	1,546.81	5.20	5.77	-178.22	-131.77	-174.60	281.50	271.03	10.46	26.899		
1,700.00	1,698.55	1,662.41	1,641.58	5.54	6.21	-179.97	-149.91	-183.07	304.66	293.55	11.11	27.421		
1,800.00	1,798.44	1,759.27	1,736.35	5.88	6.65	-178.41	-168.05	-191.53	328.07	316.32	11.76	27.905		
1,900.00	1,898.33	1,856.13	1,831.11	6.22	7.09	-177.06	-186.19	-200.00	351.69	339.29	12.40	28.353		
2,000.00	1,998.22	1,952.99	1,925.88	6.56	7.53	-175.88	-204.33	-208.46	375.47	362.41	13.05	28.766		
2,100.00	2,098.11	2,049.84	2,020.65	6.90	7.97	-174.84	-222.46	-216.93	399.38	385.67	13.70	29.147		
2,200.00	2,198.00	2,146.70	2,115.41	7.24	8.42	-173.91	-240.60	-225.39	423.40	409.04	14.35	29.498		
2,300.00	2,297.89	2,243.56	2,210.18	7.58	8.86	-173.09	-258.74	-233.86	447.51	432.51	15.01	29.822		
2,400.00	2,397.78	2,340.42	2,304.95	7.92	9.31	-172.35	-276.88	-242.32	471.70	456.05	15.66	30.122		
2,500.00	2,497.67	2,437.27	2,399.71	8.26	9.75	-171.68	-295.02	-250.79	495.97	479.65	16.31	30.401		
2,600.00	2,597.55	2,534.13	2,494.48	8.60	10.20	-171.07	-313.16	-259.25	520.28	503.31	16.97	30.659		
2,700.00	2,697.44	2,630.99	2,589.25	8.94	10.64	-170.52	-331.29	-267.72	544.65	527.02	17.63	30.899		
2,800.00	2,797.33	2,727.85	2,684.01	9.28	11.09	-170.01	-349.43	-276.18	569.06	550.78	18.28	31.122		
2,900.00	2,897.22	2,824.70	2,778.78	9.62	11.53	-169.55	-367.57	-284.64	593.51	574.57	18.94	31.331		
3,000.00	2,997.11	2,921.56	2,873.55	9.97	11.98	-169.12	-385.71	-293.11	618.00	598.39	19.60	31.526		
3,100.00	3,097.00	3,018.42	2,968.31	10.31	12.42	-168.73	-403.85	-301.57	642.51	622.25	20.26	31.709		
3,200.00	3,196.89	3,115.28	3,063.08	10.65	12.87	-168.36	-421.98	-310.04	667.05	646.13	20.92	31.880		
3,300.00	3,296.78	3,212.13	3,157.85	10.99	13.32	-168.02	-440.12	-318.50	691.61	670.03	21.59	32.041		
3,400.00	3,396.67	3,308.99	3,252.61	11.33	13.76	-167.71	-458.26	-326.97	716.20	693.95	22.25	32.193		
3,500.00	3,496.56	3,405.85	3,347.38	11.67	14.21	-167.41	-476.40	-335.43	740.80	717.89	22.91	32.336		
3,600.00	3,596.45	3,502.71	3,442.15	12.01	14.66	-167.14	-494.54	-343.90	765.42	741.85	23.57	32.471		
3,700.00	3,696.34	3,599.56	3,536.91	12.35	15.10	-166.88	-512.68	-352.36	790.06	765.82	24.24	32.598		
3,800.00	3,796.23	3,696.42	3,631.68	12.69	15.55	-166.63	-530.81	-360.83	814.71	789.81	24.90	32.719		
3,900.00	3,896.12	3,793.28	3,726.45	13.03	16.00	-166.41	-548.95	-369.29	839.38	813.81	25.56	32.833		
4,000.00	3,996.01	3,890.14	3,821.21	13.37	16.45	-166.19	-567.09	-377.75	864.05	837.82	26.23	32.942		
4,100.00	4,095.90	3,986.99	3,915.98	13.71	16.89	-165.98	-585.23	-386.22	888.74	861.85	26.89	33.045		
4,200.00	4,195.78	4,083.85	4,010.75	14.06	17.34	-165.79	-603.37	-394.68	913.44	885.88	27.56	33.144		
4,300.00	4,295.67	4,180.71	4,105.52	14.40	17.79	-165.61	-621.51	-403.15	938.14	909.92	28.23	33.237		
4,400.00	4,395.56	4,277.57	4,200.28	14.74	18.24	-165.44	-639.64	-411.61	962.86	933.97	28.89	33.326		
4,500.00	4,495.45	4,411.02	4,331.25	15.08	18.74	-165.23	-657.82	-420.07	986.25	956.50	29.56	33.414		
4,600.00	4,595.34	4,560.18	4,478.84	15.42	19.13	-165.10	-676.02	-428.50	1,009.87	974.28	30.23	33.500		
4,700.00	4,695.23	4,711.89	4,629.90	15.76	19.50	-165.06	-694.27	-436.83	1,034.40	997.05	30.90	33.584		
4,800.00	4,795.12	4,818.88	4,738.00	16.10	20.00	-165.00	-712.50	-445.00	1,059.00	1,020.00	31.57	33.667		
4,900.00	4,895.01	4,921.80	4,840.00	16.44	20.47	-164.93	-730.69	-453.53	1,083.26	1,043.74	32.24	33.749		
5,000.00	4,994.91	5,022.61	4,940.00	16.77	20.94	-164.85	-748.82	-462.07	1,107.00	1,067.00	32.91	33.831		
5,099.99	5,094.87	5,122.57	5,040.00	17.10	21.41	-164.77	-766.95	-470.50	1,130.00	1,090.00	33.58	33.913		
5,200.00	5,194.88	5,222.59	5,150.00	17.44	21.88	-164.69	-785.08	-479.03	1,153.00	1,113.00	34.25	34.000		
5,299.99	5,294.87	5,322.59	5,250.00	17.78	22.35	-164.61	-803.21	-487.56	1,176.00	1,136.00	34.92	34.082		

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-3135
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-3135	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					
5,400.00	5,394.34	6,216.99	5,538.00	17.92	20.45	91.58	119.96	-453.45	639.87	602.93	36.95	17.318					
5,500.00	5,490.30	6,189.40	5,538.00	18.19	20.37	90.82	92.37	-453.00	624.95	586.94	38.02	16.438					
5,557.91	5,542.87	6,165.19	5,538.00	18.34	20.31	89.04	68.17	-452.60	622.79	584.55	38.24	16.286	SF				
5,600.00	5,579.23	6,144.01	5,538.00	18.45	20.27	87.25	46.99	-452.25	623.83	585.59	38.24	16.315					
5,700.00	5,657.87	6,082.49	5,538.00	18.70	20.16	81.83	-14.52	-451.24	633.01	595.22	37.79	16.753					
5,800.00	5,723.33	6,007.11	5,538.00	18.93	20.09	75.86	-89.90	-450.00	647.53	610.48	37.04	17.480					
5,900.00	5,773.21	5,920.62	5,538.00	19.18	20.09	70.61	-176.37	-448.58	662.33	625.96	36.37	18.212					
6,000.00	5,805.66	5,850.00	5,533.63	19.46	20.14	67.10	-246.79	-447.42	675.44	639.50	35.93	18.797					
6,100.00	5,819.51	5,800.00	5,524.80	19.82	20.19	64.71	-295.98	-446.62	687.11	651.30	35.81	19.187					
6,200.00	5,820.00	5,736.86	5,506.99	20.25	20.26	63.08	-356.51	-445.62	699.13	663.30	35.83	19.513					
6,300.00	5,820.00	5,681.88	5,485.62	20.78	20.33	61.49	-407.13	-444.79	717.23	681.37	35.86	20.001					
6,400.00	5,820.00	5,631.99	5,461.70	21.40	20.40	59.78	-450.88	-444.07	742.02	706.14	35.88	20.680					
6,500.00	5,820.00	5,587.32	5,436.82	22.11	20.45	58.05	-487.97	-443.46	773.77	737.85	35.92	21.544					
6,600.00	5,820.00	5,550.00	5,413.67	22.89	20.49	56.51	-517.22	-442.98	812.43	776.42	36.01	22.564					
6,700.00	5,820.00	5,500.00	5,379.47	23.74	20.54	54.32	-553.67	-442.38	857.91	822.03	35.87	23.914					
6,800.00	5,820.00	5,481.54	5,365.99	24.65	20.56	53.49	-566.27	-442.17	909.17	873.00	36.17	25.133					
6,900.00	5,820.00	5,450.00	5,341.95	25.61	20.59	52.05	-586.67	-441.84	966.25	930.00	36.25	26.653					
7,000.00	5,820.00	5,429.91	5,326.00	26.61	20.60	51.13	-598.89	-441.64	1,028.28	991.82	36.46	28.201					
7,100.00	5,820.00	5,400.00	5,301.43	27.66	20.61	49.75	-615.93	-441.36	1,094.81	1,058.30	36.51	29.985					
7,200.00	5,820.00	5,400.00	5,301.43	28.75	20.61	49.75	-615.93	-441.36	1,165.13	1,128.22	36.91	31.563					
7,300.00	5,820.00	5,372.05	5,277.61	29.87	20.62	48.47	-630.55	-441.12	1,238.56	1,201.62	36.94	33.529					
7,400.00	5,820.00	5,350.00	5,258.29	31.02	20.62	47.46	-641.17	-440.94	1,315.07	1,278.05	37.02	35.523					
7,500.00	5,820.00	5,350.00	5,258.29	32.19	20.62	47.46	-641.17	-440.94	1,394.01	1,356.70	37.31	37.360					
7,600.00	5,820.00	5,330.23	5,240.59	33.39	20.62	46.57	-650.00	-440.80	1,475.04	1,437.66	37.38	39.463					



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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-3135	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	-30.51	49.59	-29.22	57.56				
100.00	100.00	100.00	100.00	0.13	0.13	-30.51	49.59	-29.22	57.56	57.30	0.27	216.118	
200.00	200.00	200.00	200.00	0.47	0.47	-30.51	49.59	-29.22	57.56	56.62	0.94	61.195	
300.00	300.00	300.00	300.00	0.81	0.81	-30.51	49.59	-29.22	57.56	55.95	1.61	35.644	
400.00	399.98	401.32	401.30	1.14	1.11	-84.35	47.86	-29.68	56.13	53.86	2.28	24.624	
500.00	499.88	502.04	501.87	1.48	1.42	-93.61	42.71	-31.05	52.86	49.93	2.93	18.063	
600.00	599.77	601.98	601.42	1.81	1.74	-107.63	34.23	-33.31	49.94	46.39	3.55	14.067	
648.35	648.06	649.96	649.09	1.97	1.90	-116.13	28.97	-34.71	49.45	45.60	3.85	12.831	CC, ES
700.00	699.66	700.92	699.62	2.14	2.07	-126.11	22.53	-36.43	50.15	45.96	4.19	11.969	
800.00	799.55	798.65	796.14	2.48	2.42	-145.81	7.76	-40.36	56.45	51.49	4.96	11.390	
900.00	899.44	895.71	891.51	2.82	2.81	-162.20	-9.61	-44.99	69.68	63.90	5.78	12.059	
1,000.00	999.32	993.08	987.13	3.16	3.21	-173.10	-27.39	-49.72	87.05	80.54	6.51	13.374	
1,100.00	1,099.21	1,090.45	1,082.74	3.50	3.62	179.73	-45.17	-54.46	106.48	99.30	7.19	14.820	
1,200.00	1,199.10	1,187.82	1,178.36	3.84	4.03	174.80	-62.95	-59.19	127.04	119.20	7.83	16.217	
1,300.00	1,298.99	1,285.18	1,273.97	4.18	4.45	171.25	-80.73	-63.93	148.24	139.77	8.48	17.484	
1,400.00	1,398.88	1,382.55	1,369.59	4.52	4.87	168.59	-98.51	-68.66	169.86	160.74	9.12	18.626	
1,500.00	1,498.77	1,479.92	1,465.20	4.86	5.29	166.53	-116.29	-73.40	191.75	181.99	9.76	19.644	
1,600.00	1,598.66	1,577.29	1,560.82	5.20	5.71	164.90	-134.06	-78.13	213.82	203.42	10.40	20.551	
1,700.00	1,698.55	1,674.66	1,656.43	5.54	6.14	163.57	-151.84	-82.87	236.04	224.99	11.05	21.361	
1,800.00	1,798.44	1,772.03	1,752.05	5.88	6.57	162.47	-169.62	-87.60	258.35	246.65	11.70	22.085	
1,900.00	1,898.33	1,869.40	1,847.66	6.22	7.00	161.54	-187.40	-92.34	280.73	268.39	12.35	22.736	
2,000.00	1,998.22	1,966.77	1,943.28	6.56	7.42	160.75	-205.18	-97.07	303.18	290.18	13.00	23.322	
2,100.00	2,098.11	2,064.14	2,038.89	6.90	7.85	160.07	-222.96	-101.81	325.68	312.02	13.65	23.853	
2,200.00	2,198.00	2,161.51	2,134.51	7.24	8.28	159.48	-240.74	-106.54	348.21	333.90	14.31	24.335	
2,300.00	2,297.89	2,258.88	2,230.12	7.58	8.71	158.96	-258.52	-111.28	370.77	355.81	14.97	24.774	
2,400.00	2,397.78	2,356.25	2,325.74	7.92	9.14	158.50	-276.30	-116.01	393.36	377.74	15.62	25.176	
2,500.00	2,497.67	2,453.61	2,421.35	8.26	9.57	158.09	-294.08	-120.75	415.97	399.69	16.28	25.545	
2,600.00	2,597.55	2,550.98	2,516.97	8.60	10.01	157.72	-311.86	-125.48	438.60	421.66	16.94	25.884	
2,700.00	2,697.44	2,648.35	2,612.58	8.94	10.44	157.38	-329.64	-130.22	461.25	443.64	17.61	26.198	
2,800.00	2,797.33	2,745.72	2,708.20	9.28	10.87	157.08	-347.42	-134.95	483.90	465.64	18.27	26.488	
2,900.00	2,897.22	2,843.09	2,803.81	9.62	11.30	156.81	-365.20	-139.68	506.57	487.64	18.93	26.758	
3,000.00	2,997.11	2,940.46	2,899.43	9.97	11.73	156.56	-382.98	-144.42	529.25	509.66	19.60	27.009	
3,100.00	3,097.00	3,037.83	2,995.04	10.31	12.16	156.33	-400.76	-149.15	551.94	531.68	20.26	27.243	
3,200.00	3,196.89	3,135.20	3,090.66	10.65	12.60	156.12	-418.54	-153.89	574.64	553.71	20.93	27.462	
3,300.00	3,296.78	3,232.57	3,186.27	10.99	13.03	155.92	-436.32	-158.62	597.34	575.75	21.59	27.666	
3,400.00	3,396.67	3,329.94	3,281.89	11.33	13.46	155.74	-454.10	-163.36	620.05	597.79	22.26	27.859	
3,500.00	3,496.56	3,427.31	3,377.50	11.67	13.89	155.57	-471.88	-168.09	642.77	619.84	22.92	28.040	
3,600.00	3,596.45	3,524.68	3,473.12	12.01	14.33	155.41	-489.66	-172.83	665.49	641.89	23.59	28.210	
3,700.00	3,696.34	3,622.04	3,568.73	12.35	14.76	155.27	-507.43	-177.56	688.21	663.95	24.26	28.370	
3,800.00	3,796.23	3,719.41	3,664.35	12.69	15.19	155.13	-525.21	-182.30	710.94	686.01	24.93	28.522	
3,900.00	3,896.12	3,816.78	3,759.96	13.03	15.63	155.00	-542.99	-187.03	733.67	708.08	25.59	28.666	
4,000.00	3,996.01	3,914.15	3,855.58	13.37	16.06	154.88	-560.77	-191.77	756.41	730.14	26.26	28.802	
4,100.00	4,095.90	4,011.52	3,951.19	13.71	16.49	154.76	-578.55	-196.50	779.14	752.21	26.93	28.931	
4,200.00	4,195.78	4,108.89	4,046.81	14.06	16.92	154.66	-596.33	-201.24	801.88	774.28	27.60	29.054	
4,300.00	4,295.67	4,206.26	4,142.42	14.40	17.36	154.55	-614.11	-205.97	824.63	796.36	28.27	29.170	
4,400.00	4,395.56	4,303.63	4,238.04	14.74	17.79	154.46	-631.89	-210.71	847.37	818.43	28.94	29.281	
4,500.00	4,495.45	4,401.00	4,333.65	15.08	18.22	154.37	-649.67	-215.44	870.12	840.51	29.61	29.387	
4,600.00	4,595.34	4,536.87	4,467.55	15.42	18.68	154.28	-671.86	-221.35	890.99	860.52	30.47	29.239	
4,700.00	4,695.23	4,679.69	4,609.31	15.76	19.04	154.27	-688.56	-225.80	907.10	875.84	31.27	29.011	
4,800.00	4,795.12	4,785.75	4,706.00	16.10	20.69	-144.08	131.16	-230.91	900.78	883.17	17.61	51.144	
4,900.00	4,895.01	4,888.72	4,806.00	16.44	20.70	-143.68	134.13	-230.92	813.80	794.43	19.37	42.010	
5,000.00	4,994.91	4,991.59	4,906.00	16.77	20.71	-142.75	136.99	-230.92	730.06	708.54	21.52	33.924	

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-3135
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-3135	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		
5,099.99	5,094.87	6,292.78	5,606.00	17.03	20.71	-140.91	138.18	-230.92	649.60	625.57	24.03	27.030		
5,200.00	5,194.88	6,292.78	5,606.00	17.32	20.71	-90.12	138.19	-230.92	574.24	547.22	27.02	21.254		
5,299.99	5,294.87	6,292.78	5,606.00	17.64	20.71	-90.12	138.19	-230.92	507.48	476.98	30.49	16.642		
5,400.00	5,394.34	6,283.98	5,606.00	17.92	20.69	95.50	129.39	-230.91	453.35	419.26	34.09	13.299		
5,500.00	5,490.30	6,256.39	5,606.00	18.19	20.59	96.03	101.79	-230.85	417.26	380.25	37.01	11.274		
5,600.00	5,579.23	6,211.00	5,606.00	18.45	20.44	92.04	56.40	-230.76	401.78	363.33	38.45	10.449		
5,632.55	5,606.11	6,192.65	5,606.00	18.53	20.39	89.97	38.05	-230.72	400.88	362.33	38.55	10.398 SF		
5,700.00	5,657.87	6,149.47	5,606.00	18.70	20.29	84.89	-5.12	-230.63	404.21	365.91	38.30	10.554		
5,800.00	5,723.33	6,074.08	5,606.00	18.93	20.15	76.58	-80.52	-230.48	417.66	380.47	37.18	11.233		
5,900.00	5,773.21	5,987.58	5,606.00	19.18	20.06	69.20	-167.01	-230.31	434.28	398.35	35.94	12.085		
6,000.00	5,805.66	5,915.85	5,602.74	19.46	20.05	64.40	-238.62	-230.16	449.80	414.80	35.00	12.852		
6,100.00	5,819.51	5,850.00	5,591.27	19.82	20.07	60.63	-303.42	-230.03	464.67	430.28	34.39	13.512		
6,200.00	5,820.00	5,784.61	5,571.89	20.25	20.11	58.24	-365.82	-229.90	480.67	446.63	34.04	14.122		
6,300.00	5,820.00	5,725.64	5,547.83	20.78	20.16	55.82	-419.63	-229.79	504.38	470.73	33.64	14.993		
6,400.00	5,820.00	5,672.82	5,521.24	21.40	20.20	53.29	-465.24	-229.70	536.48	503.20	33.27	16.124		
6,500.00	5,820.00	5,626.17	5,494.02	22.11	20.24	50.87	-503.12	-229.62	576.96	543.95	33.01	17.478		
6,600.00	5,820.00	5,585.27	5,467.46	22.89	20.28	48.66	-534.19	-229.56	625.36	592.47	32.89	19.011		
6,700.00	5,820.00	5,550.00	5,442.65	23.74	20.31	46.72	-559.26	-229.51	680.92	647.99	32.93	20.678		
6,800.00	5,820.00	5,518.37	5,419.00	24.65	20.33	44.98	-580.26	-229.47	742.72	709.66	33.05	22.470		
6,900.00	5,820.00	5,500.00	5,404.70	25.61	20.34	43.97	-591.79	-229.44	809.97	776.52	33.44	24.218		
7,000.00	5,820.00	5,467.15	5,378.14	26.61	20.36	42.20	-611.11	-229.40	881.49	847.97	33.51	26.303		
7,100.00	5,820.00	5,450.00	5,363.81	27.66	20.36	41.29	-620.53	-229.39	956.91	923.07	33.85	28.270		
7,200.00	5,820.00	5,427.39	5,344.45	28.75	20.37	40.11	-632.21	-229.36	1,035.45	1,001.40	34.05	30.410		
7,300.00	5,820.00	5,400.00	5,320.35	29.87	20.37	38.72	-645.22	-229.34	1,116.82	1,082.66	34.15	32.699		
7,400.00	5,820.00	5,400.00	5,320.35	31.02	20.37	38.72	-645.22	-229.34	1,200.11	1,165.50	34.61	34.671		
7,500.00	5,820.00	5,400.00	5,320.35	32.19	20.37	38.72	-645.22	-229.34	1,285.79	1,250.79	35.00	36.735		
7,600.00	5,820.00	5,370.68	5,293.84	33.39	20.36	37.29	-657.72	-229.31	1,372.31	1,337.29	35.01	39.193		
7,700.00	5,820.00	5,350.00	5,274.73	34.61	20.36	36.31	-665.63	-229.29	1,460.70	1,425.58	35.12	41.595		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	49.59	30.76	58.36					
100.00	100.00	100.00	100.00	0.13	0.13	31.81	49.59	30.76	58.36	58.09	0.27	219.105		
200.00	200.00	200.00	200.00	0.47	0.47	31.81	49.59	30.76	58.36	57.42	0.94	62.041		
300.00	300.00	300.00	300.00	0.81	0.81	31.81	49.59	30.76	58.36	56.74	1.61	36.136		
400.00	399.98	401.58	401.56	1.14	1.11	-18.44	47.80	30.88	55.27	52.97	2.30	24.017		
500.00	499.88	502.64	502.47	1.48	1.42	-16.31	42.45	31.26	46.77	43.75	3.02	15.484		
600.00	599.77	602.99	602.42	1.81	1.74	-9.52	33.63	31.88	35.61	31.90	3.71	9.592		
700.00	699.66	702.40	701.08	2.14	2.07	10.08	21.45	32.74	23.69	19.39	4.29	5.519		
777.01	776.58	778.19	775.97	2.40	2.34	46.33	9.88	33.56	18.80	14.05	4.75	3.958 CC, ES		
800.00	799.55	800.67	798.12	2.48	2.43	59.79	6.06	33.82	19.37	14.38	4.99	3.883		
900.00	899.44	898.20	893.98	2.82	2.81	99.27	-11.84	35.09	32.30	26.31	5.99	5.392		
1,000.00	999.32	995.83	989.90	3.16	3.21	113.52	-30.00	36.36	51.49	44.85	6.64	7.752		
1,100.00	1,099.21	1,093.46	1,085.82	3.50	3.62	119.89	-48.16	37.64	72.08	64.83	7.25	9.944		
1,200.00	1,199.10	1,191.09	1,181.75	3.84	4.03	123.42	-66.31	38.92	93.14	85.28	7.85	11.858		
1,300.00	1,298.99	1,288.72	1,277.67	4.18	4.45	125.64	-84.47	40.20	114.41	105.94	8.47	13.501		
1,400.00	1,398.88	1,386.36	1,373.59	4.52	4.87	127.17	-102.62	41.48	135.80	126.70	9.10	14.922		
1,500.00	1,498.77	1,483.99	1,469.51	4.86	5.29	128.28	-120.78	42.76	157.25	147.52	9.73	16.156		
1,600.00	1,598.66	1,581.62	1,565.43	5.20	5.72	129.12	-138.94	44.04	178.75	168.38	10.37	17.234		
1,700.00	1,698.55	1,679.25	1,661.35	5.54	6.14	129.78	-157.09	45.32	200.27	189.26	11.02	18.182		
1,800.00	1,798.44	1,776.89	1,757.27	5.88	6.57	130.31	-175.25	46.60	221.82	210.16	11.66	19.020		
1,900.00	1,898.33	1,874.52	1,853.19	6.22	6.99	130.75	-193.40	47.87	243.38	231.07	12.31	19.766		
2,000.00	1,998.22	1,972.15	1,949.11	6.56	7.42	131.12	-211.56	49.15	264.95	251.99	12.97	20.434		
2,100.00	2,098.11	2,069.78	2,045.03	6.90	7.85	131.43	-229.72	50.43	286.54	272.91	13.62	21.035		
2,200.00	2,198.00	2,167.42	2,140.95	7.24	8.28	131.70	-247.87	51.71	308.12	293.85	14.28	21.578		
2,300.00	2,297.89	2,265.05	2,236.87	7.58	8.71	131.94	-266.03	52.99	329.72	314.78	14.94	22.071		
2,400.00	2,397.78	2,362.68	2,332.80	7.92	9.14	132.14	-284.18	54.27	351.32	335.72	15.60	22.521		
2,500.00	2,497.67	2,460.31	2,428.72	8.26	9.57	132.32	-302.34	55.55	372.92	356.66	16.26	22.932		
2,600.00	2,597.55	2,557.95	2,524.64	8.60	10.00	132.48	-320.50	56.83	394.53	377.60	16.93	23.310		
2,700.00	2,697.44	2,655.58	2,620.56	8.94	10.43	132.63	-338.65	58.11	416.14	398.55	17.59	23.658		
2,800.00	2,797.33	2,753.21	2,716.48	9.28	10.86	132.76	-356.81	59.38	437.75	419.49	18.26	23.979		
2,900.00	2,897.22	2,850.84	2,812.40	9.62	11.29	132.88	-374.96	60.66	459.36	440.44	18.92	24.277		
3,000.00	2,997.11	2,948.47	2,908.32	9.97	11.72	132.98	-393.12	61.94	480.97	461.38	19.59	24.554		
3,100.00	3,097.00	3,046.11	3,004.24	10.31	12.15	133.08	-411.28	63.22	502.59	482.33	20.26	24.812		
3,200.00	3,196.89	3,143.74	3,100.16	10.65	12.58	133.17	-429.43	64.50	524.21	503.28	20.92	25.053		
3,300.00	3,296.78	3,241.37	3,196.08	10.99	13.01	133.25	-447.59	65.78	545.82	524.23	21.59	25.278		
3,400.00	3,396.67	3,339.00	3,292.00	11.33	13.45	133.33	-465.74	67.06	567.44	545.18	22.26	25.489		
3,500.00	3,496.56	3,436.64	3,387.92	11.67	13.88	133.40	-483.90	68.34	589.06	566.13	22.93	25.687		
3,600.00	3,596.45	3,534.27	3,483.85	12.01	14.31	133.47	-502.06	69.62	610.68	587.08	23.60	25.874		
3,700.00	3,696.34	3,631.90	3,579.77	12.35	14.74	133.53	-520.21	70.89	632.31	608.03	24.27	26.050		
3,800.00	3,796.23	3,729.53	3,675.69	12.69	15.17	133.59	-538.37	72.17	653.93	628.99	24.94	26.216		
3,900.00	3,896.12	3,827.17	3,771.61	13.03	15.60	133.64	-556.52	73.45	675.55	649.94	25.61	26.374		
4,000.00	3,996.01	3,924.80	3,867.53	13.37	16.04	133.69	-574.68	74.73	697.18	670.89	26.29	26.522		
4,100.00	4,095.90	4,022.43	3,963.45	13.71	16.47	133.74	-592.84	76.01	718.80	691.84	26.96	26.664		
4,200.00	4,195.78	4,120.06	4,059.37	14.06	16.90	133.78	-610.99	77.29	740.42	712.79	27.63	26.798		
4,300.00	4,295.67	4,217.70	4,155.29	14.40	17.33	133.82	-629.15	78.57	762.05	733.75	28.30	26.925		
4,400.00	4,395.56	4,315.33	4,251.21	14.74	17.76	133.86	-647.30	79.85	783.67	754.70	28.98	27.046		
4,500.00	4,495.45	4,438.05	4,372.04	15.08	18.19	133.93	-668.72	81.36	804.28	774.51	29.77	27.012		
4,600.00	4,595.34	4,575.12	4,507.90	15.42	18.55	134.06	-686.72	82.62	820.53	789.96	30.57	26.844		
4,700.00	4,695.23	4,714.00	4,646.27	15.76	18.88	134.26	-698.33	83.44	832.07	800.77	31.30	26.584		
4,800.00	4,795.12	6,217.57	5,538.00	16.10	20.51	-152.65	131.95	83.80	746.92	737.02	9.90	75.471		
4,900.00	4,895.01	6,220.54	5,538.00	16.44	20.52	-151.08	134.93	83.80	648.10	637.79	10.31	62.863		
5,000.00	4,994.91	6,223.42	5,538.00	16.77	20.53	-147.83	137.80	83.80	549.66	538.72	10.94	50.248		

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-3135
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-3135	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		
5,099.99	5,094.87	6,224.61	5,538.00	17.03	20.54	-140.99	139.00	83.80	451.43	439.60	11.83	38.160		
5,200.00	5,194.88	6,224.62	5,538.00	17.32	20.54	-90.00	139.00	83.80	353.78	340.53	13.25	26.709		
5,299.99	5,294.87	6,224.62	5,538.00	17.64	20.54	-90.00	139.00	83.80	257.95	242.01	15.94	16.185		
5,400.00	5,394.34	6,215.82	5,538.00	17.92	20.50	107.05	130.20	83.80	167.54	145.74	21.80	7.687		
5,500.00	5,490.30	6,188.22	5,538.00	18.19	20.39	101.56	102.61	83.80	98.56	64.34	34.22	2.880		
5,552.32	5,537.93	6,166.60	5,538.00	18.32	20.32	90.11	80.99	83.80	86.29	47.91	38.38	2.248 SF		
5,600.00	5,579.23	6,142.83	5,538.00	18.45	20.24	75.67	57.22	83.80	95.67	61.20	34.47	2.775		
5,700.00	5,657.87	6,081.31	5,538.00	18.70	20.05	46.34	-4.31	83.80	147.78	125.08	22.71	6.508		
5,800.00	5,723.33	6,005.91	5,538.00	18.93	19.88	29.84	-79.70	83.80	204.55	187.67	16.88	12.117		
5,900.00	5,773.21	5,919.41	5,538.00	19.18	19.77	22.05	-166.20	83.80	250.68	236.57	14.11	17.765		
6,000.00	5,805.66	5,850.00	5,535.29	19.46	19.72	18.66	-235.52	83.80	285.09	272.53	12.56	22.693		
6,100.00	5,819.51	5,790.05	5,525.76	19.82	19.72	16.65	-294.68	83.80	313.16	300.42	12.73	24.590		
6,200.00	5,820.00	5,730.09	5,509.50	20.25	19.73	15.65	-352.35	83.80	339.84	325.60	14.24	23.869		
6,300.00	5,820.00	5,674.47	5,488.59	20.78	19.76	14.72	-403.87	83.80	376.41	360.10	16.31	23.081		
6,400.00	5,820.00	5,623.90	5,464.91	21.40	19.79	13.79	-448.52	83.80	422.21	403.67	18.54	22.771		
6,500.00	5,820.00	5,578.55	5,440.08	22.11	19.83	12.93	-486.46	83.80	476.01	455.31	20.70	22.997		
6,600.00	5,820.00	5,550.00	5,422.79	22.89	19.85	12.39	-509.17	83.80	536.86	513.62	23.24	23.100		
6,700.00	5,820.00	5,500.00	5,389.61	23.74	19.89	11.47	-546.55	83.80	602.92	578.65	24.27	24.843		
6,800.00	5,820.00	5,471.06	5,368.81	24.65	19.91	10.96	-566.68	83.80	673.95	648.09	25.86	26.058		
6,900.00	5,820.00	5,450.00	5,353.00	25.61	19.92	10.60	-580.58	83.80	749.02	721.68	27.35	27.389		
7,000.00	5,820.00	5,418.59	5,328.40	26.61	19.94	10.08	-600.10	83.80	827.23	799.01	28.22	29.315		
7,100.00	5,820.00	5,400.00	5,313.30	27.66	19.95	9.79	-610.95	83.80	908.26	879.04	29.22	31.081		
7,200.00	5,820.00	5,377.27	5,294.33	28.75	19.96	9.45	-623.46	83.80	991.55	961.61	29.94	33.118		
7,300.00	5,820.00	5,350.00	5,270.87	29.87	19.96	9.05	-637.37	83.80	1,076.93	1,046.49	30.44	35.376		
7,400.00	5,820.00	5,350.00	5,270.87	31.02	19.96	9.05	-637.37	83.80	1,163.72	1,132.40	31.32	37.162		
7,500.00	5,820.00	5,330.19	5,253.40	32.19	19.96	8.78	-646.69	83.80	1,251.95	1,220.20	31.74	39.443		
7,600.00	5,820.00	5,300.00	5,226.11	33.39	19.96	8.38	-659.60	83.80	1,341.82	1,309.85	31.96	41.979		
7,700.00	5,820.00	5,300.00	5,226.11	34.61	19.96	8.38	-659.60	83.80	1,431.95	1,399.42	32.53	44.015		
7,800.00	5,820.00	5,300.00	5,226.11	35.85	19.96	8.38	-659.60	83.80	1,523.31	1,490.30	33.02	46.135		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	61.35	49.57	90.74	103.40					
100.00	100.00	100.00	100.00	0.13	0.13	61.35	49.57	90.74	103.40	103.13	0.27	388.200		
200.00	200.00	200.00	200.00	0.47	0.47	61.35	49.57	90.74	103.40	102.46	0.94	109.920		
300.00	300.00	300.00	300.00	0.81	0.81	61.35	49.57	90.74	103.40	101.78	1.61	64.025		
400.00	399.98	400.27	400.25	1.14	1.11	11.80	47.96	91.43	101.53	99.29	2.25	45.144		
500.00	499.88	500.12	499.96	1.48	1.41	15.44	43.15	93.48	96.94	94.06	2.87	33.726		
600.00	599.77	599.39	598.85	1.81	1.73	21.55	35.20	96.88	92.83	89.31	3.52	26.379		
700.00	699.66	697.86	696.58	2.14	2.06	30.17	24.21	101.58	90.66	86.45	4.21	21.531		
718.01	717.65	715.49	714.03	2.20	2.12	31.96	21.92	102.56	90.60	86.26	4.34	20.857 CC, ES		
800.00	799.55	795.29	792.83	2.48	2.42	40.78	10.31	107.53	92.06	87.09	4.97	18.509		
900.00	899.44	891.75	887.56	2.82	2.80	52.19	-6.40	114.67	98.56	92.77	5.80	17.006		
1,000.00	999.32	989.34	983.16	3.16	3.21	62.47	-24.42	122.38	109.56	103.01	6.55	16.737		
1,100.00	1,099.21	1,086.93	1,078.76	3.50	3.63	70.72	-42.45	130.09	123.47	116.22	7.24	17.047		
1,200.00	1,199.10	1,184.52	1,174.35	3.84	4.05	77.24	-60.48	137.80	139.42	131.52	7.90	17.649		
1,300.00	1,298.99	1,282.11	1,269.95	4.18	4.48	82.39	-78.51	145.51	156.79	148.24	8.54	18.350		
1,400.00	1,398.88	1,379.70	1,365.55	4.52	4.91	86.50	-96.54	153.22	175.16	165.98	9.18	19.083		
1,500.00	1,498.77	1,477.29	1,461.15	4.86	5.35	89.83	-114.57	160.93	194.24	184.43	9.81	19.798		
1,600.00	1,598.66	1,574.88	1,556.75	5.20	5.78	92.56	-132.60	168.64	213.85	203.41	10.45	20.474		
1,700.00	1,698.55	1,672.47	1,652.35	5.54	6.22	94.83	-150.63	176.35	233.86	222.77	11.08	21.104		
1,800.00	1,798.44	1,770.06	1,747.95	5.88	6.66	96.75	-168.65	184.06	254.16	242.44	11.72	21.685		
1,900.00	1,898.33	1,867.65	1,843.55	6.22	7.10	98.38	-186.68	191.77	274.69	262.33	12.36	22.219		
2,000.00	1,998.22	1,965.24	1,939.15	6.56	7.54	99.78	-204.71	199.48	295.41	282.40	13.01	22.710		
2,100.00	2,098.11	2,062.83	2,034.75	6.90	7.98	101.00	-222.74	207.19	316.28	302.62	13.66	23.160		
2,200.00	2,198.00	2,160.42	2,130.35	7.24	8.42	102.07	-240.77	214.90	337.27	322.96	14.31	23.573		
2,300.00	2,297.89	2,258.01	2,225.95	7.58	8.87	103.02	-258.80	222.61	358.36	343.40	14.96	23.953		
2,400.00	2,397.78	2,355.60	2,321.55	7.92	9.31	103.86	-276.83	230.32	379.53	363.91	15.62	24.304		
2,500.00	2,497.67	2,453.19	2,417.15	8.26	9.75	104.61	-294.86	238.03	400.77	384.50	16.27	24.628		
2,600.00	2,597.55	2,550.78	2,512.75	8.60	10.20	105.28	-312.89	245.74	422.07	405.14	16.93	24.927		
2,700.00	2,697.44	2,648.37	2,608.35	8.94	10.64	105.90	-330.91	253.45	443.42	425.83	17.59	25.205		
2,800.00	2,797.33	2,745.96	2,703.95	9.28	11.08	106.45	-348.94	261.16	464.81	446.56	18.25	25.464		
2,900.00	2,897.22	2,843.55	2,799.55	9.62	11.53	106.96	-366.97	268.87	486.25	467.33	18.92	25.704		
3,000.00	2,997.11	2,941.14	2,895.15	9.97	11.97	107.42	-385.00	276.58	507.71	488.13	19.58	25.929		
3,100.00	3,097.00	3,038.73	2,990.75	10.31	12.42	107.84	-403.03	284.29	529.21	508.96	20.25	26.139		
3,200.00	3,196.89	3,136.32	3,086.35	10.65	12.86	108.24	-421.06	291.99	550.73	529.82	20.91	26.335		
3,300.00	3,296.78	3,233.91	3,181.95	10.99	13.31	108.60	-439.09	299.70	572.27	550.69	21.58	26.520		
3,400.00	3,396.67	3,331.50	3,277.55	11.33	13.75	108.94	-457.12	307.41	593.84	571.59	22.25	26.693		
3,500.00	3,496.56	3,429.09	3,373.15	11.67	14.20	109.25	-475.14	315.12	615.42	592.50	22.91	26.857		
3,600.00	3,596.45	3,526.68	3,468.75	12.01	14.64	109.54	-493.17	322.83	637.02	613.43	23.58	27.011		
3,700.00	3,696.34	3,624.27	3,564.35	12.35	15.09	109.81	-511.20	330.54	658.63	634.38	24.25	27.156		
3,800.00	3,796.23	3,721.86	3,659.95	12.69	15.54	110.07	-529.23	338.25	680.26	655.33	24.92	27.294		
3,900.00	3,896.12	3,819.45	3,755.55	13.03	15.98	110.31	-547.26	345.96	701.89	676.30	25.59	27.424		
4,000.00	3,996.01	3,917.04	3,851.15	13.37	16.43	110.53	-565.29	353.67	723.54	697.28	26.26	27.548		
4,100.00	4,095.90	4,014.63	3,946.75	13.71	16.87	110.75	-583.32	361.38	745.20	718.27	26.94	27.665		
4,200.00	4,195.78	4,112.22	4,042.35	14.06	17.32	110.95	-601.35	369.09	766.87	739.26	27.61	27.777		
4,300.00	4,295.67	4,209.81	4,137.95	14.40	17.76	111.14	-619.37	376.80	788.55	760.27	28.28	27.883		
4,400.00	4,395.56	4,307.40	4,233.55	14.74	18.21	111.32	-637.40	384.51	810.23	781.28	28.95	27.984		
4,500.00	4,495.45	4,413.18	4,337.20	15.08	18.66	111.50	-656.82	392.81	831.83	802.16	29.67	28.035		
4,600.00	4,595.34	4,511.99	4,434.04	15.42	19.04	111.76	-678.18	401.95	850.21	819.70	30.51	27.871		
4,700.00	4,695.23	4,613.99	4,533.99	15.76	19.41	112.06	-693.61	408.55	863.80	832.52	31.28	27.614		
4,800.00	4,795.12	4,713.99	4,633.99	16.10	19.79	45.50	131.95	413.60	849.20	836.74	12.46	68.164		
4,900.00	4,895.01	4,813.99	4,733.99	16.44	20.17	44.74	134.93	413.60	753.19	739.78	13.42	56.142		
5,000.00	4,994.91	4,913.99	4,833.99	16.77	20.55	44.00	137.80	413.60	658.40	643.69	14.72	44.743		

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-3135
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-3135	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		
5,099.99	5,094.87	6,306.18	5,606.00	17.03	20.81	39.38	139.00	413.60	566.21	549.63	16.58	34.157		
5,200.00	5,194.88	6,306.18	5,606.00	17.32	20.81	90.00	139.00	413.60	477.87	458.58	19.29	24.767		
5,299.99	5,294.87	6,306.18	5,606.00	17.64	20.81	90.00	139.00	413.60	395.15	371.98	23.17	17.053		
5,400.00	5,394.34	6,297.38	5,606.00	17.92	20.78	-98.94	130.20	413.60	322.70	294.32	28.38	11.369		
5,500.00	5,490.30	6,269.79	5,606.00	18.19	20.70	-99.81	102.61	413.60	269.63	235.41	34.22	7.878		
5,600.00	5,579.23	6,224.40	5,606.00	18.45	20.57	-93.30	57.22	413.60	244.94	206.74	38.20	6.413		
5,632.78	5,606.30	6,205.91	5,606.00	18.53	20.52	-89.88	38.73	413.60	243.44	204.80	38.64	6.301 SF		
5,700.00	5,657.87	6,162.88	5,606.00	18.70	20.44	-81.58	-4.31	413.60	248.84	210.58	38.26	6.504		
5,800.00	5,723.33	6,087.48	5,606.00	18.93	20.33	-68.50	-79.70	413.60	270.06	234.18	35.88	7.526		
5,900.00	5,773.21	6,000.98	5,606.00	19.18	20.29	-57.92	-166.20	413.60	295.05	261.67	33.39	8.838		
6,000.00	5,805.66	5,927.87	5,603.11	19.46	20.32	-51.67	-239.21	413.60	317.03	285.31	31.72	9.996		
6,100.00	5,819.51	5,860.85	5,591.80	19.82	20.36	-47.17	-305.23	413.60	337.25	306.42	30.83	10.939		
6,200.00	5,820.00	5,800.00	5,574.27	20.25	20.42	-44.65	-363.46	413.60	358.42	327.75	30.67	11.685		
6,300.00	5,820.00	5,736.92	5,549.07	20.78	20.48	-41.85	-421.24	413.60	388.97	358.56	30.41	12.790		
6,400.00	5,820.00	5,683.80	5,522.56	21.40	20.54	-39.20	-467.24	413.60	429.11	398.64	30.47	14.081		
6,500.00	5,820.00	5,636.85	5,495.33	22.11	20.59	-36.76	-505.47	413.60	478.08	447.31	30.77	15.538		
6,600.00	5,820.00	5,600.00	5,471.61	22.89	20.63	-34.84	-533.67	413.60	534.86	503.47	31.40	17.036		
6,700.00	5,820.00	5,550.00	5,436.37	23.74	20.67	-32.29	-569.11	413.60	598.36	566.88	31.48	19.007		
6,800.00	5,820.00	5,528.35	5,420.09	24.65	20.69	-31.22	-583.37	413.60	667.09	634.68	32.40	20.587		
6,900.00	5,820.00	5,500.00	5,397.89	25.61	20.70	-29.86	-601.01	413.60	740.53	707.57	32.96	22.468		
7,000.00	5,820.00	5,476.81	5,379.04	26.61	20.71	-28.79	-614.52	413.60	817.72	784.19	33.52	24.393		
7,100.00	5,820.00	5,450.00	5,356.53	27.66	20.72	-27.60	-629.07	413.60	898.03	864.13	33.90	26.492		
7,200.00	5,820.00	5,450.00	5,356.53	28.75	20.72	-27.60	-629.07	413.60	981.05	946.36	34.69	28.278		
7,300.00	5,820.00	5,420.12	5,330.60	29.87	20.73	-26.34	-643.90	413.60	1,065.74	1,030.89	34.85	30.584		
7,400.00	5,820.00	5,400.00	5,312.68	31.02	20.73	-25.53	-653.04	413.60	1,152.48	1,117.37	35.12	32.817		
7,500.00	5,820.00	5,400.00	5,312.68	32.19	20.73	-25.53	-653.04	413.60	1,240.74	1,205.12	35.61	34.838		
7,600.00	5,820.00	5,379.80	5,294.34	33.39	20.72	-24.75	-661.52	413.60	1,330.12	1,294.33	35.79	37.169		
7,700.00	5,820.00	5,368.90	5,284.32	34.61	20.72	-24.34	-665.79	413.60	1,420.66	1,384.63	36.04	39.422		
7,800.00	5,820.00	5,350.00	5,266.72	35.85	20.71	-23.65	-672.70	413.60	1,512.24	1,476.07	36.17	41.805		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	77.23					
100.00	100.00	100.00	100.00	0.13	0.13	-50.05	49.59	-59.21	77.23	76.96	0.27	289.962		
200.00	200.00	200.00	200.00	0.47	0.47	-50.05	49.59	-59.21	77.23	76.29	0.94	82.104		
300.00	300.00	300.00	300.00	0.81	0.81	-50.05	49.59	-59.21	77.23	75.62	1.61	47.823		
400.00	399.98	400.81	400.79	1.14	1.11	-103.31	47.92	-59.82	77.03	74.78	2.25	34.199		
472.54	472.46	473.60	473.49	1.39	1.33	-107.87	44.65	-61.02	76.90	74.19	2.70	28.446	CC, ES	
500.00	499.88	501.01	500.85	1.48	1.42	-110.32	42.97	-61.63	77.08	74.20	2.87	26.844		
600.00	599.77	600.43	599.88	1.81	1.74	-119.82	34.81	-64.62	78.23	74.71	3.51	22.263		
700.00	699.66	698.85	697.56	2.14	2.06	-131.06	23.56	-68.74	82.02	77.82	4.20	19.515		
800.00	799.55	796.05	793.57	2.48	2.42	-142.84	9.36	-73.94	89.96	84.99	4.96	18.126		
900.00	899.44	892.82	888.69	2.82	2.80	-153.74	-7.41	-80.08	102.72	96.97	5.74	17.883		
1,000.00	999.32	990.16	984.28	3.16	3.20	-162.27	-24.62	-86.38	118.69	112.22	6.47	18.347		
1,100.00	1,099.21	1,087.50	1,079.88	3.50	3.61	-168.71	-41.84	-92.69	136.65	129.49	7.16	19.090		
1,200.00	1,199.10	1,184.84	1,175.47	3.84	4.02	-173.64	-59.06	-98.99	155.91	148.09	7.82	19.935		
1,300.00	1,298.99	1,282.18	1,271.07	4.18	4.44	-177.47	-76.28	-105.30	176.06	167.58	8.48	20.765		
1,400.00	1,398.88	1,379.52	1,366.66	4.52	4.86	179.48	-93.50	-111.60	196.81	187.68	9.13	21.561		
1,500.00	1,498.77	1,476.85	1,462.26	4.86	5.28	177.02	-110.72	-117.91	217.99	208.22	9.78	22.300		
1,600.00	1,598.66	1,574.19	1,557.86	5.20	5.70	174.99	-127.94	-124.21	239.50	229.07	10.42	22.978		
1,700.00	1,698.55	1,671.53	1,653.45	5.54	6.13	173.30	-145.15	-130.52	261.24	250.17	11.07	23.597		
1,800.00	1,798.44	1,768.87	1,749.05	5.88	6.56	171.87	-162.37	-136.83	283.17	271.45	11.72	24.161		
1,900.00	1,898.33	1,866.21	1,844.64	6.22	6.98	170.64	-179.59	-143.13	305.25	292.88	12.37	24.674		
2,000.00	1,998.22	1,963.55	1,940.24	6.56	7.41	169.58	-196.81	-149.44	327.44	314.41	13.02	25.142		
2,100.00	2,098.11	2,060.89	2,035.83	6.90	7.84	168.65	-214.03	-155.74	349.72	336.05	13.68	25.570		
2,200.00	2,198.00	2,158.22	2,131.43	7.24	8.27	167.83	-231.25	-162.05	372.08	357.75	14.33	25.961		
2,300.00	2,297.89	2,255.56	2,227.03	7.58	8.70	167.11	-248.47	-168.35	394.51	379.52	14.99	26.321		
2,400.00	2,397.78	2,352.90	2,322.62	7.92	9.13	166.46	-265.69	-174.66	416.99	401.34	15.65	26.651		
2,500.00	2,497.67	2,450.24	2,418.22	8.26	9.56	165.88	-282.90	-180.96	439.51	423.21	16.30	26.956		
2,600.00	2,597.55	2,547.58	2,513.81	8.60	9.99	165.36	-300.12	-187.27	462.08	445.11	16.96	27.238		
2,700.00	2,697.44	2,644.92	2,609.41	8.94	10.42	164.88	-317.34	-193.57	484.67	467.05	17.62	27.499		
2,800.00	2,797.33	2,742.26	2,705.01	9.28	10.85	164.45	-334.56	-199.88	507.30	489.01	18.29	27.742		
2,900.00	2,897.22	2,839.59	2,800.60	9.62	11.28	164.05	-351.78	-206.18	529.95	511.00	18.95	27.968		
3,000.00	2,997.11	2,936.93	2,896.20	9.97	11.71	163.69	-369.00	-212.49	552.62	533.01	19.61	28.179		
3,100.00	3,097.00	3,034.27	2,991.79	10.31	12.14	163.36	-386.22	-218.79	575.31	555.04	20.27	28.376		
3,200.00	3,196.89	3,131.61	3,087.39	10.65	12.58	163.05	-403.43	-225.10	598.02	577.08	20.94	28.561		
3,300.00	3,296.78	3,228.95	3,182.98	10.99	13.01	162.76	-420.65	-231.40	620.74	599.14	21.60	28.734		
3,400.00	3,396.67	3,326.29	3,278.58	11.33	13.44	162.49	-437.87	-237.71	643.48	621.21	22.27	28.897		
3,500.00	3,496.56	3,423.62	3,374.18	11.67	13.87	162.24	-455.09	-244.01	666.23	643.30	22.93	29.051		
3,600.00	3,596.45	3,520.96	3,469.77	12.01	14.30	162.01	-472.31	-250.32	688.99	665.39	23.60	29.195		
3,700.00	3,696.34	3,618.30	3,565.37	12.35	14.74	161.80	-489.53	-256.62	711.76	687.50	24.27	29.332		
3,800.00	3,796.23	3,715.64	3,660.96	12.69	15.17	161.59	-506.75	-262.93	734.54	709.61	24.93	29.461		
3,900.00	3,896.12	3,812.98	3,756.56	13.03	15.60	161.40	-523.96	-269.23	757.33	731.73	25.60	29.584		
4,000.00	3,996.01	3,910.32	3,852.15	13.37	16.03	161.22	-541.18	-275.54	780.13	753.86	26.27	29.700		
4,100.00	4,095.90	4,007.66	3,947.75	13.71	16.47	161.05	-558.40	-281.84	802.93	776.00	26.93	29.810		
4,200.00	4,195.78	4,104.99	4,043.35	14.06	16.90	160.89	-575.62	-288.15	825.74	798.14	27.60	29.915		
4,300.00	4,295.67	4,202.33	4,138.94	14.40	17.33	160.74	-592.84	-294.45	848.56	820.29	28.27	30.015		
4,400.00	4,395.56	4,299.67	4,234.54	14.74	17.76	160.59	-610.06	-300.76	871.38	842.44	28.94	30.110		
4,500.00	4,495.45	4,397.01	4,330.13	15.08	18.20	160.46	-627.28	-307.06	894.20	864.59	29.61	30.201		
4,600.00	4,595.34	4,494.35	4,425.73	15.42	18.63	160.33	-644.50	-313.37	917.03	886.76	30.28	30.288		
4,700.00	4,695.23	4,614.43	4,543.81	15.76	19.09	160.19	-664.93	-320.85	939.29	908.22	31.07	30.231		
4,800.00	4,795.12	4,760.19	4,688.15	16.10	19.47	160.09	-683.95	-327.82	957.32	925.41	31.90	30.008		
4,900.00	4,895.01	4,908.30	4,835.67	16.44	19.82	160.09	-696.20	-332.30	970.37	937.70	32.67	29.704		
5,000.00	4,994.91	6,418.63	5,735.00	16.77	21.09	-143.06	133.04	-341.99	899.10	876.94	22.17	40.563		

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-3135
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-3135	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-1934 - Hz - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth Depth (usft)	Vertical Depth (usft)	Measured Depth (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					
5,099.99	5,094.87	6,419.81	5,735.00	17.03	21.10	-141.33	134.23	-342.00	819.71	795.43	24.27	33.769					
5,200.00	5,194.88	6,419.81	5,735.00	17.32	21.10	-90.53	134.23	-342.00	744.23	717.55	26.69	27.889					
5,299.99	5,294.87	6,419.81	5,735.00	17.64	21.10	-90.53	134.23	-342.00	675.18	645.75	29.43	22.939					
5,400.00	5,394.34	6,411.01	5,735.00	17.92	21.07	96.52	125.43	-341.92	614.93	582.60	32.33	19.023					
5,500.00	5,490.30	6,383.42	5,735.00	18.19	20.98	99.56	97.84	-341.66	567.23	532.20	35.03	16.195					
5,600.00	5,579.23	6,338.03	5,735.00	18.45	20.85	98.94	52.45	-341.24	534.58	497.43	37.15	14.388					
5,700.00	5,657.87	6,276.51	5,735.00	18.70	20.72	95.62	-9.07	-340.66	516.70	478.25	38.45	13.437					
5,800.00	5,723.33	6,201.11	5,735.00	18.93	20.60	90.81	-84.46	-339.96	510.47	471.49	38.99	13.094					
5,832.35	5,741.27	6,174.20	5,735.00	19.00	20.59	89.17	-111.37	-339.71	510.17	471.11	39.06	13.060 SF					
5,900.00	5,773.21	6,114.62	5,735.00	19.18	20.56	85.92	-170.95	-339.16	511.11	472.01	39.10	13.072					
6,000.00	5,805.66	6,030.85	5,729.71	19.46	20.58	81.92	-254.46	-338.38	514.70	475.60	39.11	13.161					
6,100.00	5,819.51	5,950.00	5,712.07	19.82	20.63	78.20	-333.28	-337.64	520.35	481.26	39.10	13.310					
6,200.00	5,820.00	5,876.94	5,685.82	20.25	20.69	75.20	-401.39	-337.01	528.62	489.51	39.10	13.518					
6,300.00	5,820.00	5,810.99	5,654.15	20.78	20.76	71.90	-459.19	-336.47	543.37	504.39	38.97	13.942					
6,400.00	5,820.00	5,750.00	5,618.58	21.40	20.82	68.34	-508.69	-336.01	566.30	527.63	38.67	14.645					
6,500.00	5,820.00	5,700.00	5,585.26	22.11	20.86	65.15	-545.94	-335.66	598.25	559.93	38.32	15.611					
6,600.00	5,820.00	5,664.56	5,559.55	22.89	20.89	62.79	-570.33	-335.43	639.20	601.10	38.10	16.776					
6,700.00	5,820.00	5,629.65	5,532.68	23.74	20.91	60.43	-592.59	-335.23	688.67	650.82	37.85	18.195					
6,800.00	5,820.00	5,600.00	5,508.72	24.65	20.92	58.42	-610.05	-335.06	745.65	707.98	37.67	19.794					
6,900.00	5,820.00	5,574.39	5,487.25	25.61	20.93	56.68	-624.01	-334.93	809.08	771.52	37.55	21.546					
7,000.00	5,820.00	5,550.00	5,466.19	26.61	20.93	55.04	-636.31	-334.82	877.91	840.46	37.46	23.439					
7,100.00	5,820.00	5,533.25	5,451.41	27.66	20.93	53.93	-644.18	-334.74	951.22	913.75	37.47	25.385					
7,200.00	5,820.00	5,516.53	5,436.40	28.75	20.93	52.83	-651.56	-334.68	1,028.24	990.76	37.48	27.432					
7,300.00	5,820.00	5,500.00	5,421.35	29.87	20.93	51.76	-658.38	-334.61	1,108.34	1,070.85	37.49	29.561					
7,400.00	5,820.00	5,500.00	5,421.35	31.02	20.93	51.76	-658.38	-334.61	1,191.14	1,153.46	37.69	31.608					
7,500.00	5,820.00	5,477.15	5,400.19	32.19	20.91	50.31	-667.01	-334.53	1,275.74	1,238.13	37.61	33.918					
7,600.00	5,820.00	5,450.00	5,374.59	33.39	20.90	48.63	-676.05	-334.45	1,362.63	1,325.12	37.51	36.330					
7,700.00	5,820.00	5,450.00	5,374.59	34.61	20.90	48.63	-676.05	-334.45	1,450.39	1,412.72	37.67	38.504					
7,800.00	5,820.00	5,450.00	5,374.59	35.85	20.90	48.63	-676.05	-334.45	1,539.64	1,501.83	37.81	40.721					



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	49.59					
100.00	100.00	100.00	100.00	0.13	0.13	0.89	49.59	0.77	49.59	49.33	0.27	186.195		
200.00	200.00	200.00	200.00	0.47	0.47	0.89	49.59	0.77	49.59	48.65	0.94	52.722		
300.00	300.00	300.00	300.00	0.81	0.81	0.89	49.59	0.77	49.59	47.98	1.61	30.709		
400.00	399.98	401.65	401.62	1.14	1.11	-51.75	47.79	0.57	46.73	44.40	2.32	20.113		
500.00	499.88	502.72	502.55	1.48	1.42	-58.08	42.46	-0.01	38.91	35.83	3.08	12.647		
600.00	599.77	603.05	602.48	1.81	1.74	-70.44	33.67	-0.97	28.49	24.69	3.80	7.489		
700.00	699.66	702.39	701.07	2.14	2.07	-101.99	21.54	-2.30	18.58	14.25	4.33	4.290		
739.57	739.19	741.39	739.64	2.28	2.21	-124.60	15.85	-2.93	17.16	12.68	4.48	3.828 CC, ES, SF		
800.00	799.55	800.55	798.01	2.48	2.43	-159.26	6.23	-3.98	20.88	15.88	4.99	4.180		
900.00	899.44	898.35	894.33	2.82	2.81	172.84	-10.60	-5.82	36.90	31.04	5.86	6.298		
1,000.00	999.32	996.15	990.66	3.16	3.20	162.70	-27.42	-7.67	56.19	49.65	6.53	8.602		
1,100.00	1,099.21	1,093.95	1,086.98	3.50	3.60	157.79	-44.25	-9.51	76.30	69.13	7.17	10.645		
1,200.00	1,199.10	1,191.76	1,183.31	3.84	4.01	154.94	-61.07	-11.35	96.73	88.94	7.80	12.407		
1,300.00	1,298.99	1,289.56	1,279.63	4.18	4.41	153.09	-77.90	-13.19	117.31	108.88	8.43	13.913		
1,400.00	1,398.88	1,387.36	1,375.96	4.52	4.82	151.79	-94.72	-15.04	137.97	128.90	9.07	15.213		
1,500.00	1,498.77	1,485.16	1,472.29	4.86	5.24	150.83	-111.55	-16.88	158.69	148.97	9.71	16.340		
1,600.00	1,598.66	1,582.96	1,568.61	5.20	5.65	150.09	-128.38	-18.72	179.43	169.07	10.36	17.324		
1,700.00	1,698.55	1,680.76	1,664.94	5.54	6.06	149.50	-145.20	-20.56	200.20	189.19	11.01	18.189		
1,800.00	1,798.44	1,778.56	1,761.26	5.88	6.48	149.02	-162.03	-22.41	220.98	209.32	11.66	18.955		
1,900.00	1,898.33	1,876.36	1,857.59	6.22	6.90	148.63	-178.85	-24.25	241.78	229.47	12.31	19.637		
2,000.00	1,998.22	1,974.17	1,953.91	6.56	7.31	148.30	-195.68	-26.09	262.58	249.62	12.97	20.247		
2,100.00	2,098.11	2,071.97	2,050.24	6.90	7.73	148.02	-212.50	-27.94	283.40	269.77	13.63	20.797		
2,200.00	2,198.00	2,169.77	2,146.56	7.24	8.15	147.77	-229.33	-29.78	304.22	289.93	14.29	21.294		
2,300.00	2,297.89	2,267.57	2,242.89	7.58	8.57	147.56	-246.16	-31.62	325.04	310.09	14.95	21.745		
2,400.00	2,397.78	2,365.37	2,339.22	7.92	8.98	147.37	-262.98	-33.46	345.87	330.25	15.61	22.156		
2,500.00	2,497.67	2,463.17	2,435.54	8.26	9.40	147.20	-279.81	-35.31	366.69	350.42	16.27	22.533		
2,600.00	2,597.55	2,560.97	2,531.87	8.60	9.82	147.06	-296.63	-37.15	387.53	370.59	16.94	22.879		
2,700.00	2,697.44	2,658.77	2,628.19	8.94	10.24	146.92	-313.46	-38.99	408.36	390.76	17.60	23.198		
2,800.00	2,797.33	2,756.58	2,724.52	9.28	10.66	146.80	-330.28	-40.83	429.20	410.93	18.27	23.493		
2,900.00	2,897.22	2,854.38	2,820.84	9.62	11.08	146.69	-347.11	-42.68	450.04	431.10	18.94	23.767		
3,000.00	2,997.11	2,952.18	2,917.17	9.97	11.50	146.59	-363.93	-44.52	470.88	451.27	19.60	24.021		
3,100.00	3,097.00	3,049.98	3,013.49	10.31	11.92	146.50	-380.76	-46.36	491.72	471.45	20.27	24.258		
3,200.00	3,196.89	3,147.78	3,109.82	10.65	12.34	146.42	-397.59	-48.21	512.56	491.62	20.94	24.479		
3,300.00	3,296.78	3,245.58	3,206.14	10.99	12.76	146.34	-414.41	-50.05	533.40	511.80	21.61	24.686		
3,400.00	3,396.67	3,343.38	3,302.47	11.33	13.18	146.27	-431.24	-51.89	554.25	531.97	22.28	24.880		
3,500.00	3,496.56	3,441.19	3,398.80	11.67	13.60	146.21	-448.06	-53.73	575.09	552.15	22.95	25.063		
3,600.00	3,596.45	3,538.99	3,495.12	12.01	14.02	146.14	-464.89	-55.58	595.94	572.32	23.62	25.234		
3,700.00	3,696.34	3,636.79	3,591.45	12.35	14.44	146.09	-481.71	-57.42	616.78	592.50	24.29	25.396		
3,800.00	3,796.23	3,734.59	3,687.77	12.69	14.87	146.03	-498.54	-59.26	637.63	612.67	24.96	25.549		
3,900.00	3,896.12	3,832.39	3,784.10	13.03	15.29	145.98	-515.36	-61.10	658.48	632.85	25.63	25.694		
4,000.00	3,996.01	3,930.19	3,880.42	13.37	15.71	145.94	-532.19	-62.95	679.32	653.02	26.30	25.831		
4,100.00	4,095.90	4,027.99	3,976.75	13.71	16.13	145.89	-549.02	-64.79	700.17	673.20	26.97	25.961		
4,200.00	4,195.78	4,125.79	4,073.07	14.06	16.55	145.85	-565.84	-66.63	721.02	693.38	27.64	26.084		
4,300.00	4,295.67	4,223.60	4,169.40	14.40	16.97	145.81	-582.67	-68.48	741.87	713.55	28.31	26.202		
4,400.00	4,395.56	4,321.40	4,265.72	14.74	17.39	145.77	-599.49	-70.32	762.72	733.73	28.99	26.314		
4,500.00	4,495.45	4,419.20	4,362.05	15.08	17.81	145.74	-616.32	-72.16	783.57	753.91	29.66	26.420		
4,600.00	4,595.34	4,517.00	4,458.38	15.42	18.23	145.70	-633.14	-74.00	804.42	774.09	30.33	26.522		
4,700.00	4,695.23	4,614.80	4,554.70	15.76	18.65	145.67	-649.97	-75.85	825.27	794.26	31.00	26.619		
4,800.00	4,795.12	4,732.48	4,670.74	16.10	19.08	145.65	-666.81	-77.68	846.11	813.77	31.68	26.710		
4,900.00	4,895.01	4,872.11	4,809.26	16.44	19.43	145.69	-683.64	-79.51	867.03	834.29	32.36	26.800		
5,000.00	4,994.91	4,972.11	4,909.26	16.77	21.41	-144.69	137.80	-81.48	862.14	847.92	14.22	60.637		

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-3135
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-3135	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		
5,099.99	5,094.87	6,500.15	5,820.00	17.03	21.41	-140.88	139.00	-81.48	767.49	752.08	15.41	49.801		
5,200.00	5,194.88	6,500.15	5,820.00	17.32	21.41	-90.00	139.00	-81.48	673.80	656.88	16.92	39.823		
5,299.99	5,294.87	6,500.15	5,820.00	17.64	21.41	-90.00	139.00	-81.48	582.23	563.29	18.94	30.742		
5,400.00	5,394.34	6,491.35	5,820.00	17.92	21.38	107.30	130.20	-81.48	494.40	472.78	21.62	22.873		
5,500.00	5,490.30	6,463.76	5,820.00	18.19	21.28	115.77	102.61	-81.48	414.69	389.64	25.05	16.554		
5,600.00	5,579.23	6,418.37	5,820.00	18.45	21.13	117.30	57.22	-81.48	348.25	319.05	29.19	11.930		
5,700.00	5,657.87	6,356.84	5,820.00	18.70	20.96	113.98	-4.31	-81.48	299.40	265.90	33.50	8.937		
5,800.00	5,723.33	6,281.45	5,820.00	18.93	20.79	107.41	-79.70	-81.48	269.75	232.79	36.97	7.297		
5,900.00	5,773.21	6,194.95	5,820.00	19.18	20.68	99.63	-166.20	-81.48	256.29	217.36	38.92	6.584		
6,000.00	5,805.66	6,098.94	5,813.59	19.46	20.63	91.71	-261.88	-81.48	252.26	212.50	39.77	6.343		
6,018.22	5,809.60	6,081.94	5,810.66	19.52	20.63	90.25	-278.62	-81.48	252.17	212.32	39.84	6.329		
6,100.00	5,819.51	6,008.09	5,791.65	19.82	20.64	83.80	-349.92	-81.48	254.02	214.16	39.85	6.374		
6,200.00	5,820.00	5,924.52	5,758.26	20.25	20.68	76.26	-426.43	-81.48	262.00	222.75	39.25	6.675		
6,300.00	5,820.00	5,850.00	5,718.50	20.78	20.73	68.10	-489.38	-81.48	281.14	243.36	37.78	7.441		
6,400.00	5,820.00	5,793.37	5,682.51	21.40	20.77	61.44	-533.07	-81.48	314.32	278.16	36.16	8.692		
6,500.00	5,820.00	5,750.00	5,651.86	22.11	20.79	56.35	-563.73	-81.48	361.37	326.34	35.03	10.315		
6,600.00	5,820.00	5,700.00	5,613.50	22.89	20.81	50.74	-595.78	-81.48	419.84	385.91	33.93	12.375		
6,700.00	5,820.00	5,669.45	5,588.62	23.74	20.82	47.52	-613.50	-81.48	487.25	453.49	33.76	14.432		
6,800.00	5,820.00	5,650.00	5,572.26	24.65	20.83	45.57	-624.00	-81.48	561.49	527.46	34.03	16.498		
6,900.00	5,820.00	5,617.13	5,543.75	25.61	20.83	42.46	-640.35	-81.48	640.44	606.50	33.94	18.872		
7,000.00	5,820.00	5,600.00	5,528.49	26.61	20.83	40.93	-648.15	-81.48	723.28	689.04	34.24	21.124		
7,100.00	5,820.00	5,579.13	5,509.57	27.66	20.82	39.16	-656.96	-81.48	808.96	774.54	34.42	23.505		
7,200.00	5,820.00	5,550.00	5,482.62	28.75	20.81	36.85	-667.98	-81.48	897.16	862.74	34.42	26.063		
7,300.00	5,820.00	5,550.00	5,482.62	29.87	20.81	36.85	-667.98	-81.48	986.55	951.66	34.89	28.277		
7,400.00	5,820.00	5,550.00	5,482.62	31.02	20.81	36.85	-667.98	-81.48	1,077.81	1,042.55	35.26	30.564		
7,500.00	5,820.00	5,528.39	5,462.24	32.19	20.79	35.25	-675.18	-81.48	1,169.86	1,134.54	35.32	33.126		
7,600.00	5,820.00	5,519.10	5,453.40	33.39	20.78	34.59	-678.01	-81.48	1,263.02	1,227.52	35.50	35.577		
7,700.00	5,820.00	5,500.00	5,435.05	34.61	20.77	33.30	-683.34	-81.48	1,357.12	1,321.56	35.56	38.160		
7,800.00	5,820.00	5,500.00	5,435.05	35.85	20.77	33.30	-683.34	-81.48	1,451.58	1,415.78	35.80	40.545		
7,900.00	5,820.00	5,500.00	5,435.05	37.11	20.77	33.30	-683.34	-81.48	1,546.74	1,510.73	36.01	42.952		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	50.78	49.59	60.75	78.42					
100.00	100.00	100.00	100.00	0.13	0.13	50.78	49.59	60.75	78.42	78.15	0.27	294.412		
200.00	200.00	200.00	200.00	0.47	0.47	50.78	49.59	60.75	78.42	77.48	0.94	83.364		
300.00	300.00	300.00	300.00	0.81	0.81	50.78	49.59	60.75	78.42	76.80	1.61	48.556		
400.00	399.98	401.09	401.07	1.14	1.11	1.27	47.86	61.18	75.94	73.67	2.26	33.541		
500.00	499.88	501.71	501.54	1.48	1.42	5.37	42.70	62.47	69.47	66.57	2.91	23.883		
600.00	599.77	601.68	601.13	1.81	1.74	13.39	34.19	64.59	62.41	58.87	3.54	17.618		
700.00	699.66	700.78	699.48	2.14	2.07	26.55	22.43	67.53	56.82	52.63	4.19	13.553		
766.61	766.20	766.20	764.15	2.37	2.30	38.23	12.86	69.92	55.43	50.75	4.68	11.844 CC		
800.00	799.55	798.79	796.27	2.48	2.42	44.66	7.57	71.24	55.84	50.90	4.95	11.288		
900.00	899.44	896.46	892.32	2.82	2.81	63.42	-9.61	75.53	62.06	56.28	5.78	10.736		
1,000.00	999.32	994.30	988.53	3.16	3.21	77.74	-26.93	79.86	73.76	67.23	6.53	11.297		
1,100.00	1,099.21	1,092.15	1,084.73	3.50	3.62	87.79	-44.26	84.19	88.79	81.58	7.21	12.321		
1,200.00	1,199.10	1,189.99	1,180.93	3.84	4.03	94.82	-61.58	88.52	105.72	97.88	7.85	13.476		
1,300.00	1,298.99	1,287.84	1,277.13	4.18	4.44	99.88	-78.91	92.84	123.79	115.31	8.48	14.600		
1,400.00	1,398.88	1,385.69	1,373.34	4.52	4.86	103.64	-96.23	97.17	142.56	133.45	9.11	15.649		
1,500.00	1,498.77	1,483.53	1,469.54	4.86	5.28	106.53	-113.56	101.50	161.79	152.05	9.74	16.604		
1,600.00	1,598.66	1,581.38	1,565.74	5.20	5.70	108.79	-130.88	105.83	181.33	170.95	10.38	17.466		
1,700.00	1,698.55	1,679.22	1,661.94	5.54	6.12	110.62	-148.21	110.16	201.09	190.07	11.02	18.242		
1,800.00	1,798.44	1,777.07	1,758.14	5.88	6.55	112.12	-165.54	114.48	221.02	209.35	11.67	18.940		
1,900.00	1,898.33	1,874.91	1,854.35	6.22	6.97	113.37	-182.86	118.81	241.06	228.74	12.32	19.569		
2,000.00	1,998.22	1,972.76	1,950.55	6.56	7.40	114.43	-200.19	123.14	261.20	248.23	12.97	20.138		
2,100.00	2,098.11	2,070.60	2,046.75	6.90	7.82	115.34	-217.51	127.47	281.41	267.79	13.63	20.654		
2,200.00	2,198.00	2,168.45	2,142.95	7.24	8.25	116.12	-234.84	131.79	301.68	287.40	14.28	21.123		
2,300.00	2,297.89	2,266.30	2,239.15	7.58	8.68	116.81	-252.16	136.12	322.00	307.06	14.94	21.552		
2,400.00	2,397.78	2,364.14	2,335.36	7.92	9.10	117.42	-269.49	140.45	342.36	326.76	15.60	21.944		
2,500.00	2,497.67	2,461.99	2,431.56	8.26	9.53	117.96	-286.81	144.78	362.75	346.48	16.26	22.305		
2,600.00	2,597.55	2,559.83	2,527.76	8.60	9.96	118.44	-304.14	149.10	383.17	366.24	16.93	22.637		
2,700.00	2,697.44	2,657.68	2,623.96	8.94	10.39	118.87	-321.46	153.43	403.61	386.01	17.59	22.944		
2,800.00	2,797.33	2,755.52	2,720.17	9.28	10.82	119.26	-338.79	157.76	424.07	405.81	18.26	23.228		
2,900.00	2,897.22	2,853.37	2,816.37	9.62	11.24	119.61	-356.11	162.09	444.54	425.62	18.92	23.492		
3,000.00	2,997.11	2,951.21	2,912.57	9.97	11.67	119.94	-373.44	166.42	465.04	445.45	19.59	23.738		
3,100.00	3,097.00	3,049.06	3,008.77	10.31	12.10	120.23	-390.76	170.74	485.54	465.28	20.26	23.967		
3,200.00	3,196.89	3,146.91	3,104.97	10.65	12.53	120.50	-408.09	175.07	506.06	485.13	20.93	24.182		
3,300.00	3,296.78	3,244.75	3,201.18	10.99	12.96	120.75	-425.42	179.40	526.59	504.99	21.60	24.383		
3,400.00	3,396.67	3,342.60	3,297.38	11.33	13.39	120.99	-442.74	183.73	547.12	524.86	22.27	24.572		
3,500.00	3,496.56	3,440.44	3,393.58	11.67	13.82	121.20	-460.07	188.05	567.67	544.73	22.94	24.749		
3,600.00	3,596.45	3,538.29	3,489.78	12.01	14.25	121.40	-477.39	192.38	588.22	564.61	23.61	24.916		
3,700.00	3,696.34	3,636.13	3,585.99	12.35	14.68	121.59	-494.72	196.71	608.77	584.50	24.28	25.074		
3,800.00	3,796.23	3,733.98	3,682.19	12.69	15.11	121.76	-512.04	201.04	629.34	604.39	24.95	25.223		
3,900.00	3,896.12	3,831.83	3,778.39	13.03	15.54	121.93	-529.37	205.36	649.91	624.28	25.62	25.364		
4,000.00	3,996.01	3,929.67	3,874.59	13.37	15.97	122.08	-546.69	209.69	670.48	644.18	26.30	25.498		
4,100.00	4,095.90	4,027.52	3,970.79	13.71	16.40	122.22	-564.02	214.02	691.06	664.09	26.97	25.625		
4,200.00	4,195.78	4,125.36	4,067.00	14.06	16.83	122.36	-581.34	218.35	711.64	684.00	27.64	25.746		
4,300.00	4,295.67	4,223.21	4,163.20	14.40	17.26	122.49	-598.67	222.68	732.22	703.91	28.31	25.860		
4,400.00	4,395.56	4,321.05	4,259.40	14.74	17.69	122.61	-615.99	227.00	752.81	723.82	28.99	25.970		
4,500.00	4,495.45	4,418.90	4,355.60	15.08	18.11	122.72	-633.32	231.33	773.40	743.74	29.66	26.074		
4,600.00	4,595.34	4,516.74	4,451.80	15.42	18.54	122.83	-650.64	235.66	794.00	763.66	30.34	26.173		
4,700.00	4,695.23	4,637.23	4,570.47	15.76	18.97	122.97	-670.90	240.72	813.79	782.66	31.13	26.145		
4,800.00	4,795.12	4,775.17	4,707.21	16.10	19.33	123.18	-688.43	245.10	829.32	797.39	31.92	25.978		
4,900.00	4,895.01	4,914.84	4,846.37	16.44	19.67	123.44	-699.65	247.90	840.10	807.44	32.66	25.724		
5,000.00	4,994.91	6,422.16	5,735.00	16.77	21.22	55.21	137.80	249.09	744.47	735.11	9.35	79.610		

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-3135
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-3135	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							
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
5,099.99	5,094.87	6,423.35	5,735.00	17.03	21.23	39.70	139.00	249.09	645.00	635.44	9.55	67.531	
5,200.00	5,194.88	6,423.36	5,735.00	17.32	21.23	90.00	139.00	249.09	545.88	535.97	9.91	55.104	
5,299.99	5,294.87	6,423.36	5,735.00	17.64	21.23	90.00	139.00	249.09	447.18	436.65	10.53	42.474	
5,400.00	5,394.34	6,414.56	5,735.00	17.92	21.19	-128.19	130.20	249.09	349.72	338.11	11.60	30.142	
5,500.00	5,490.30	6,386.96	5,735.00	18.19	21.09	-138.62	102.61	249.09	257.15	243.49	13.66	18.831	
5,600.00	5,579.23	6,341.57	5,735.00	18.45	20.95	-136.66	57.22	249.09	174.64	156.51	18.13	9.632	
5,700.00	5,657.87	6,280.05	5,735.00	18.70	20.78	-123.92	-4.31	249.09	110.31	82.74	27.56	4.002	
5,800.00	5,723.33	6,204.65	5,735.00	18.93	20.62	-96.83	-79.70	249.09	79.59	41.06	38.54	2.065	
5,821.06	5,735.20	6,187.26	5,735.00	18.98	20.60	-89.83	-97.09	249.09	78.70	39.52	39.19	2.009 ES, SF	
5,900.00	5,773.21	6,118.16	5,735.00	19.18	20.54	-66.10	-166.20	249.09	87.38	51.27	36.11	2.420	
6,000.00	5,805.66	6,033.34	5,730.62	19.46	20.51	-47.96	-250.83	249.09	108.99	78.98	30.02	3.631	
6,100.00	5,819.51	5,950.00	5,713.29	19.82	20.52	-36.73	-332.25	249.09	134.73	108.85	25.88	5.206	
6,200.00	5,820.00	5,878.22	5,688.12	20.25	20.56	-30.67	-399.41	249.09	164.63	139.96	24.67	6.674	
6,300.00	5,820.00	5,811.56	5,656.68	20.78	20.61	-25.56	-458.14	249.09	207.41	182.84	24.58	8.439	
6,400.00	5,820.00	5,750.00	5,621.21	21.40	20.66	-21.43	-508.41	249.09	261.52	236.34	25.18	10.387	
6,500.00	5,820.00	5,700.00	5,588.19	22.11	20.70	-18.59	-545.94	249.09	324.60	298.03	26.57	12.217	
6,600.00	5,820.00	5,663.30	5,561.75	22.89	20.72	-16.79	-571.37	249.09	394.60	366.25	28.35	13.921	
6,700.00	5,820.00	5,627.96	5,534.65	23.74	20.74	-15.27	-594.05	249.09	470.05	440.44	29.60	15.878	
6,800.00	5,820.00	5,600.00	5,512.16	24.65	20.75	-14.19	-610.66	249.09	549.69	518.93	30.76	17.870	
6,900.00	5,820.00	5,572.03	5,488.81	25.61	20.76	-13.22	-626.04	249.09	632.60	601.02	31.57	20.035	
7,000.00	5,820.00	5,550.00	5,469.85	26.61	20.76	-12.53	-637.26	249.09	718.10	685.77	32.33	22.212	
7,100.00	5,820.00	5,530.44	5,452.64	27.66	20.76	-11.96	-646.55	249.09	805.68	772.73	32.95	24.451	
7,200.00	5,820.00	5,500.00	5,425.18	28.75	20.75	-11.14	-659.69	249.09	895.21	862.01	33.21	26.957	
7,300.00	5,820.00	5,500.00	5,425.18	29.87	20.75	-11.14	-659.69	249.09	985.57	951.61	33.95	29.027	
7,400.00	5,820.00	5,500.00	5,425.18	31.02	20.75	-11.14	-659.69	249.09	1,077.63	1,043.09	34.54	31.203	
7,500.00	5,820.00	5,473.80	5,400.98	32.19	20.74	-10.51	-669.71	249.09	1,170.04	1,135.38	34.65	33.763	
7,600.00	5,820.00	5,450.00	5,378.57	33.39	20.73	-9.99	-677.74	249.09	1,263.79	1,229.00	34.79	36.329	
7,700.00	5,820.00	5,450.00	5,378.57	34.61	20.73	-9.99	-677.74	249.09	1,357.75	1,322.58	35.17	38.606	
7,800.00	5,820.00	5,450.00	5,378.57	35.85	20.73	-9.99	-677.74	249.09	1,452.52	1,417.02	35.49	40.923	
7,900.00	5,820.00	5,450.00	5,378.57	37.11	20.73	-9.99	-677.74	249.09	1,547.94	1,512.17	35.77	43.271	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	90.00	0.00	29.99	29.99	29.05	0.94	31.882		
300.00	300.00	300.00	300.00	0.81	0.81	90.00	0.00	29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	399.05	399.03	1.14	1.13	40.05	0.68	31.56	30.23	27.91	2.32	13.030 ES		
500.00	499.88	498.07	497.91	1.48	1.47	41.43	2.72	36.27	31.53	28.47	3.06	10.300		
600.00	599.77	597.67	597.20	1.81	1.81	40.95	5.84	43.47	35.11	31.38	3.73	9.411		
700.00	699.66	697.60	696.80	2.14	2.14	40.44	9.05	50.87	38.87	34.51	4.37	8.902		
800.00	799.55	797.53	796.41	2.48	2.48	40.01	12.26	58.27	42.64	37.63	5.01	8.506		
900.00	899.44	897.46	896.01	2.82	2.83	39.66	15.46	65.67	46.41	40.74	5.67	8.191		
1,000.00	999.32	997.38	995.61	3.16	3.18	39.36	18.67	73.07	50.18	43.86	6.32	7.935		
1,100.00	1,099.21	1,097.31	1,095.21	3.50	3.53	39.10	21.88	80.48	53.95	46.97	6.98	7.725		
1,200.00	1,199.10	1,197.24	1,194.82	3.84	3.88	38.88	25.09	87.88	57.73	50.08	7.65	7.548		
1,300.00	1,298.99	1,297.17	1,294.42	4.18	4.23	38.68	28.29	95.28	61.50	53.19	8.31	7.398		
1,400.00	1,398.88	1,397.10	1,394.02	4.52	4.58	38.51	31.50	102.68	65.27	56.29	8.98	7.269		
1,500.00	1,498.77	1,497.03	1,493.62	4.86	4.93	38.35	34.71	110.08	69.05	59.40	9.65	7.158		
1,600.00	1,598.66	1,596.96	1,593.23	5.20	5.28	38.21	37.92	117.48	72.82	62.51	10.32	7.060		
1,700.00	1,698.55	1,696.88	1,692.83	5.54	5.63	38.09	41.12	124.89	76.60	65.61	10.98	6.973		
1,800.00	1,798.44	1,796.81	1,792.43	5.88	5.98	37.98	44.33	132.29	80.37	68.72	11.65	6.896		
1,900.00	1,898.33	1,896.74	1,892.03	6.22	6.33	37.87	47.54	139.69	84.15	71.82	12.33	6.827		
2,000.00	1,998.22	1,996.67	1,991.64	6.56	6.68	37.78	50.75	147.09	87.93	74.93	13.00	6.765		
2,100.00	2,098.11	2,096.60	2,091.24	6.90	7.04	37.69	53.95	154.49	91.70	78.04	13.67	6.709		
2,200.00	2,198.00	2,196.53	2,190.84	7.24	7.39	37.61	57.16	161.89	95.48	81.14	14.34	6.658		
2,300.00	2,297.89	2,296.46	2,290.44	7.58	7.74	37.54	60.37	169.29	99.26	84.25	15.01	6.612		
2,400.00	2,397.78	2,396.38	2,390.05	7.92	8.09	37.47	63.58	176.70	103.03	87.35	15.68	6.569		
2,500.00	2,497.67	2,496.31	2,489.65	8.26	8.44	37.41	66.78	184.10	106.81	90.45	16.36	6.530		
2,600.00	2,597.55	2,596.24	2,589.25	8.60	8.80	37.35	69.99	191.50	110.59	93.56	17.03	6.494		
2,700.00	2,697.44	2,696.17	2,688.85	8.94	9.15	37.29	73.20	198.90	114.37	96.66	17.70	6.461		
2,800.00	2,797.33	2,796.10	2,788.46	9.28	9.50	37.24	76.41	206.30	118.14	99.77	18.37	6.430		
2,900.00	2,897.22	2,896.03	2,888.06	9.62	9.85	37.19	79.61	213.70	121.92	102.87	19.05	6.401		
3,000.00	2,997.11	2,995.96	2,987.66	9.97	10.21	37.15	82.82	221.11	125.70	105.98	19.72	6.374		
3,100.00	3,097.00	3,095.88	3,087.26	10.31	10.56	37.10	86.03	228.51	129.48	109.08	20.39	6.349		
3,200.00	3,196.89	3,195.81	3,186.87	10.65	10.91	37.06	89.24	235.91	133.25	112.19	21.07	6.325		
3,300.00	3,296.78	3,295.74	3,286.47	10.99	11.26	37.02	92.44	243.31	137.03	115.29	21.74	6.303		
3,400.00	3,396.67	3,395.67	3,386.07	11.33	11.62	36.99	95.65	250.71	140.81	118.39	22.42	6.282		
3,500.00	3,496.56	3,495.60	3,485.67	11.67	11.97	36.95	98.86	258.11	144.59	121.50	23.09	6.262		
3,600.00	3,596.45	3,595.53	3,585.28	12.01	12.32	36.92	102.07	265.51	148.37	124.60	23.76	6.244		
3,700.00	3,696.34	3,695.46	3,684.88	12.35	12.67	36.89	105.27	272.92	152.14	127.71	24.44	6.226		
3,800.00	3,796.23	3,795.38	3,784.48	12.69	13.03	36.86	108.48	280.32	155.92	130.81	25.11	6.209		
3,900.00	3,896.12	3,895.31	3,884.08	13.03	13.38	36.83	111.69	287.72	159.70	133.92	25.78	6.194		
4,000.00	3,996.01	3,995.24	3,983.68	13.37	13.73	36.81	114.90	295.12	163.48	137.02	26.46	6.179		
4,100.00	4,095.90	4,095.17	4,083.29	13.71	14.08	36.78	118.10	302.52	167.26	140.12	27.13	6.164		
4,200.00	4,195.78	4,195.10	4,182.89	14.06	14.44	36.76	121.31	309.92	171.04	143.23	27.81	6.151		
4,300.00	4,295.67	4,295.03	4,282.49	14.40	14.79	36.73	124.52	317.33	174.81	146.33	28.48	6.138		
4,400.00	4,395.56	4,394.96	4,382.09	14.74	15.14	36.71	127.72	324.73	178.59	149.44	29.16	6.126		
4,500.00	4,495.45	4,494.88	4,481.70	15.08	15.49	36.69	130.93	332.13	182.37	152.54	29.83	6.114		
4,600.00	4,595.34	4,594.81	4,581.30	15.42	15.85	36.67	134.14	339.53	186.15	155.65	30.50	6.102		
4,700.00	4,695.23	4,701.00	4,687.27	15.76	16.17	36.84	136.83	345.74	188.34	157.18	31.17	6.043		
4,800.00	4,795.12	4,807.49	4,793.71	16.10	16.44	37.45	137.96	348.35	187.08	155.33	31.75	5.892		
4,900.00	4,895.01	4,908.79	4,895.01	16.44	16.73	38.34	138.00	348.44	183.45	151.08	32.38	5.666		
5,000.00	4,994.91	5,008.69	4,994.91	16.77	17.03	39.23	138.00	348.44	179.91	146.90	33.02	5.449		
5,089.61	5,084.50	5,097.78	5,083.81	17.00	17.28	40.97	133.70	348.44	178.56	145.04	33.52	5.327		

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-3135
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-3135	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		
5,099.99	5,094.87	5,107.93	5,093.87	17.03	17.31	41.42	132.30	348.44	178.58	145.00	33.58	5.318		
5,200.00	5,194.88	5,201.89	5,185.05	17.32	17.56	99.18	110.15	348.44	181.03	146.87	34.16	5.300		
5,299.99	5,294.87	5,285.64	5,261.82	17.64	17.77	109.19	76.90	348.44	191.82	157.41	34.41	5.575		
5,400.00	5,394.34	5,361.10	5,325.63	17.92	17.96	-59.57	36.75	348.44	212.82	179.15	33.68	6.320		
5,500.00	5,490.30	5,433.29	5,380.64	18.19	18.14	-50.83	-9.90	348.44	237.71	205.63	32.08	7.410		
5,600.00	5,579.23	5,500.00	5,425.31	18.45	18.31	-44.49	-59.39	348.44	262.84	233.03	29.81	8.817		
5,700.00	5,657.87	5,571.11	5,465.54	18.70	18.49	-39.61	-117.95	348.44	285.77	258.06	27.71	10.313		
5,800.00	5,723.33	5,637.85	5,495.73	18.93	18.68	-36.30	-177.43	348.44	305.07	279.51	25.56	11.937		
5,900.00	5,773.21	5,700.00	5,516.79	19.18	18.87	-34.13	-235.87	348.44	319.79	296.11	23.68	13.503		
6,000.00	5,805.66	5,768.96	5,531.84	19.46	19.12	-32.75	-303.11	348.44	329.23	306.45	22.78	14.452		
6,100.00	5,819.51	5,833.92	5,537.78	19.82	19.38	-32.22	-367.75	348.44	333.16	310.47	22.69	14.684		
6,200.00	5,820.00	5,925.66	5,538.00	20.25	19.81	-32.18	-459.50	348.44	333.19	309.85	23.34	14.278		
6,300.00	5,820.00	6,025.66	5,538.00	20.78	20.37	-32.16	-559.50	348.44	333.10	308.98	24.12	13.813		
6,400.00	5,820.00	6,125.66	5,538.00	21.40	21.02	-32.13	-659.50	348.44	333.01	308.01	25.00	13.320		
6,500.00	5,820.00	6,225.66	5,538.00	22.11	21.75	-32.11	-759.50	348.44	332.92	306.94	25.98	12.813		
6,600.00	5,820.00	6,325.66	5,538.00	22.89	22.56	-32.08	-859.50	348.44	332.83	305.79	27.05	12.305		
6,700.00	5,820.00	6,425.66	5,538.00	23.74	23.43	-32.06	-959.50	348.44	332.75	304.56	28.19	11.804		
6,800.00	5,820.00	6,525.66	5,538.00	24.65	24.36	-32.04	-1,059.50	348.44	332.66	303.26	29.40	11.316		
6,900.00	5,820.00	6,625.66	5,538.00	25.61	25.34	-32.01	-1,159.50	348.44	332.57	301.91	30.66	10.847		
7,000.00	5,820.00	6,725.66	5,538.00	26.61	26.37	-31.99	-1,259.50	348.44	332.48	300.50	31.98	10.398		
7,100.00	5,820.00	6,825.66	5,538.00	27.66	27.44	-31.96	-1,359.50	348.44	332.39	299.06	33.34	9.971		
7,200.00	5,820.00	6,925.66	5,538.00	28.75	28.54	-31.94	-1,459.50	348.44	332.31	297.57	34.73	9.567		
7,300.00	5,820.00	7,025.66	5,538.00	29.87	29.68	-31.91	-1,559.50	348.44	332.22	296.05	36.17	9.186		
7,400.00	5,820.00	7,125.66	5,538.00	31.02	30.84	-31.89	-1,659.50	348.44	332.13	294.50	37.63	8.826		
7,500.00	5,820.00	7,225.66	5,538.00	32.19	32.04	-31.87	-1,759.50	348.44	332.04	292.92	39.12	8.488		
7,600.00	5,820.00	7,325.66	5,538.00	33.39	33.25	-31.84	-1,859.50	348.44	331.95	291.32	40.63	8.170		
7,700.00	5,820.00	7,425.66	5,538.00	34.61	34.48	-31.82	-1,959.50	348.44	331.87	289.70	42.16	7.871		
7,800.00	5,820.00	7,525.66	5,538.00	35.85	35.73	-31.79	-2,059.50	348.44	331.78	288.06	43.72	7.590		
7,900.00	5,820.00	7,625.66	5,538.00	37.11	37.00	-31.77	-2,159.50	348.44	331.69	286.41	45.28	7.325		
8,000.00	5,820.00	7,725.66	5,538.00	38.38	38.28	-31.74	-2,259.50	348.44	331.60	284.74	46.86	7.076		
8,100.00	5,820.00	7,825.66	5,538.00	39.67	39.58	-31.72	-2,359.50	348.44	331.52	283.06	48.46	6.841		
8,200.00	5,820.00	7,925.66	5,538.00	40.97	40.89	-31.69	-2,459.49	348.44	331.43	281.36	50.06	6.620		
8,300.00	5,820.00	8,025.66	5,538.00	42.28	42.21	-31.67	-2,559.49	348.44	331.34	279.66	51.68	6.411		
8,400.00	5,820.00	8,125.66	5,538.00	43.60	43.54	-31.65	-2,659.49	348.44	331.25	277.95	53.31	6.214		
8,500.00	5,820.00	8,225.66	5,538.00	44.92	44.87	-31.62	-2,759.49	348.44	331.17	276.23	54.94	6.028		
8,600.00	5,820.00	8,325.66	5,538.00	46.26	46.22	-31.60	-2,859.49	348.44	331.08	274.50	56.58	5.852		
8,700.00	5,820.00	8,425.66	5,538.00	47.61	47.57	-31.57	-2,959.49	348.44	330.99	272.77	58.23	5.685		
8,800.00	5,820.00	8,525.66	5,538.00	48.96	48.93	-31.55	-3,059.49	348.44	330.91	271.03	59.88	5.526		
8,900.00	5,820.00	8,625.66	5,538.00	50.32	50.30	-31.52	-3,159.49	348.44	330.82	269.28	61.54	5.376		
9,000.00	5,820.00	8,725.66	5,538.00	51.69	51.67	-31.50	-3,259.49	348.44	330.73	267.53	63.20	5.233		
9,100.00	5,820.00	8,825.66	5,538.00	53.06	53.05	-31.47	-3,359.49	348.44	330.65	265.78	64.87	5.097		
9,200.00	5,820.00	8,925.66	5,538.00	54.44	54.43	-31.45	-3,459.49	348.44	330.56	264.02	66.54	4.968		
9,300.00	5,820.00	9,025.66	5,538.00	55.82	55.82	-31.42	-3,559.49	348.45	330.47	262.26	68.21	4.845		
9,400.00	5,820.00	9,125.66	5,538.00	57.21	57.21	-31.40	-3,659.49	348.45	330.39	260.50	69.89	4.727		
9,500.00	5,820.00	9,225.66	5,538.00	58.60	58.60	-31.38	-3,759.49	348.45	330.30	258.73	71.57	4.615		
9,600.00	5,820.00	9,325.66	5,538.00	59.99	60.00	-31.35	-3,859.49	348.45	330.21	256.96	73.25	4.508		
9,700.00	5,820.00	9,425.66	5,538.00	61.39	61.40	-31.33	-3,959.49	348.45	330.13	255.19	74.93	4.406		
9,800.00	5,820.00	9,525.66	5,538.00	62.79	62.81	-31.30	-4,059.49	348.45	330.04	253.42	76.62	4.308		
9,900.00	5,820.00	9,625.66	5,538.00	64.20	64.22	-31.28	-4,159.49	348.45	329.95	251.65	78.31	4.214		
10,000.00	5,820.00	9,725.66	5,538.00	65.60	65.63	-31.25	-4,259.49	348.45	329.87	249.87	80.00	4.124		
10,100.00	5,820.00	9,825.66	5,538.00	67.01	67.04	-31.23	-4,359.49	348.45	329.78	248.10	81.69	4.037		
10,200.00	5,820.00	9,925.66	5,538.00	68.43	68.46	-31.20	-4,459.49	348.45	329.69	246.32	83.38	3.954		

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-3135
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-3135	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		
10,300.00	5,820.00	10,025.66	5,538.00	69.84	69.88	-31.18	-4,559.49	348.45	329.61	244.54	85.07	3.875		
10,400.00	5,820.00	10,125.66	5,538.00	71.26	71.30	-31.15	-4,659.49	348.45	329.52	242.76	86.76	3.798		
10,500.00	5,820.00	10,225.66	5,538.00	72.68	72.72	-31.13	-4,759.49	348.45	329.44	240.98	88.45	3.724		
10,600.00	5,820.00	10,325.66	5,538.00	74.10	74.14	-31.10	-4,859.49	348.45	329.35	239.20	90.15	3.653		
10,700.00	5,820.00	10,425.66	5,538.00	75.52	75.57	-31.08	-4,959.49	348.45	329.26	237.42	91.84	3.585		
10,800.00	5,820.00	10,525.66	5,538.00	76.95	77.00	-31.05	-5,059.49	348.45	329.18	235.64	93.53	3.519		
10,900.00	5,820.00	10,625.66	5,538.00	78.38	78.43	-31.03	-5,159.49	348.45	329.09	233.86	95.23	3.456		
11,000.00	5,820.00	10,725.66	5,538.00	79.81	79.86	-31.00	-5,259.49	348.45	329.01	232.09	96.92	3.395		
11,100.00	5,820.00	10,825.66	5,538.00	81.24	81.29	-30.98	-5,359.49	348.45	328.92	230.31	98.62	3.335		
11,200.00	5,820.00	10,925.66	5,538.00	82.67	82.73	-30.96	-5,459.49	348.45	328.84	228.53	100.31	3.278		
11,300.00	5,820.00	11,025.66	5,538.00	84.10	84.16	-30.93	-5,559.49	348.45	328.75	226.75	102.00	3.223		
11,400.00	5,820.00	11,125.66	5,538.00	85.54	85.60	-30.91	-5,659.49	348.45	328.67	224.97	103.70	3.169		
11,500.00	5,820.00	11,225.65	5,538.00	86.97	87.04	-30.88	-5,759.49	348.45	328.58	223.19	105.39	3.118		
11,600.00	5,820.00	11,325.65	5,538.00	88.41	88.48	-30.86	-5,859.49	348.45	328.49	221.41	107.08	3.068		
11,700.00	5,820.00	11,425.65	5,538.00	89.85	89.91	-30.83	-5,959.49	348.45	328.41	219.64	108.77	3.019		
11,800.00	5,820.00	11,525.65	5,538.00	91.29	91.36	-30.81	-6,059.49	348.45	328.32	217.86	110.46	2.972		
11,900.00	5,820.00	11,625.65	5,538.00	92.73	92.80	-30.78	-6,159.49	348.45	328.24	216.08	112.16	2.927		
12,000.00	5,820.00	11,725.65	5,538.00	94.17	94.24	-30.76	-6,259.49	348.45	328.15	214.31	113.85	2.882		
12,100.00	5,820.00	11,825.65	5,538.00	95.61	95.68	-30.73	-6,359.49	348.45	328.07	212.53	115.53	2.840		
12,200.00	5,820.00	11,925.65	5,538.00	97.06	97.13	-30.71	-6,459.49	348.45	327.98	210.76	117.22	2.798		
12,300.00	5,820.00	12,025.65	5,538.00	98.50	98.57	-30.68	-6,559.49	348.45	327.90	208.99	118.91	2.758		
12,400.00	5,820.00	12,125.65	5,538.00	99.94	100.02	-30.66	-6,659.49	348.45	327.81	207.22	120.60	2.718		
12,500.00	5,820.00	12,225.65	5,538.00	101.39	101.47	-30.63	-6,759.49	348.45	327.73	205.45	122.28	2.680		
12,600.00	5,820.00	12,325.65	5,538.00	102.84	102.91	-30.61	-6,859.49	348.45	327.65	203.68	123.97	2.643		
12,700.00	5,820.00	12,425.65	5,538.00	104.28	104.36	-30.58	-6,959.49	348.45	327.56	201.91	125.65	2.607		
12,800.00	5,820.00	12,525.65	5,538.00	105.73	105.81	-30.56	-7,059.49	348.45	327.48	200.14	127.34	2.572		
12,900.00	5,820.00	12,625.65	5,538.00	107.18	107.26	-30.53	-7,159.49	348.45	327.39	198.37	129.02	2.538		
13,000.00	5,820.00	12,725.65	5,538.00	108.63	108.71	-30.51	-7,259.49	348.45	327.31	196.61	130.70	2.504		
13,100.00	5,820.00	12,825.65	5,538.00	110.08	110.16	-30.48	-7,359.49	348.45	327.22	194.84	132.38	2.472		
13,200.00	5,820.00	12,925.65	5,538.00	111.53	111.61	-30.46	-7,459.49	348.45	327.14	193.08	134.06	2.440		
13,300.00	5,820.00	13,025.65	5,538.00	112.98	113.07	-30.43	-7,559.49	348.45	327.05	191.32	135.74	2.409		
13,400.00	5,820.00	13,125.65	5,538.00	114.43	114.52	-30.41	-7,659.49	348.45	326.97	189.56	137.41	2.379		
13,500.00	5,820.00	13,225.65	5,538.00	115.88	115.97	-30.38	-7,759.49	348.45	326.89	187.80	139.09	2.350		
13,600.00	5,820.00	13,325.65	5,538.00	117.34	117.42	-30.36	-7,859.49	348.45	326.80	186.04	140.77	2.322		
13,700.00	5,820.00	13,425.65	5,538.00	118.79	118.88	-30.33	-7,959.49	348.45	326.72	184.28	142.44	2.294		
13,800.00	5,820.00	13,525.65	5,538.00	120.24	120.33	-30.30	-8,059.49	348.45	326.63	182.52	144.11	2.267		
13,900.00	5,820.00	13,625.65	5,538.00	121.70	121.75	-30.28	-8,159.49	348.45	326.55	180.82	145.73	2.241		
13,925.21	5,820.00	13,650.59	5,538.00	122.06	122.08	-30.27	-8,184.43	348.45	326.53	180.42	146.11	2.235		
13,925.95	5,820.00	13,650.59	5,538.00	122.07	122.08	-30.27	-8,184.43	348.45	326.53	180.40	146.13	2.235 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	90.01	-0.02	89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	90.01	-0.02	89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	90.01	-0.02	89.97	89.97	89.03	0.94	95.645		
300.00	300.00	300.00	300.00	0.81	0.81	90.01	-0.02	89.97	89.97	88.35	1.61	55.709 CC		
400.00	399.98	397.03	397.01	1.14	1.12	39.72	0.35	91.57	90.27	87.95	2.32	38.986 ES		
500.00	499.88	494.02	493.87	1.48	1.44	40.74	1.46	96.37	91.77	88.71	3.06	30.010		
600.00	599.77	590.83	590.34	1.81	1.78	41.29	3.31	104.34	96.40	92.58	3.83	25.203		
700.00	699.66	687.27	686.09	2.14	2.11	41.31	5.87	115.43	104.29	99.69	4.60	22.686		
800.00	799.55	785.87	783.69	2.48	2.47	41.00	9.03	129.09	114.51	109.27	5.24	21.857		
900.00	899.44	885.33	882.12	2.82	2.84	40.74	12.24	142.98	124.84	118.99	5.85	21.332		
1,000.00	999.32	984.79	980.56	3.16	3.21	40.51	15.44	156.86	135.18	128.70	6.48	20.866		
1,100.00	1,099.21	1,084.26	1,079.00	3.50	3.59	40.31	18.65	170.74	145.52	138.40	7.11	20.460		
1,200.00	1,199.10	1,183.72	1,177.44	3.84	3.97	40.15	21.86	184.62	155.85	148.10	7.75	20.098		
1,300.00	1,298.99	1,283.18	1,275.87	4.18	4.35	40.00	25.07	198.51	166.19	157.79	8.40	19.779		
1,400.00	1,398.88	1,382.65	1,374.31	4.52	4.74	39.87	28.28	212.39	176.53	167.48	9.05	19.497		
1,500.00	1,498.77	1,482.11	1,472.75	4.86	5.12	39.75	31.49	226.27	186.87	177.16	9.71	19.247		
1,600.00	1,598.66	1,581.57	1,571.19	5.20	5.51	39.65	34.70	240.16	197.21	186.85	10.37	19.023		
1,700.00	1,698.55	1,681.04	1,669.62	5.54	5.89	39.55	37.90	254.04	207.56	196.53	11.03	18.822		
1,800.00	1,798.44	1,780.50	1,768.06	5.88	6.28	39.47	41.11	267.92	217.90	206.21	11.69	18.641		
1,900.00	1,898.33	1,879.96	1,866.50	6.22	6.66	39.39	44.32	281.80	228.24	215.89	12.35	18.477		
2,000.00	1,998.22	1,979.43	1,964.93	6.56	7.05	39.32	47.53	295.69	238.59	225.57	13.02	18.328		
2,100.00	2,098.11	2,078.89	2,063.37	6.90	7.44	39.26	50.74	309.57	248.93	235.24	13.68	18.191		
2,200.00	2,198.00	2,178.35	2,161.81	7.24	7.82	39.20	53.95	323.45	259.27	244.92	14.35	18.067		
2,300.00	2,297.89	2,277.82	2,260.25	7.58	8.21	39.14	57.16	337.33	269.62	254.60	15.02	17.952		
2,400.00	2,397.78	2,377.28	2,358.68	7.92	8.60	39.09	60.36	351.22	279.96	264.27	15.69	17.846		
2,500.00	2,497.67	2,476.74	2,457.12	8.26	8.99	39.05	63.57	365.10	290.31	273.95	16.36	17.748		
2,600.00	2,597.55	2,576.21	2,555.56	8.60	9.37	39.00	66.78	378.98	300.65	283.62	17.03	17.658		
2,700.00	2,697.44	2,675.67	2,654.00	8.94	9.76	38.96	69.99	392.87	311.00	293.30	17.70	17.573		
2,800.00	2,797.33	2,775.13	2,752.43	9.28	10.15	38.92	73.20	406.75	321.34	302.97	18.37	17.495		
2,900.00	2,897.22	2,874.60	2,850.87	9.62	10.54	38.89	76.41	420.63	331.69	312.65	19.04	17.421		
3,000.00	2,997.11	2,974.06	2,949.31	9.97	10.93	38.85	79.62	434.51	342.03	322.32	19.71	17.353		
3,100.00	3,097.00	3,073.52	3,047.75	10.31	11.31	38.82	82.82	448.40	352.38	331.99	20.38	17.288		
3,200.00	3,196.89	3,172.99	3,146.18	10.65	11.70	38.79	86.03	462.28	362.72	341.67	21.05	17.227		
3,300.00	3,296.78	3,272.45	3,244.62	10.99	12.09	38.76	89.24	476.16	373.07	351.34	21.73	17.170		
3,400.00	3,396.67	3,371.91	3,343.06	11.33	12.48	38.74	92.45	490.04	383.41	361.01	22.40	17.117		
3,500.00	3,496.56	3,471.37	3,441.50	11.67	12.87	38.71	95.66	503.93	393.76	370.69	23.07	17.066		
3,600.00	3,596.45	3,570.84	3,539.93	12.01	13.26	38.69	98.87	517.81	404.11	380.36	23.75	17.018		
3,700.00	3,696.34	3,670.30	3,638.37	12.35	13.65	38.67	102.08	531.69	414.45	390.03	24.42	16.972		
3,800.00	3,796.23	3,769.76	3,736.81	12.69	14.03	38.64	105.28	545.58	424.80	399.70	25.09	16.929		
3,900.00	3,896.12	3,869.23	3,835.24	13.03	14.42	38.62	108.49	559.46	435.14	409.38	25.77	16.888		
4,000.00	3,996.01	3,968.69	3,933.68	13.37	14.81	38.60	111.70	573.34	445.49	419.05	26.44	16.849		
4,100.00	4,095.90	4,068.15	4,032.12	13.71	15.20	38.58	114.91	587.22	455.84	428.72	27.11	16.811		
4,200.00	4,195.78	4,167.62	4,130.56	14.06	15.59	38.57	118.12	601.11	466.18	438.39	27.79	16.776		
4,300.00	4,295.67	4,267.08	4,228.99	14.40	15.98	38.55	121.33	614.99	476.53	448.06	28.46	16.742		
4,400.00	4,395.56	4,366.54	4,327.43	14.74	16.37	38.53	124.54	628.87	486.87	457.74	29.14	16.709		
4,500.00	4,495.45	4,466.01	4,425.87	15.08	16.75	38.52	127.74	642.75	497.22	467.41	29.81	16.678		
4,600.00	4,595.34	4,575.97	4,534.79	15.42	17.15	38.52	131.15	657.48	507.05	476.52	30.53	16.609		
4,700.00	4,695.23	4,696.80	4,654.98	15.76	17.50	38.62	133.90	669.41	513.28	482.06	31.22	16.442		
4,800.00	4,795.12	4,818.02	4,775.98	16.10	17.81	38.84	135.52	676.40	515.39	483.55	31.85	16.184		
4,900.00	4,895.01	4,937.07	4,895.01	16.44	18.10	39.19	135.99	678.42	513.41	480.97	32.43	15.831		
5,000.00	4,994.91	5,036.97	4,994.91	16.77	18.37	39.50	135.99	678.42	509.89	476.84	33.06	15.425		
5,099.99	5,094.87	5,136.88	5,094.82	17.03	18.66	39.62	135.89	678.42	508.44	474.82	33.62	15.122		

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-3135
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-3135	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		
5,132.34	5,127.22	5,168.95	5,126.84	17.12	18.74	39.80	134.30	678.42	508.42	474.61	33.81	15.038		
5,200.00	5,194.88	5,234.75	5,191.93	17.32	18.90	91.59	124.90	678.42	508.63	474.43	34.20	14.871		
5,299.99	5,294.87	5,325.54	5,278.71	17.64	19.12	94.54	98.64	678.42	510.28	475.47	34.81	14.659		
5,400.00	5,394.34	5,408.78	5,353.19	17.92	19.32	-81.52	61.66	678.42	514.66	479.36	35.30	14.579		
5,500.00	5,490.30	5,488.36	5,418.03	18.19	19.50	-77.98	15.65	678.42	520.79	485.20	35.59	14.631		
5,600.00	5,579.23	5,565.16	5,473.26	18.45	19.67	-74.84	-37.60	678.42	527.81	492.10	35.70	14.783		
5,700.00	5,657.87	5,639.86	5,518.92	18.70	19.84	-72.18	-96.65	678.42	534.87	499.18	35.70	14.984		
5,800.00	5,723.33	5,713.01	5,555.01	18.93	20.03	-70.06	-160.21	678.42	541.24	505.56	35.68	15.167		
5,900.00	5,773.21	5,785.06	5,581.51	19.18	20.23	-68.50	-227.15	678.42	546.30	510.51	35.80	15.262		
6,000.00	5,805.66	5,850.00	5,597.28	19.46	20.44	-67.56	-290.10	678.42	549.65	513.53	36.12	15.218		
6,100.00	5,819.51	5,927.36	5,605.69	19.82	20.72	-67.14	-366.93	678.42	550.85	514.06	36.79	14.972		
6,200.00	5,820.00	6,019.93	5,606.00	20.25	21.13	-67.13	-459.50	678.42	550.71	513.01	37.70	14.607		
6,300.00	5,820.00	6,119.93	5,606.00	20.78	21.65	-67.13	-559.50	678.42	550.56	511.78	38.78	14.196		
6,400.00	5,820.00	6,219.93	5,606.00	21.40	22.26	-67.12	-659.50	678.42	550.41	510.38	40.02	13.753		
6,500.00	5,820.00	6,319.93	5,606.00	22.11	22.95	-67.11	-759.50	678.42	550.25	508.85	41.41	13.289		
6,600.00	5,820.00	6,419.93	5,606.00	22.89	23.72	-67.11	-859.50	678.42	550.10	507.18	42.92	12.816		
6,700.00	5,820.00	6,519.93	5,606.00	23.74	24.55	-67.10	-959.50	678.42	549.95	505.39	44.56	12.342		
6,800.00	5,820.00	6,619.93	5,606.00	24.65	25.44	-67.09	-1,059.50	678.42	549.79	503.50	46.30	11.876		
6,900.00	5,820.00	6,719.93	5,606.00	25.61	26.39	-67.09	-1,159.50	678.42	549.64	501.51	48.13	11.420		
7,000.00	5,820.00	6,819.93	5,606.00	26.61	27.38	-67.08	-1,259.50	678.42	549.49	499.44	50.05	10.980		
7,100.00	5,820.00	6,919.93	5,606.00	27.66	28.41	-67.07	-1,359.50	678.42	549.34	497.30	52.04	10.557		
7,200.00	5,820.00	7,019.93	5,606.00	28.75	29.49	-67.07	-1,459.49	678.42	549.18	495.09	54.09	10.153		
7,300.00	5,820.00	7,119.93	5,606.00	29.87	30.59	-67.06	-1,559.49	678.42	549.03	492.82	56.21	9.768		
7,400.00	5,820.00	7,219.93	5,606.00	31.02	31.73	-67.05	-1,659.49	678.42	548.88	490.50	58.37	9.403		
7,500.00	5,820.00	7,319.93	5,606.00	32.19	32.89	-67.05	-1,759.49	678.42	548.72	488.14	60.59	9.057		
7,600.00	5,820.00	7,419.93	5,606.00	33.39	34.08	-67.04	-1,859.49	678.42	548.57	485.73	62.84	8.729		
7,700.00	5,820.00	7,519.93	5,606.00	34.61	35.29	-67.03	-1,959.49	678.42	548.42	483.28	65.14	8.420		
7,800.00	5,820.00	7,619.93	5,606.00	35.85	36.52	-67.03	-2,059.49	678.42	548.27	480.80	67.46	8.127		
7,900.00	5,820.00	7,719.93	5,606.00	37.11	37.76	-67.02	-2,159.49	678.42	548.11	478.29	69.82	7.851		
8,000.00	5,820.00	7,819.93	5,606.00	38.38	39.02	-67.01	-2,259.49	678.42	547.96	475.76	72.20	7.589		
8,100.00	5,820.00	7,919.93	5,606.00	39.67	40.30	-67.01	-2,359.49	678.43	547.81	473.20	74.61	7.342		
8,200.00	5,820.00	8,019.93	5,606.00	40.97	41.59	-67.00	-2,459.49	678.43	547.65	470.61	77.04	7.109		
8,300.00	5,820.00	8,119.93	5,606.00	42.28	42.89	-66.99	-2,559.49	678.43	547.50	468.01	79.49	6.888		
8,400.00	5,820.00	8,219.93	5,606.00	43.60	44.20	-66.98	-2,659.49	678.43	547.35	465.39	81.96	6.678		
8,500.00	5,820.00	8,319.93	5,606.00	44.92	45.52	-66.98	-2,759.49	678.43	547.20	462.75	84.44	6.480		
8,600.00	5,820.00	8,419.93	5,606.00	46.26	46.85	-66.97	-2,859.49	678.43	547.04	460.10	86.94	6.292		
8,700.00	5,820.00	8,519.93	5,606.00	47.61	48.19	-66.96	-2,959.49	678.43	546.89	457.43	89.46	6.113		
8,800.00	5,820.00	8,619.93	5,606.00	48.96	49.54	-66.96	-3,059.49	678.43	546.74	454.75	91.98	5.944		
8,900.00	5,820.00	8,719.93	5,606.00	50.32	50.89	-66.95	-3,159.49	678.43	546.58	452.06	94.52	5.783		
9,000.00	5,820.00	8,819.93	5,606.00	51.69	52.25	-66.94	-3,259.49	678.43	546.43	449.36	97.07	5.629		
9,100.00	5,820.00	8,919.93	5,606.00	53.06	53.62	-66.94	-3,359.49	678.43	546.28	446.65	99.63	5.483		
9,200.00	5,820.00	9,019.93	5,606.00	54.44	54.99	-66.93	-3,459.49	678.43	546.13	443.93	102.20	5.344		
9,300.00	5,820.00	9,119.93	5,606.00	55.82	56.36	-66.92	-3,559.49	678.43	545.97	441.20	104.78	5.211		
9,400.00	5,820.00	9,219.93	5,606.00	57.21	57.74	-66.92	-3,659.49	678.43	545.82	438.46	107.36	5.084		
9,500.00	5,820.00	9,319.93	5,606.00	58.60	59.13	-66.91	-3,759.49	678.43	545.67	435.71	109.95	4.963		
9,600.00	5,820.00	9,419.93	5,606.00	59.99	60.52	-66.90	-3,859.49	678.43	545.51	432.96	112.55	4.847		
9,700.00	5,820.00	9,519.93	5,606.00	61.39	61.91	-66.90	-3,959.49	678.43	545.36	430.21	115.16	4.736		
9,800.00	5,820.00	9,619.93	5,606.00	62.79	63.31	-66.89	-4,059.49	678.43	545.21	427.44	117.77	4.630		
9,900.00	5,820.00	9,719.93	5,606.00	64.20	64.71	-66.88	-4,159.49	678.43	545.06	424.67	120.38	4.528		
10,000.00	5,820.00	9,819.93	5,606.00	65.60	66.11	-66.88	-4,259.49	678.43	544.90	421.90	123.00	4.430		
10,100.00	5,820.00	9,919.93	5,606.00	67.01	67.52	-66.87	-4,359.49	678.43	544.75	419.12	125.63	4.336		
10,200.00	5,820.00	10,019.93	5,606.00	68.43	68.93	-66.86	-4,459.49	678.43	544.60	416.34	128.26	4.246		

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-3135
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-3135	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		
10,300.00	5,820.00	10,119.93	5,606.00	69.84	70.34	-66.85	-4,559.49	678.43	544.45	413.55	130.90	4.159		
10,400.00	5,820.00	10,219.93	5,606.00	71.26	71.75	-66.85	-4,659.49	678.43	544.29	410.76	133.53	4.076		
10,500.00	5,820.00	10,319.93	5,606.00	72.68	73.17	-66.84	-4,759.49	678.43	544.14	407.96	136.18	3.996		
10,600.00	5,820.00	10,419.93	5,606.00	74.10	74.59	-66.83	-4,859.49	678.43	543.99	405.17	138.82	3.919		
10,700.00	5,820.00	10,519.93	5,606.00	75.52	76.01	-66.83	-4,959.49	678.43	543.83	402.36	141.47	3.844		
10,800.00	5,820.00	10,619.93	5,606.00	76.95	77.43	-66.82	-5,059.49	678.43	543.68	399.56	144.12	3.772		
10,900.00	5,820.00	10,719.93	5,606.00	78.38	78.85	-66.81	-5,159.49	678.43	543.53	396.75	146.78	3.703		
11,000.00	5,820.00	10,819.92	5,606.00	79.81	80.28	-66.81	-5,259.49	678.43	543.38	393.94	149.43	3.636		
11,100.00	5,820.00	10,919.92	5,606.00	81.24	81.71	-66.80	-5,359.49	678.43	543.22	391.13	152.09	3.572		
11,200.00	5,820.00	11,019.92	5,606.00	82.67	83.13	-66.79	-5,459.49	678.44	543.07	388.32	154.76	3.509		
11,300.00	5,820.00	11,119.92	5,606.00	84.10	84.56	-66.79	-5,559.49	678.44	542.92	385.50	157.42	3.449		
11,400.00	5,820.00	11,219.92	5,606.00	85.54	86.00	-66.78	-5,659.49	678.44	542.77	382.68	160.09	3.390		
11,500.00	5,820.00	11,319.92	5,606.00	86.97	87.43	-66.77	-5,759.49	678.44	542.61	379.86	162.76	3.334		
11,600.00	5,820.00	11,419.92	5,606.00	88.41	88.86	-66.77	-5,859.49	678.44	542.46	377.03	165.43	3.279		
11,700.00	5,820.00	11,519.92	5,606.00	89.85	90.30	-66.76	-5,959.49	678.44	542.31	374.21	168.10	3.226		
11,800.00	5,820.00	11,619.92	5,606.00	91.29	91.74	-66.75	-6,059.49	678.44	542.16	371.38	170.77	3.175		
11,900.00	5,820.00	11,719.92	5,606.00	92.73	93.17	-66.74	-6,159.49	678.44	542.00	368.55	173.45	3.125		
12,000.00	5,820.00	11,819.92	5,606.00	94.17	94.61	-66.74	-6,259.49	678.44	541.85	365.72	176.13	3.076		
12,100.00	5,820.00	11,919.92	5,606.00	95.61	96.05	-66.73	-6,359.49	678.44	541.70	362.89	178.80	3.030		
12,200.00	5,820.00	12,019.92	5,606.00	97.06	97.49	-66.72	-6,459.49	678.44	541.55	360.06	181.48	2.984		
12,300.00	5,820.00	12,119.92	5,606.00	98.50	98.94	-66.72	-6,559.49	678.44	541.39	357.23	184.17	2.940		
12,400.00	5,820.00	12,219.92	5,606.00	99.94	100.38	-66.71	-6,659.49	678.44	541.24	354.39	186.85	2.897		
12,500.00	5,820.00	12,319.92	5,606.00	101.39	101.82	-66.70	-6,759.49	678.44	541.09	351.56	189.53	2.855		
12,600.00	5,820.00	12,419.92	5,606.00	102.84	103.27	-66.70	-6,859.49	678.44	540.94	348.72	192.22	2.814		
12,700.00	5,820.00	12,519.92	5,606.00	104.28	104.71	-66.69	-6,959.49	678.44	540.78	345.88	194.90	2.775		
12,800.00	5,820.00	12,619.92	5,606.00	105.73	106.16	-66.68	-7,059.49	678.44	540.63	343.04	197.59	2.736		
12,900.00	5,820.00	12,719.92	5,606.00	107.18	107.60	-66.67	-7,159.49	678.44	540.48	340.20	200.28	2.699		
13,000.00	5,820.00	12,819.92	5,606.00	108.63	109.05	-66.67	-7,259.49	678.44	540.33	337.36	202.97	2.662		
13,100.00	5,820.00	12,919.92	5,606.00	110.08	110.50	-66.66	-7,359.49	678.44	540.17	334.52	205.66	2.627		
13,200.00	5,820.00	13,019.92	5,606.00	111.53	111.95	-66.65	-7,459.49	678.44	540.02	331.67	208.35	2.592		
13,300.00	5,820.00	13,119.92	5,606.00	112.98	113.39	-66.65	-7,559.49	678.44	539.87	328.83	211.04	2.558		
13,400.00	5,820.00	13,219.92	5,606.00	114.43	114.84	-66.64	-7,659.49	678.44	539.72	325.99	213.73	2.525		
13,500.00	5,820.00	13,319.92	5,606.00	115.88	116.29	-66.63	-7,759.49	678.44	539.56	323.14	216.42	2.493		
13,600.00	5,820.00	13,419.92	5,606.00	117.34	117.75	-66.63	-7,859.49	678.44	539.41	320.30	219.11	2.462		
13,700.00	5,820.00	13,519.92	5,606.00	118.79	119.20	-66.62	-7,959.49	678.44	539.26	317.45	221.81	2.431		
13,800.00	5,820.00	13,619.92	5,606.00	120.24	120.65	-66.61	-8,059.49	678.44	539.11	314.60	224.50	2.401		
13,900.00	5,820.00	13,719.92	5,606.00	121.70	122.10	-66.61	-8,159.49	678.44	538.95	311.75	227.20	2.372		
13,924.69	5,820.00	13,742.83	5,606.00	122.05	122.43	-66.60	-8,182.39	678.44	538.92	311.05	227.87	2.365		
13,925.95	5,820.00	13,742.83	5,606.00	122.07	122.43	-66.60	-8,182.39	678.44	538.92	311.01	227.91	2.365 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	90.01	-0.01	59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	90.01	-0.01	59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	90.01	-0.01	59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	90.01	-0.01	59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	398.03	398.01	1.14	1.13	39.85	0.47	61.58	60.27	57.95	2.32	25.993 ES		
500.00	499.88	496.03	495.88	1.48	1.45	41.08	1.92	66.40	61.74	58.67	3.06	20.157		
600.00	599.77	593.86	593.34	1.81	1.79	41.40	4.31	74.40	66.30	62.47	3.83	17.301		
700.00	699.66	693.36	692.27	2.14	2.13	41.13	7.36	84.56	72.87	68.41	4.46	16.321		
800.00	799.55	793.14	791.48	2.48	2.48	40.91	10.42	94.78	79.48	74.39	5.09	15.608		
900.00	899.44	892.92	890.69	2.82	2.84	40.71	13.48	105.00	86.08	80.35	5.73	15.023		
1,000.00	999.32	992.70	989.90	3.16	3.19	40.55	16.54	115.21	92.69	86.31	6.38	14.537		
1,100.00	1,099.21	1,092.48	1,089.11	3.50	3.55	40.40	19.61	125.43	99.30	92.27	7.03	14.132		
1,200.00	1,199.10	1,192.26	1,188.32	3.84	3.91	40.28	22.67	135.65	105.91	98.22	7.68	13.785		
1,300.00	1,298.99	1,292.04	1,287.53	4.18	4.28	40.17	25.73	145.86	112.51	104.17	8.34	13.488		
1,400.00	1,398.88	1,391.82	1,386.74	4.52	4.64	40.07	28.79	156.08	119.12	110.12	9.00	13.232		
1,500.00	1,498.77	1,491.61	1,485.95	4.86	5.00	39.98	31.85	166.30	125.73	116.07	9.67	13.007		
1,600.00	1,598.66	1,591.39	1,585.16	5.20	5.37	39.90	34.91	176.51	132.34	122.01	10.33	12.810		
1,700.00	1,698.55	1,691.17	1,684.37	5.54	5.73	39.83	37.98	186.73	138.95	127.95	11.00	12.635		
1,800.00	1,798.44	1,790.95	1,783.58	5.88	6.09	39.76	41.04	196.95	145.56	133.90	11.66	12.479		
1,900.00	1,898.33	1,890.73	1,882.79	6.22	6.46	39.70	44.10	207.16	152.17	139.84	12.33	12.339		
2,000.00	1,998.22	1,990.51	1,982.00	6.56	6.82	39.65	47.16	217.38	158.78	145.78	13.00	12.212		
2,100.00	2,098.11	2,090.29	2,081.21	6.90	7.19	39.60	50.22	227.60	165.39	151.72	13.67	12.098		
2,200.00	2,198.00	2,190.07	2,180.42	7.24	7.55	39.55	53.28	237.81	172.00	157.66	14.34	11.993		
2,300.00	2,297.89	2,289.85	2,279.63	7.58	7.92	39.51	56.35	248.03	178.61	163.60	15.01	11.898		
2,400.00	2,397.78	2,389.64	2,378.84	7.92	8.28	39.47	59.41	258.25	185.22	169.54	15.68	11.810		
2,500.00	2,497.67	2,489.42	2,478.05	8.26	8.65	39.43	62.47	268.46	191.83	175.48	16.36	11.729		
2,600.00	2,597.55	2,589.20	2,577.25	8.60	9.01	39.40	65.53	278.68	198.44	181.42	17.03	11.655		
2,700.00	2,697.44	2,688.98	2,676.46	8.94	9.38	39.37	68.59	288.90	205.06	187.36	17.70	11.586		
2,800.00	2,797.33	2,788.76	2,775.67	9.28	9.74	39.33	71.66	299.11	211.67	193.29	18.37	11.521		
2,900.00	2,897.22	2,888.54	2,874.88	9.62	10.11	39.31	74.72	309.33	218.28	199.23	19.04	11.462		
3,000.00	2,997.11	2,988.32	2,974.09	9.97	10.47	39.28	77.78	319.55	224.89	205.17	19.72	11.406		
3,100.00	3,097.00	3,088.10	3,073.30	10.31	10.84	39.25	80.84	329.76	231.50	211.11	20.39	11.353		
3,200.00	3,196.89	3,187.89	3,172.51	10.65	11.20	39.23	83.90	339.98	238.11	217.05	21.06	11.304		
3,300.00	3,296.78	3,287.67	3,271.72	10.99	11.57	39.21	86.96	350.20	244.72	222.98	21.74	11.258		
3,400.00	3,396.67	3,387.45	3,370.93	11.33	11.94	39.19	90.03	360.41	251.33	228.92	22.41	11.215		
3,500.00	3,496.56	3,487.23	3,470.14	11.67	12.30	39.17	93.09	370.63	257.94	234.86	23.08	11.174		
3,600.00	3,596.45	3,587.01	3,569.35	12.01	12.67	39.15	96.15	380.85	264.56	240.80	23.76	11.136		
3,700.00	3,696.34	3,686.79	3,668.56	12.35	13.03	39.13	99.21	391.07	271.17	246.73	24.43	11.099		
3,800.00	3,796.23	3,786.57	3,767.77	12.69	13.40	39.11	102.27	401.28	277.78	252.67	25.11	11.064		
3,900.00	3,896.12	3,886.35	3,866.98	13.03	13.76	39.09	105.33	411.50	284.39	258.61	25.78	11.032		
4,000.00	3,996.01	3,986.14	3,966.19	13.37	14.13	39.08	108.40	421.72	291.00	264.55	26.45	11.000		
4,100.00	4,095.90	4,085.92	4,065.40	13.71	14.49	39.06	111.46	431.93	297.61	270.48	27.13	10.971		
4,200.00	4,195.78	4,185.70	4,164.61	14.06	14.86	39.05	114.52	442.15	304.22	276.42	27.80	10.942		
4,300.00	4,295.67	4,285.48	4,263.82	14.40	15.23	39.03	117.58	452.37	310.83	282.36	28.48	10.915		
4,400.00	4,395.56	4,385.26	4,363.03	14.74	15.59	39.02	120.64	462.58	317.45	288.29	29.15	10.890		
4,500.00	4,495.45	4,485.04	4,462.24	15.08	15.96	39.01	123.70	472.80	324.06	294.23	29.83	10.865		
4,600.00	4,595.34	4,584.82	4,561.45	15.42	16.32	39.00	126.77	483.02	330.67	300.17	30.50	10.841		
4,700.00	4,695.23	4,684.60	4,660.65	15.76	16.69	38.98	129.83	493.23	337.28	306.11	31.18	10.819		
4,800.00	4,795.12	4,791.19	4,766.69	16.10	17.05	39.00	132.92	503.56	343.37	311.51	31.87	10.775		
4,900.00	4,895.01	4,904.19	4,879.43	16.44	17.35	39.20	135.09	510.78	346.12	313.61	32.51	10.648		
5,000.00	4,994.91	5,017.23	4,992.42	16.77	17.64	39.59	135.97	513.73	345.22	312.13	33.08	10.435		
5,099.99	5,094.87	5,119.68	5,094.87	17.03	17.92	39.77	135.99	513.81	343.83	310.20	33.63	10.223		

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-3135
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-3135	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	
5,185.17	5,180.06	5,204.86	5,180.06	17.28	18.17	39.78	135.99	513.81	343.78	309.63	34.15	10.068	
5,200.00	5,194.88	5,219.69	5,194.88	17.32	18.22	90.50	135.99	513.81	343.83	309.60	34.24	10.043	
5,207.58	5,202.47	5,227.27	5,202.47	17.34	18.24	90.50	135.99	513.81	343.83	309.55	34.28	10.029	
5,299.99	5,294.87	5,318.59	5,293.47	17.64	18.48	91.52	129.90	513.81	343.94	309.10	34.85	9.870	
5,400.00	5,394.34	5,414.23	5,386.13	17.92	18.73	-85.82	106.74	513.81	344.70	309.31	35.39	9.740	
5,500.00	5,490.30	5,507.40	5,470.85	18.19	18.96	-83.43	68.28	513.81	346.01	310.18	35.84	9.655	
5,600.00	5,579.23	5,600.00	5,546.95	18.45	19.19	-81.26	15.73	513.81	347.68	311.49	36.19	9.606	
5,700.00	5,657.87	5,687.84	5,609.47	18.70	19.40	-79.47	-45.82	513.81	349.45	312.98	36.47	9.581	
5,800.00	5,723.33	5,775.85	5,660.87	18.93	19.62	-78.01	-117.14	513.81	351.09	314.33	36.76	9.551	
5,900.00	5,773.21	5,862.87	5,699.18	19.18	19.86	-76.94	-195.16	513.81	352.39	315.26	37.13	9.491	
6,000.00	5,805.66	5,950.00	5,724.01	19.46	20.14	-76.29	-278.57	513.81	353.19	315.52	37.67	9.376	
6,100.00	5,819.51	6,035.26	5,734.54	19.82	20.46	-76.07	-363.08	513.81	353.38	314.95	38.42	9.197	
6,200.00	5,820.00	6,131.68	5,735.00	20.25	20.89	-76.07	-459.50	513.81	353.20	313.85	39.36	8.974	
6,300.00	5,820.00	6,231.68	5,735.00	20.78	21.43	-76.07	-559.50	513.81	353.04	312.58	40.46	8.725	
6,400.00	5,820.00	6,331.68	5,735.00	21.40	22.05	-76.06	-659.50	513.81	352.88	311.15	41.73	8.456	
6,500.00	5,820.00	6,431.68	5,735.00	22.11	22.75	-76.06	-759.50	513.81	352.72	309.56	43.16	8.172	
6,600.00	5,820.00	6,531.68	5,735.00	22.89	23.52	-76.05	-859.50	513.81	352.56	307.83	44.73	7.883	
6,700.00	5,820.00	6,631.68	5,735.00	23.74	24.36	-76.04	-959.50	513.81	352.40	305.98	46.42	7.592	
6,800.00	5,820.00	6,731.68	5,735.00	24.65	25.26	-76.04	-1,059.50	513.81	352.24	304.02	48.22	7.305	
6,900.00	5,820.00	6,831.68	5,735.00	25.61	26.21	-76.03	-1,159.50	513.81	352.08	301.96	50.12	7.025	
7,000.00	5,820.00	6,931.68	5,735.00	26.61	27.21	-76.02	-1,259.50	513.81	351.91	299.81	52.11	6.754	
7,100.00	5,820.00	7,031.68	5,735.00	27.66	28.25	-76.02	-1,359.50	513.81	351.75	297.58	54.18	6.493	
7,200.00	5,820.00	7,131.68	5,735.00	28.75	29.32	-76.01	-1,459.50	513.81	351.59	295.28	56.31	6.243	
7,300.00	5,820.00	7,231.68	5,735.00	29.87	30.43	-76.00	-1,559.50	513.81	351.43	292.92	58.52	6.006	
7,400.00	5,820.00	7,331.68	5,735.00	31.02	31.57	-76.00	-1,659.50	513.81	351.27	290.50	60.77	5.780	
7,500.00	5,820.00	7,431.68	5,735.00	32.19	32.74	-75.99	-1,759.50	513.81	351.11	288.03	63.08	5.566	
7,600.00	5,820.00	7,531.68	5,735.00	33.39	33.93	-75.98	-1,859.50	513.81	350.95	285.52	65.43	5.364	
7,700.00	5,820.00	7,631.68	5,735.00	34.61	35.14	-75.98	-1,959.49	513.81	350.79	282.97	67.82	5.172	
7,800.00	5,820.00	7,731.68	5,735.00	35.85	36.38	-75.97	-2,059.49	513.81	350.63	280.38	70.25	4.991	
7,900.00	5,820.00	7,831.68	5,735.00	37.11	37.62	-75.96	-2,159.49	513.81	350.46	277.76	72.71	4.820	
8,000.00	5,820.00	7,931.68	5,735.00	38.38	38.89	-75.96	-2,259.49	513.82	350.30	275.11	75.19	4.659	
8,100.00	5,820.00	8,031.68	5,735.00	39.67	40.17	-75.95	-2,359.49	513.82	350.14	272.44	77.71	4.506	
8,200.00	5,820.00	8,131.68	5,735.00	40.97	41.46	-75.94	-2,459.49	513.82	349.98	269.74	80.24	4.362	
8,300.00	5,820.00	8,231.68	5,735.00	42.28	42.76	-75.94	-2,559.49	513.82	349.82	267.02	82.80	4.225	
8,400.00	5,820.00	8,331.68	5,735.00	43.60	44.07	-75.93	-2,659.49	513.82	349.66	264.28	85.38	4.095	
8,500.00	5,820.00	8,431.68	5,735.00	44.92	45.40	-75.92	-2,759.49	513.82	349.50	261.52	87.98	3.973	
8,600.00	5,820.00	8,531.68	5,735.00	46.26	46.73	-75.92	-2,859.49	513.82	349.34	258.75	90.59	3.856	
8,700.00	5,820.00	8,631.68	5,735.00	47.61	48.07	-75.91	-2,959.49	513.82	349.18	255.96	93.21	3.746	
8,800.00	5,820.00	8,731.68	5,735.00	48.96	49.42	-75.90	-3,059.49	513.82	349.01	253.16	95.85	3.641	
8,900.00	5,820.00	8,831.68	5,735.00	50.32	50.77	-75.90	-3,159.49	513.82	348.85	250.35	98.51	3.541	
9,000.00	5,820.00	8,931.68	5,735.00	51.69	52.13	-75.89	-3,259.49	513.82	348.69	247.52	101.17	3.447	
9,100.00	5,820.00	9,031.68	5,735.00	53.06	53.50	-75.88	-3,359.49	513.82	348.53	244.68	103.85	3.356	
9,200.00	5,820.00	9,131.68	5,735.00	54.44	54.87	-75.88	-3,459.49	513.82	348.37	241.84	106.53	3.270	
9,300.00	5,820.00	9,231.68	5,735.00	55.82	56.25	-75.87	-3,559.49	513.82	348.21	238.98	109.23	3.188	
9,400.00	5,820.00	9,331.68	5,735.00	57.21	57.63	-75.86	-3,659.49	513.82	348.05	236.12	111.93	3.110	
9,500.00	5,820.00	9,431.68	5,735.00	58.60	59.02	-75.86	-3,759.49	513.82	347.89	233.25	114.64	3.035	
9,600.00	5,820.00	9,531.68	5,735.00	59.99	60.41	-75.85	-3,859.49	513.82	347.73	230.37	117.36	2.963	
9,700.00	5,820.00	9,631.68	5,735.00	61.39	61.81	-75.84	-3,959.49	513.82	347.56	227.48	120.08	2.894	
9,800.00	5,820.00	9,731.68	5,735.00	62.79	63.20	-75.84	-4,059.49	513.82	347.40	224.59	122.81	2.829	
9,900.00	5,820.00	9,831.68	5,735.00	64.20	64.60	-75.83	-4,159.49	513.82	347.24	221.69	125.55	2.766	
10,000.00	5,820.00	9,931.68	5,735.00	65.60	66.01	-75.82	-4,259.49	513.82	347.08	218.79	128.29	2.705	
10,100.00	5,820.00	10,031.68	5,735.00	67.01	67.42	-75.82	-4,359.49	513.82	346.92	215.88	131.04	2.648	

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-3135
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-3135	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	5,820.00	10,131.68	5,735.00	68.43	68.83	-75.81	-4,459.49	513.82	346.76	212.97	133.79	2.592		
10,300.00	5,820.00	10,231.68	5,735.00	69.84	70.24	-75.80	-4,559.49	513.82	346.60	210.05	136.54	2.538		
10,400.00	5,820.00	10,331.68	5,735.00	71.26	71.65	-75.80	-4,659.49	513.82	346.44	207.13	139.30	2.487		
10,500.00	5,820.00	10,431.68	5,735.00	72.68	73.07	-75.79	-4,759.49	513.82	346.28	204.21	142.07	2.437		
10,600.00	5,820.00	10,531.68	5,735.00	74.10	74.49	-75.78	-4,859.49	513.82	346.12	201.28	144.84	2.390		
10,700.00	5,820.00	10,631.68	5,735.00	75.52	75.91	-75.78	-4,959.49	513.82	345.95	198.34	147.61	2.344		
10,800.00	5,820.00	10,731.68	5,735.00	76.95	77.33	-75.77	-5,059.49	513.82	345.79	195.41	150.38	2.299		
10,900.00	5,820.00	10,831.68	5,735.00	78.38	78.76	-75.76	-5,159.49	513.82	345.63	192.47	153.16	2.257		
11,000.00	5,820.00	10,931.68	5,735.00	79.81	80.18	-75.76	-5,259.49	513.82	345.47	189.53	155.94	2.215		
11,100.00	5,820.00	11,031.67	5,735.00	81.24	81.61	-75.75	-5,359.49	513.82	345.31	186.58	158.73	2.175		
11,200.00	5,820.00	11,131.67	5,735.00	82.67	83.04	-75.74	-5,459.49	513.82	345.15	183.64	161.51	2.137		
11,300.00	5,820.00	11,231.67	5,735.00	84.10	84.47	-75.74	-5,559.49	513.82	344.99	180.69	164.30	2.100		
11,400.00	5,820.00	11,331.67	5,735.00	85.54	85.91	-75.73	-5,659.49	513.83	344.83	177.73	167.09	2.064		
11,500.00	5,820.00	11,431.67	5,735.00	86.97	87.34	-75.72	-5,759.49	513.83	344.67	174.78	169.89	2.029		
11,600.00	5,820.00	11,531.67	5,735.00	88.41	88.77	-75.72	-5,859.49	513.83	344.51	171.82	172.68	1.995		
11,700.00	5,820.00	11,631.67	5,735.00	89.85	90.21	-75.71	-5,959.49	513.83	344.34	168.86	175.48	1.962		
11,800.00	5,820.00	11,731.67	5,735.00	91.29	91.65	-75.70	-6,059.49	513.83	344.18	165.90	178.28	1.931		
11,900.00	5,820.00	11,831.67	5,735.00	92.73	93.09	-75.70	-6,159.49	513.83	344.02	162.94	181.08	1.900		
12,000.00	5,820.00	11,931.67	5,735.00	94.17	94.53	-75.69	-6,259.49	513.83	343.86	159.98	183.89	1.870		
12,100.00	5,820.00	12,031.67	5,735.00	95.61	95.97	-75.68	-6,359.49	513.83	343.70	157.01	186.69	1.841		
12,200.00	5,820.00	12,131.67	5,735.00	97.06	97.41	-75.67	-6,459.49	513.83	343.54	154.04	189.50	1.813		
12,300.00	5,820.00	12,231.67	5,735.00	98.50	98.85	-75.67	-6,559.49	513.83	343.38	151.07	192.30	1.786		
12,400.00	5,820.00	12,331.67	5,735.00	99.94	100.29	-75.66	-6,659.49	513.83	343.22	148.10	195.11	1.759		
12,500.00	5,820.00	12,431.67	5,735.00	101.39	101.74	-75.65	-6,759.49	513.83	343.06	145.13	197.92	1.733		
12,600.00	5,820.00	12,531.67	5,735.00	102.84	103.18	-75.65	-6,859.49	513.83	342.90	142.16	200.74	1.708		
12,700.00	5,820.00	12,631.67	5,735.00	104.28	104.63	-75.64	-6,959.49	513.83	342.74	139.19	203.55	1.684		
12,800.00	5,820.00	12,731.67	5,735.00	105.73	106.07	-75.63	-7,059.49	513.83	342.57	136.21	206.36	1.660		
12,900.00	5,820.00	12,831.67	5,735.00	107.18	107.52	-75.63	-7,159.49	513.83	342.41	133.23	209.18	1.637		
13,000.00	5,820.00	12,931.67	5,735.00	108.63	108.97	-75.62	-7,259.49	513.83	342.25	130.26	211.99	1.614		
13,100.00	5,820.00	13,031.67	5,735.00	110.08	110.42	-75.61	-7,359.49	513.83	342.09	127.28	214.81	1.593		
13,200.00	5,820.00	13,131.67	5,735.00	111.53	111.86	-75.61	-7,459.49	513.83	341.93	124.30	217.63	1.571		
13,300.00	5,820.00	13,231.67	5,735.00	112.98	113.31	-75.60	-7,559.49	513.83	341.77	121.32	220.45	1.550		
13,400.00	5,820.00	13,331.67	5,735.00	114.43	114.76	-75.59	-7,659.49	513.83	341.61	118.34	223.27	1.530		
13,500.00	5,820.00	13,431.67	5,735.00	115.88	116.21	-75.59	-7,759.49	513.83	341.45	115.36	226.09	1.510		
13,600.00	5,820.00	13,531.67	5,735.00	117.34	117.66	-75.58	-7,859.49	513.83	341.29	112.37	228.91	1.491 Level 3		
13,700.00	5,820.00	13,631.67	5,735.00	118.79	119.12	-75.57	-7,959.49	513.83	341.13	109.39	231.73	1.472 Level 3		
13,800.00	5,820.00	13,731.67	5,735.00	120.24	120.57	-75.56	-8,059.49	513.83	340.97	106.41	234.56	1.454 Level 3		
13,900.00	5,820.00	13,831.67	5,735.00	121.70	122.02	-75.56	-8,159.49	513.83	340.80	103.42	237.38	1.436 Level 3		
13,924.93	5,820.00	13,855.60	5,735.00	122.06	122.37	-75.56	-8,183.41	513.83	340.77	102.67	238.10	1.431 Level 3		
13,925.95	5,820.00	13,855.60	5,735.00	122.07	122.37	-75.56	-8,183.41	513.83	340.77	102.64	238.13	1.431 Level 3, SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30E-3135
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-3135	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	-0.01	149.95	149.95					
100.00	100.00	100.00	100.00	0.13	0.13	90.00	-0.01	149.95	149.95	149.68	0.27	562.970		
200.00	200.00	200.00	200.00	0.47	0.47	90.00	-0.01	149.95	149.95	149.01	0.94	159.408		
300.00	300.00	300.00	300.00	0.81	0.81	90.00	-0.01	149.95	149.95	148.33	1.61	92.849 CC		
400.00	399.98	395.06	395.04	1.14	1.11	39.60	0.19	151.51	150.24	147.94	2.31	65.108 ES		
500.00	499.88	490.07	489.93	1.48	1.43	40.38	0.80	156.20	151.73	148.68	3.04	49.857		
600.00	599.77	584.91	584.44	1.81	1.75	41.02	1.81	163.99	156.35	152.55	3.80	41.100		
700.00	699.66	679.38	678.27	2.14	2.08	41.43	3.21	174.82	164.25	159.68	4.57	35.945		
800.00	799.55	773.28	771.13	2.48	2.42	41.62	4.99	188.63	175.38	170.05	5.33	32.912		
900.00	899.44	866.41	862.72	2.82	2.79	41.63	7.14	205.30	189.70	183.62	6.08	31.218		
1,000.00	999.32	958.58	952.79	3.16	3.17	41.50	9.64	224.69	207.16	200.35	6.81	30.424		
1,100.00	1,099.21	1,051.05	1,042.49	3.50	3.57	41.26	12.52	246.96	227.67	220.17	7.50	30.373		
1,200.00	1,199.10	1,148.71	1,136.99	3.84	4.02	41.01	15.68	271.43	249.15	241.07	8.08	30.823		
1,300.00	1,298.99	1,246.37	1,231.48	4.18	4.47	40.80	18.84	295.89	270.65	261.98	8.66	31.246		
1,400.00	1,398.88	1,344.03	1,325.97	4.52	4.94	40.62	22.00	320.35	292.14	282.87	9.27	31.520		
1,500.00	1,498.77	1,441.69	1,420.46	4.86	5.40	40.47	25.16	344.82	313.64	303.75	9.88	31.736		
1,600.00	1,598.66	1,539.34	1,514.96	5.20	5.87	40.33	28.32	369.28	335.14	324.63	10.50	31.904		
1,700.00	1,698.55	1,637.00	1,609.45	5.54	6.35	40.21	31.47	393.74	356.64	345.50	11.13	32.034		
1,800.00	1,798.44	1,734.66	1,703.94	5.88	6.82	40.11	34.63	418.21	378.14	366.37	11.77	32.136		
1,900.00	1,898.33	1,832.32	1,798.43	6.22	7.30	40.02	37.79	442.67	399.64	387.23	12.41	32.215		
2,000.00	1,998.22	1,929.98	1,892.93	6.56	7.77	39.93	40.95	467.13	421.14	408.10	13.05	32.276		
2,100.00	2,098.11	2,027.64	1,987.42	6.90	8.25	39.86	44.11	491.60	442.65	428.95	13.69	32.324		
2,200.00	2,198.00	2,125.30	2,081.91	7.24	8.73	39.79	47.27	516.06	464.15	449.81	14.34	32.361		
2,300.00	2,297.89	2,222.96	2,176.40	7.58	9.21	39.72	50.43	540.52	485.66	470.66	14.99	32.389		
2,400.00	2,397.78	2,320.62	2,270.89	7.92	9.70	39.67	53.59	564.99	507.16	491.52	15.65	32.410		
2,500.00	2,497.67	2,418.27	2,365.39	8.26	10.18	39.61	56.75	589.45	528.67	512.37	16.30	32.425		
2,600.00	2,597.55	2,515.93	2,459.88	8.60	10.66	39.57	59.91	613.91	550.18	533.22	16.96	32.436		
2,700.00	2,697.44	2,613.59	2,554.37	8.94	11.14	39.52	63.06	638.38	571.69	554.06	17.62	32.443		
2,800.00	2,797.33	2,711.25	2,648.86	9.28	11.63	39.48	66.22	662.84	593.19	574.91	18.28	32.447		
2,900.00	2,897.22	2,808.91	2,743.36	9.62	12.11	39.44	69.38	687.30	614.70	595.76	18.94	32.449		
3,000.00	2,997.11	2,906.57	2,837.85	9.97	12.59	39.40	72.54	711.77	636.21	616.60	19.61	32.449		
3,100.00	3,097.00	3,004.23	2,932.34	10.31	13.08	39.37	75.70	736.23	657.72	637.45	20.27	32.447		
3,200.00	3,196.89	3,101.89	3,026.83	10.65	13.56	39.34	78.86	760.69	679.23	658.29	20.94	32.444		
3,300.00	3,296.78	3,199.54	3,121.33	10.99	14.05	39.31	82.02	785.16	700.73	679.13	21.60	32.439		
3,400.00	3,396.67	3,297.20	3,215.82	11.33	14.53	39.28	85.18	809.62	722.24	699.98	22.27	32.434		
3,500.00	3,496.56	3,394.86	3,310.31	11.67	15.02	39.25	88.34	834.08	743.75	720.82	22.94	32.428		
3,600.00	3,596.45	3,492.52	3,404.80	12.01	15.50	39.23	91.50	858.55	765.26	741.66	23.60	32.422		
3,700.00	3,696.34	3,590.18	3,499.30	12.35	15.99	39.21	94.65	883.01	786.77	762.50	24.27	32.415		
3,800.00	3,796.23	3,687.84	3,593.79	12.69	16.47	39.18	97.81	907.47	808.28	783.34	24.94	32.408		
3,900.00	3,896.12	3,785.50	3,688.28	13.03	16.96	39.16	100.97	931.94	829.79	804.18	25.61	32.401		
4,000.00	3,996.01	3,883.16	3,782.77	13.37	17.44	39.14	104.13	956.40	851.30	825.02	26.28	32.393		
4,100.00	4,095.90	3,980.82	3,877.27	13.71	17.93	39.12	107.29	980.86	872.81	845.86	26.95	32.385		
4,200.00	4,195.78	4,078.47	3,971.76	14.06	18.41	39.10	110.45	1,005.33	894.32	866.70	27.62	32.377		
4,300.00	4,295.67	4,176.13	4,066.25	14.40	18.90	39.09	113.61	1,029.79	915.83	887.54	28.29	32.369		
4,400.00	4,395.56	4,273.79	4,160.74	14.74	19.39	39.07	116.77	1,054.25	937.34	908.37	28.96	32.361		
4,500.00	4,495.45	4,371.45	4,255.24	15.08	19.87	39.06	119.93	1,078.72	958.85	929.21	29.64	32.353		
4,600.00	4,595.34	4,500.58	4,380.54	15.42	20.44	39.05	123.92	1,109.62	979.37	948.89	30.49	32.125		
4,700.00	4,695.23	4,650.62	4,527.67	15.76	20.94	39.09	127.67	1,138.71	995.18	963.85	31.34	31.756		
4,800.00	4,795.12	4,802.75	4,678.21	16.10	21.39	39.09	130.47	1,160.36	1,005.81	973.69	32.11	31.320		
4,900.00	4,895.01	4,956.15	4,830.95	16.44	21.78	39.35	132.25	1,174.14	1,011.16	978.36	32.80	30.828		
5,000.00	4,994.91	5,109.95	4,984.63	16.77	22.13	39.55	132.98	1,179.80	1,011.33	977.95	33.38	30.298		
5,099.99	5,094.87	5,220.19	5,094.87	17.03	22.37	39.61	133.00	1,179.95	1,009.98	976.06	33.92	29.780		

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-3135
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-3135	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		
5,185.17	5,180.06	5,305.37	5,180.06	17.28	22.58	39.62	133.00	1,179.95	1,009.92	975.51	34.41	29.347		
5,200.00	5,194.88	5,320.20	5,194.88	17.32	22.61	90.34	133.00	1,179.95	1,009.97	975.47	34.50	29.275		
5,204.58	5,199.46	5,324.78	5,199.46	17.33	22.63	90.34	133.00	1,179.95	1,009.97	975.45	34.53	29.251		
5,299.99	5,294.87	5,419.00	5,293.37	17.64	22.83	90.69	126.92	1,179.93	1,010.01	974.91	35.10	28.775		
5,400.00	5,394.34	5,514.54	5,385.93	17.92	23.02	-88.35	103.81	1,179.88	1,010.25	974.61	35.64	28.347		
5,500.00	5,490.30	5,607.60	5,470.59	18.19	23.20	-87.54	65.44	1,179.79	1,010.61	974.51	36.11	27.988		
5,600.00	5,579.23	5,700.00	5,546.55	18.45	23.37	-86.81	13.06	1,179.67	1,011.04	974.49	36.55	27.665		
5,700.00	5,657.87	5,787.90	5,609.18	18.70	23.53	-86.21	-48.48	1,179.53	1,011.44	974.46	36.98	27.352		
5,800.00	5,723.33	5,875.87	5,660.61	18.93	23.69	-85.73	-119.71	1,179.36	1,011.75	974.29	37.45	27.014		
5,900.00	5,773.21	5,962.85	5,698.99	19.18	23.87	-85.39	-197.66	1,179.18	1,011.90	973.89	38.01	26.621		
6,000.00	5,805.66	6,050.00	5,723.91	19.46	24.07	-85.20	-281.06	1,178.99	1,011.85	973.17	38.68	26.158		
6,100.00	5,819.51	6,135.20	5,734.51	19.82	24.31	-85.17	-365.51	1,178.79	1,011.57	972.09	39.48	25.624		
6,200.00	5,820.00	6,231.53	5,735.00	20.25	24.64	-85.18	-461.83	1,178.57	1,011.17	970.75	40.42	25.018		
6,300.00	5,820.00	6,331.53	5,735.00	20.78	25.05	-85.18	-561.83	1,178.34	1,010.77	969.23	41.54	24.332		
6,400.00	5,820.00	6,431.53	5,735.00	21.40	25.54	-85.17	-661.82	1,178.11	1,010.37	967.54	42.84	23.587		
6,500.00	5,820.00	6,531.53	5,735.00	22.11	26.11	-85.17	-761.82	1,177.88	1,009.98	965.69	44.29	22.804		
6,600.00	5,820.00	6,631.53	5,735.00	22.89	26.76	-85.17	-861.82	1,177.65	1,009.58	963.70	45.88	22.003		
6,700.00	5,820.00	6,731.53	5,735.00	23.74	27.47	-85.17	-961.82	1,177.42	1,009.19	961.58	47.61	21.199		
6,800.00	5,820.00	6,831.52	5,735.00	24.65	28.24	-85.17	-1,061.82	1,177.18	1,008.79	959.35	49.44	20.403		
6,900.00	5,820.00	6,931.52	5,735.00	25.61	29.07	-85.16	-1,161.82	1,176.95	1,008.39	957.01	51.38	19.626		
7,000.00	5,820.00	7,031.52	5,735.00	26.61	29.96	-85.16	-1,261.82	1,176.72	1,008.00	954.59	53.41	18.872		
7,100.00	5,820.00	7,131.52	5,735.00	27.66	30.89	-85.16	-1,361.82	1,176.49	1,007.60	952.08	55.52	18.148		
7,200.00	5,820.00	7,231.52	5,735.00	28.75	31.87	-85.16	-1,461.82	1,176.26	1,007.21	949.50	57.70	17.454		
7,300.00	5,820.00	7,331.52	5,735.00	29.87	32.88	-85.16	-1,561.81	1,176.03	1,006.81	946.86	59.95	16.794		
7,400.00	5,820.00	7,431.52	5,735.00	31.02	33.93	-85.16	-1,661.81	1,175.80	1,006.41	944.16	62.26	16.166		
7,500.00	5,820.00	7,531.52	5,735.00	32.19	35.02	-85.15	-1,761.81	1,175.57	1,006.02	941.41	64.61	15.570		
7,600.00	5,820.00	7,631.52	5,735.00	33.39	36.13	-85.15	-1,861.81	1,175.34	1,005.62	938.61	67.01	15.006		
7,700.00	5,820.00	7,731.52	5,735.00	34.61	37.27	-85.15	-1,961.81	1,175.11	1,005.23	935.77	69.46	14.473		
7,800.00	5,820.00	7,831.52	5,735.00	35.85	38.43	-85.15	-2,061.81	1,174.87	1,004.83	932.90	71.93	13.969		
7,900.00	5,820.00	7,931.52	5,735.00	37.11	39.61	-85.15	-2,161.81	1,174.64	1,004.43	929.99	74.45	13.492		
8,000.00	5,820.00	8,031.51	5,735.00	38.38	40.81	-85.14	-2,261.81	1,174.41	1,004.04	927.05	76.99	13.041		
8,100.00	5,820.00	8,131.51	5,735.00	39.67	42.03	-85.14	-2,361.81	1,174.18	1,003.64	924.08	79.56	12.615		
8,200.00	5,820.00	8,231.51	5,735.00	40.97	43.26	-85.14	-2,461.81	1,173.95	1,003.25	921.09	82.15	12.212		
8,300.00	5,820.00	8,331.51	5,735.00	42.28	44.51	-85.14	-2,561.80	1,173.72	1,002.85	918.08	84.77	11.831		
8,400.00	5,820.00	8,431.51	5,735.00	43.60	45.78	-85.14	-2,661.80	1,173.49	1,002.45	915.05	87.40	11.469		
8,500.00	5,820.00	8,531.51	5,735.00	44.92	47.05	-85.13	-2,761.80	1,173.26	1,002.06	912.00	90.06	11.127		
8,600.00	5,820.00	8,631.51	5,735.00	46.26	48.34	-85.13	-2,861.80	1,173.03	1,001.66	908.93	92.73	10.802		
8,700.00	5,820.00	8,731.51	5,735.00	47.61	49.64	-85.13	-2,961.80	1,172.79	1,001.27	905.85	95.42	10.494		
8,800.00	5,820.00	8,831.51	5,735.00	48.96	50.95	-85.13	-3,061.80	1,172.56	1,000.87	902.75	98.12	10.201		
8,900.00	5,820.00	8,931.51	5,735.00	50.32	52.26	-85.13	-3,161.80	1,172.33	1,000.47	899.64	100.83	9.922		
9,000.00	5,820.00	9,031.51	5,735.00	51.69	53.59	-85.12	-3,261.80	1,172.10	1,000.08	896.52	103.56	9.657		
9,100.00	5,820.00	9,131.51	5,735.00	53.06	54.92	-85.12	-3,361.80	1,171.87	999.68	893.39	106.29	9.405		
9,200.00	5,820.00	9,231.51	5,735.00	54.44	56.26	-85.12	-3,461.79	1,171.64	999.29	890.24	109.04	9.164		
9,300.00	5,820.00	9,331.50	5,735.00	55.82	57.60	-85.12	-3,561.79	1,171.41	998.89	887.09	111.80	8.935		
9,400.00	5,820.00	9,431.50	5,735.00	57.21	58.95	-85.12	-3,661.79	1,171.18	998.49	883.93	114.56	8.716		
9,500.00	5,820.00	9,531.50	5,735.00	58.60	60.31	-85.11	-3,761.79	1,170.95	998.10	880.76	117.34	8.506		
9,600.00	5,820.00	9,631.50	5,735.00	59.99	61.67	-85.11	-3,861.79	1,170.71	997.70	877.58	120.12	8.306		
9,700.00	5,820.00	9,731.50	5,735.00	61.39	63.04	-85.11	-3,961.79	1,170.48	997.31	874.40	122.91	8.114		
9,800.00	5,820.00	9,831.50	5,735.00	62.79	64.41	-85.11	-4,061.79	1,170.25	996.91	871.21	125.70	7.931		
9,900.00	5,820.00	9,931.50	5,735.00	64.20	65.79	-85.11	-4,161.79	1,170.02	996.51	868.01	128.50	7.755		
10,000.00	5,820.00	10,031.50	5,735.00	65.60	67.17	-85.10	-4,261.79	1,169.79	996.12	864.81	131.31	7.586		
10,100.00	5,820.00	10,131.50	5,735.00	67.01	68.55	-85.10	-4,361.78	1,169.56	995.72	861.60	134.12	7.424		

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-3135
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-3135	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	5,820.00	10,231.50	5,735.00	68.43	69.94	-85.10	-4,461.78	1,169.33	995.33	858.38	136.94	7.268		
10,300.00	5,820.00	10,331.50	5,735.00	69.84	71.33	-85.10	-4,561.78	1,169.10	994.93	855.17	139.76	7.119		
10,400.00	5,820.00	10,431.50	5,735.00	71.26	72.73	-85.10	-4,661.78	1,168.87	994.53	851.94	142.59	6.975		
10,500.00	5,820.00	10,531.50	5,735.00	72.68	74.13	-85.10	-4,761.78	1,168.64	994.14	848.72	145.42	6.836		
10,600.00	5,820.00	10,631.49	5,735.00	74.10	75.53	-85.09	-4,861.78	1,168.40	993.74	845.48	148.26	6.703		
10,700.00	5,820.00	10,731.49	5,735.00	75.52	76.93	-85.09	-4,961.78	1,168.17	993.35	842.25	151.10	6.574		
10,800.00	5,820.00	10,831.49	5,735.00	76.95	78.33	-85.09	-5,061.78	1,167.94	992.95	839.01	153.94	6.450		
10,900.00	5,820.00	10,931.49	5,735.00	78.38	79.74	-85.09	-5,161.78	1,167.71	992.55	835.77	156.78	6.331		
11,000.00	5,820.00	11,031.49	5,735.00	79.81	81.15	-85.09	-5,261.78	1,167.48	992.16	832.52	159.63	6.215		
11,100.00	5,820.00	11,131.49	5,735.00	81.24	82.56	-85.08	-5,361.77	1,167.25	991.76	829.28	162.49	6.104		
11,200.00	5,820.00	11,231.49	5,735.00	82.67	83.98	-85.08	-5,461.77	1,167.02	991.37	826.03	165.34	5.996		
11,300.00	5,820.00	11,331.49	5,735.00	84.10	85.39	-85.08	-5,561.77	1,166.79	990.97	822.77	168.20	5.892		
11,400.00	5,820.00	11,431.49	5,735.00	85.54	86.81	-85.08	-5,661.77	1,166.56	990.57	819.52	171.06	5.791		
11,500.00	5,820.00	11,531.49	5,735.00	86.97	88.23	-85.08	-5,761.77	1,166.32	990.18	816.26	173.92	5.693		
11,600.00	5,820.00	11,631.49	5,735.00	88.41	89.65	-85.07	-5,861.77	1,166.09	989.78	813.00	176.79	5.599		
11,700.00	5,820.00	11,731.49	5,735.00	89.85	91.08	-85.07	-5,961.77	1,165.86	989.39	809.73	179.65	5.507		
11,800.00	5,820.00	11,831.48	5,735.00	91.29	92.50	-85.07	-6,061.77	1,165.63	988.99	806.47	182.52	5.418		
11,900.00	5,820.00	11,931.48	5,735.00	92.73	93.93	-85.07	-6,161.77	1,165.40	988.59	803.20	185.39	5.332		
12,000.00	5,820.00	12,031.48	5,735.00	94.17	95.35	-85.07	-6,261.76	1,165.17	988.20	799.93	188.27	5.249		
12,100.00	5,820.00	12,131.48	5,735.00	95.61	96.78	-85.06	-6,361.76	1,164.94	987.80	796.66	191.14	5.168		
12,200.00	5,820.00	12,231.48	5,735.00	97.06	98.21	-85.06	-6,461.76	1,164.71	987.41	793.39	194.02	5.089		
12,300.00	5,820.00	12,331.48	5,735.00	98.50	99.64	-85.06	-6,561.76	1,164.48	987.01	790.11	196.90	5.013		
12,400.00	5,820.00	12,431.48	5,735.00	99.94	101.08	-85.06	-6,661.76	1,164.25	986.61	786.84	199.78	4.939		
12,500.00	5,820.00	12,531.48	5,735.00	101.39	102.51	-85.06	-6,761.76	1,164.01	986.22	783.56	202.66	4.866		
12,600.00	5,820.00	12,631.48	5,735.00	102.84	103.94	-85.05	-6,861.76	1,163.78	985.82	780.28	205.54	4.796		
12,700.00	5,820.00	12,731.48	5,735.00	104.28	105.38	-85.05	-6,961.76	1,163.55	985.43	777.00	208.43	4.728		
12,800.00	5,820.00	12,831.48	5,735.00	105.73	106.82	-85.05	-7,061.76	1,163.32	985.03	773.72	211.31	4.661		
12,900.00	5,820.00	12,931.48	5,735.00	107.18	108.25	-85.05	-7,161.76	1,163.09	984.63	770.43	214.20	4.597		
13,000.00	5,820.00	13,031.48	5,735.00	108.63	109.69	-85.05	-7,261.75	1,162.86	984.24	767.15	217.09	4.534		
13,100.00	5,820.00	13,131.47	5,735.00	110.08	111.13	-85.04	-7,361.75	1,162.63	983.84	763.86	219.98	4.472		
13,200.00	5,820.00	13,231.47	5,735.00	111.53	112.57	-85.04	-7,461.75	1,162.40	983.45	760.58	222.87	4.413		
13,300.00	5,820.00	13,331.47	5,735.00	112.98	114.01	-85.04	-7,561.75	1,162.17	983.05	757.29	225.76	4.354		
13,400.00	5,820.00	13,431.47	5,735.00	114.43	115.45	-85.04	-7,661.75	1,161.93	982.65	754.00	228.65	4.298		
13,500.00	5,820.00	13,531.47	5,735.00	115.88	116.89	-85.04	-7,761.75	1,161.70	982.26	750.71	231.55	4.242		
13,600.00	5,820.00	13,631.47	5,735.00	117.34	118.34	-85.03	-7,861.75	1,161.47	981.86	747.42	234.44	4.188		
13,700.00	5,820.00	13,731.47	5,735.00	118.79	119.78	-85.03	-7,961.75	1,161.24	981.47	744.13	237.34	4.135		
13,800.00	5,820.00	13,831.47	5,735.00	120.24	121.23	-85.03	-8,061.75	1,161.01	981.07	740.84	240.23	4.084		
13,900.00	5,820.00	13,931.47	5,735.00	121.70	122.67	-85.03	-8,161.74	1,160.78	980.67	737.54	243.13	4.034		
13,921.48	5,820.00	13,949.06	5,735.00	122.01	122.92	-85.03	-8,179.34	1,160.74	980.60	736.84	243.76	4.023		
13,925.95	5,820.00	13,949.06	5,735.00	122.07	122.92	-85.03	-8,179.34	1,160.74	980.61	736.72	243.89	4.021 SF		



WOG

Anticollision Report

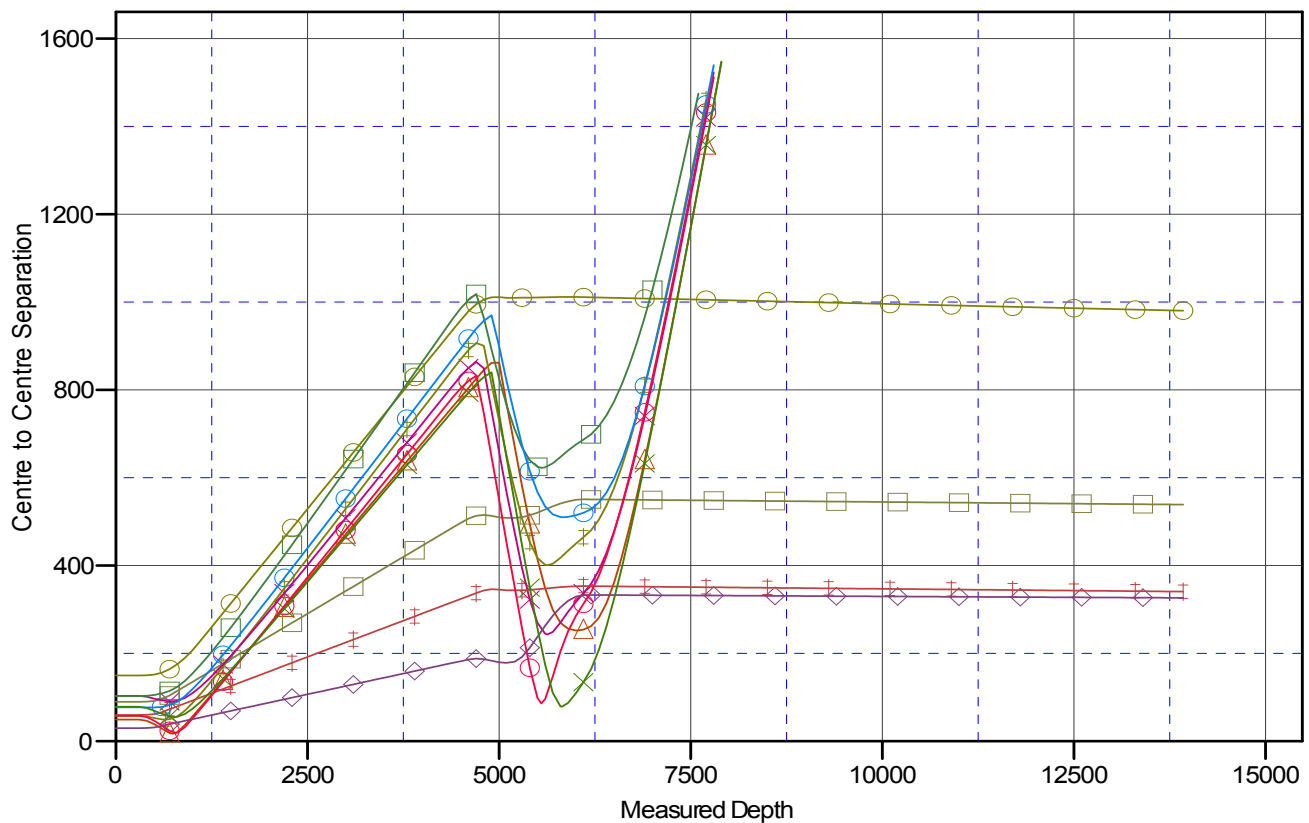
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30E-3135
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30E-3135
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-3135
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-3138, Hz, APDV0
- Horsetail #30E-1904, Hz, APDV0
- Horsetail #30E-3136, 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

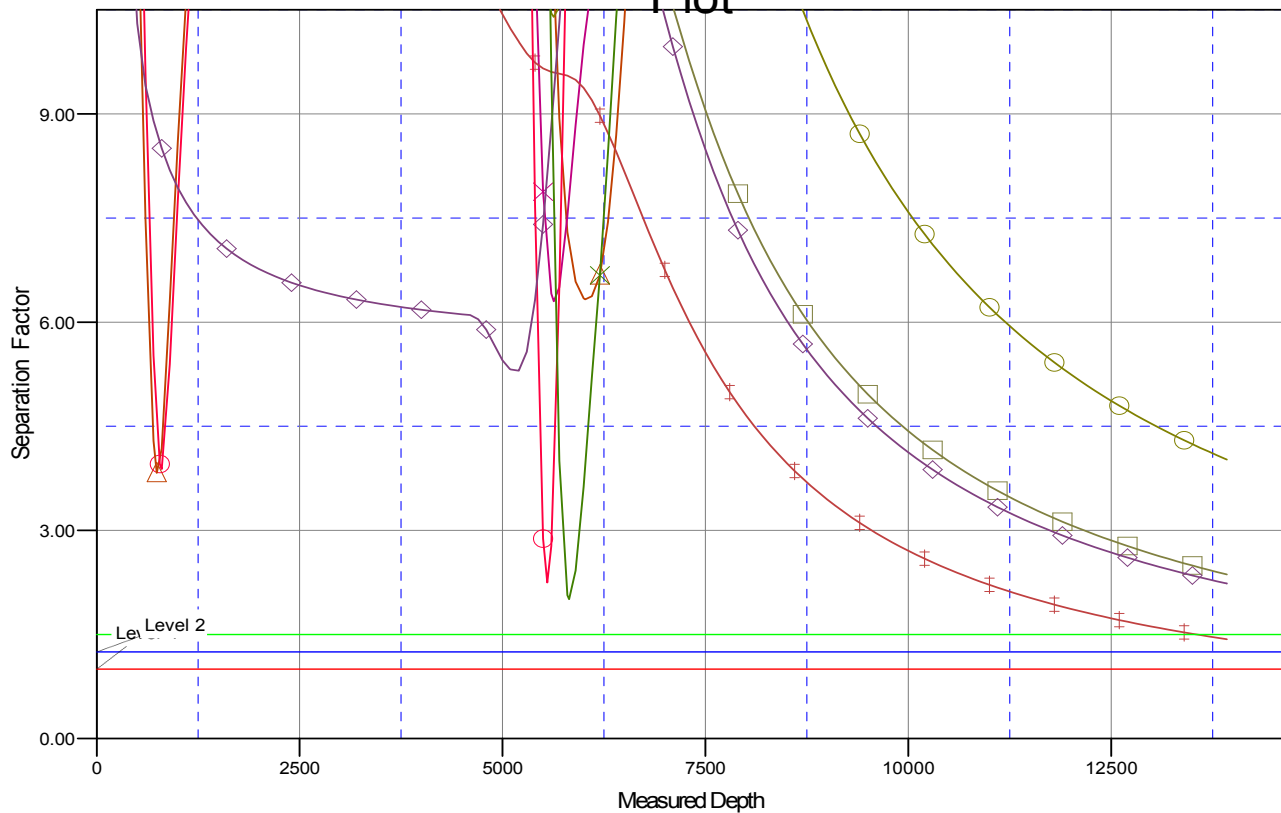
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Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30E-3135
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-1904, Hz, APDV0
- Horsetail #30E-1934, Hz, APDV0
- ✱ Horsetail #30E-1902, Hz, APDV0
- ✱ Horsetail #30E-3136, Hz, APDV0
- ✱ Horsetail #30E-3103, Hz, APDV0
- ✱ Horsetail #30E-3104, Hz, APDV0
- ✱ Horsetail #30E-1901, Hz, APDV0
- ✱ Horsetail #30E-1936, Hz, APDV0
- Horsetail #30E-3138, Hz, APDV0
- Horsetail #30E-1903, Hz, APDV0