



Whiting Petroleum Corp.

Weld County, CO

Sec 30-T10N-R57W

Horsetail #30G-3143

Hz

APD

Anticollision Report

13 October, 2015



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	10/13/2015		
From (usft)	To (usft)	Survey (Wellbore)	Tool Name	Description	
0.00	13,903.39	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 #30G-1909 - Hz - APD	300.00	300.00	102.73	101.11	63.612	CC, ES
Horsetail #30G-1909 - Hz - APD	5,554.28	6,185.06	780.95	742.38	20.251	SF
Horsetail #30G-1910 - Hz - APD	624.95	626.91	52.08	48.38	14.058	CC, ES
Horsetail #30G-1910 - Hz - APD	5,635.22	6,191.34	427.50	388.92	11.081	SF
Horsetail #30G-1911 - Hz - APD	780.51	781.38	16.39	11.61	3.425	CC, ES
Horsetail #30G-1911 - Hz - APD	5,554.96	6,168.28	88.57	50.17	2.306	SF
Horsetail #30G-1912 - Hz - APD	738.14	734.55	87.64	83.14	19.474	CC, ES
Horsetail #30G-1912 - Hz - APD	5,633.95	6,214.11	237.03	198.34	6.128	SF
Horsetail #30G-1942 - Hz - APD	405.56	406.72	77.70	75.41	33.912	CC, ES
Horsetail #30G-1942 - Hz - APD	5,825.10	6,185.60	587.56	548.46	15.029	SF
Horsetail #30G-1943 - Hz - APD	731.64	733.55	20.90	16.47	4.711	CC, ES, SF
Horsetail #30G-1944 - Hz - APD	778.59	777.53	52.10	47.32	10.905	CC
Horsetail #30G-1944 - Hz - APD	5,820.80	6,194.25	63.15	23.91	1.610	ES, SF
Horsetail #30G-3109 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC, ES
Horsetail #30G-3109 - Hz - APD	13,903.39	13,617.62	570.91	356.00	2.656	SF
Horsetail #30G-3110 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30G-3110 - Hz - APD	400.00	400.65	30.41	28.11	13.218	ES
Horsetail #30G-3110 - Hz - APD	13,903.39	13,682.96	272.41	110.47	1.682	SF
Horsetail #30G-3111 - Hz - APD	300.00	300.00	29.99	28.37	18.570	CC
Horsetail #30G-3111 - Hz - APD	500.00	498.04	30.64	27.58	10.020	ES
Horsetail #30G-3111 - Hz - APD	13,903.39	13,629.31	329.87	183.90	2.260	SF
Horsetail #30G-3112 - Hz - APD	300.00	300.00	89.97	88.35	55.709	CC
Horsetail #30G-3112 - Hz - APD	500.00	494.03	90.73	87.68	29.758	ES
Horsetail #30G-3112 - Hz - APD	13,903.39	13,721.25	541.49	314.37	2.384	SF
Horsetail #30G-3139 - Hz - APD	300.00	300.00	179.94	178.32	111.419	CC, ES
Horsetail #30G-3139 - Hz - APD	13,903.39	13,956.88	1,331.95	1,088.80	5.478	SF
Horsetail #30G-3140 - Hz - APD	300.00	300.00	149.95	148.33	92.849	CC, ES
Horsetail #30G-3140 - Hz - APD	13,903.39	13,848.73	1,007.66	764.93	4.151	SF
Horsetail #30G-3141 Dropped - Hz - APD	300.00	300.00	119.96	118.34	74.279	CC, ES
Horsetail #30G-3141 Dropped - Hz - APD	13,903.39	13,822.22	665.91	424.39	2.757	SF
Horsetail #30G-3142 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC, ES
Horsetail #30G-3142 - Hz - APD	13,903.39	13,811.41	341.52	105.80	1.449	Level 3, SF
Horsetail #30G-3144 - Hz - APD	300.00	300.00	59.98	58.36	37.140	CC
Horsetail #30G-3144 - Hz - APD	500.00	496.03	60.71	57.66	19.875	ES
Horsetail #30G-3144 - Hz - APD	13,903.39	13,833.58	342.26	105.05	1.443	Level 3, SF

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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

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 31-T10N-R57W						
Maddy #1 - Wellbore #1 - Wellbore #1	13,341.82	5,768.10	1,354.62	1,231.33	10.987	CC, ES
Maddy #1 - Wellbore #1 - Wellbore #1	13,400.00	5,768.10	1,355.87	1,231.98	10.944	SF
Maddy #1-31 - Wellbore #1 - Wellbore #1	13,346.92	5,782.10	1,291.52	1,168.13	10.467	CC, ES
Maddy #1-31 - Wellbore #1 - Wellbore #1	13,500.00	5,782.10	1,300.56	1,175.32	10.384	SF
Maddy #2 - Wellbore #1 - Wellbore #1	13,039.39	5,772.10	1,379.98	1,261.07	11.605	CC, ES
Maddy #2 - Wellbore #1 - Wellbore #1	13,100.00	5,772.10	1,381.31	1,261.77	11.555	SF

Offset Design												Offset Site Error:	0.00 usft
Sec 30-T10N-R57W - Horsetail #30G-1909 - Hz - APD												Offset Well Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													
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)	Offset Wellbore Centre +E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning
0.00	0.00	0.00	0.00	0.00	0.00	-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	
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, ES
400.00	399.98	399.58	399.54	1.14	1.11	-123.13	47.37	-91.32	103.82	101.57	2.24	46.257	
500.00	499.85	498.06	497.71	1.48	1.43	-129.37	40.82	-95.30	107.88	105.00	2.89	37.376	
600.00	599.68	594.90	593.73	1.81	1.76	-137.67	30.17	-101.77	115.34	111.74	3.61	31.968	
700.00	699.51	689.73	687.03	2.14	2.10	-146.64	15.73	-110.55	127.32	122.89	4.44	28.704	
800.00	799.33	785.91	781.11	2.48	2.47	-155.04	-1.39	-120.95	143.83	138.62	5.21	27.613	
900.00	899.16	882.47	875.54	2.82	2.89	-161.70	-18.61	-131.42	162.86	156.93	5.92	27.497	
1,000.00	998.99	979.03	969.97	3.16	3.31	-166.94	-35.82	-141.88	183.60	177.00	6.60	27.804	
1,100.00	1,098.82	1,075.58	1,064.40	3.50	3.74	-171.12	-53.03	-152.34	205.56	198.29	7.26	28.311	
1,200.00	1,198.65	1,172.14	1,158.83	3.85	4.17	-174.50	-70.25	-162.81	228.36	220.45	7.91	28.867	
1,300.00	1,298.47	1,268.70	1,253.26	4.19	4.61	-177.26	-87.46	-173.27	251.79	243.23	8.56	29.431	
1,400.00	1,398.30	1,365.25	1,347.70	4.53	5.04	-179.55	-104.68	-183.73	275.68	266.49	9.20	29.975	
1,500.00	1,498.13	1,461.81	1,442.13	4.88	5.48	-178.52	-121.89	-194.20	299.93	290.09	9.84	30.485	
1,600.00	1,597.96	1,558.37	1,536.56	5.22	5.93	-176.88	-139.11	-204.66	324.45	313.97	10.48	30.956	
1,700.00	1,697.79	1,654.92	1,630.99	5.56	6.37	-175.47	-156.32	-215.12	349.19	338.06	11.13	31.388	
1,800.00	1,797.61	1,751.48	1,725.42	5.91	6.81	-174.25	-173.54	-225.59	374.10	362.33	11.77	31.783	
1,900.00	1,897.44	1,848.04	1,819.85	6.25	7.26	-173.18	-190.75	-236.05	399.15	386.73	12.42	32.144	
2,000.00	1,997.27	1,944.59	1,914.28	6.59	7.70	-172.23	-207.97	-246.51	424.32	411.25	13.07	32.474	
2,100.00	2,097.10	2,041.15	2,008.72	6.94	8.15	-171.39	-225.18	-256.98	449.59	435.87	13.72	32.776	
2,200.00	2,196.93	2,137.70	2,103.15	7.28	8.59	-170.64	-242.40	-267.44	474.93	460.56	14.37	33.052	
2,300.00	2,296.76	2,234.26	2,197.58	7.63	9.04	-169.96	-259.61	-277.90	500.35	485.32	15.02	33.306	
2,400.00	2,396.58	2,330.82	2,292.01	7.97	9.49	-169.35	-276.83	-288.37	525.82	510.14	15.68	33.540	
2,500.00	2,496.41	2,427.37	2,386.44	8.32	9.93	-168.80	-294.04	-298.83	551.34	535.01	16.33	33.756	
2,600.00	2,596.24	2,523.93	2,480.87	8.66	10.38	-168.30	-311.26	-309.29	576.91	559.92	16.99	33.956	
2,700.00	2,696.07	2,620.49	2,575.31	9.00	10.83	-167.84	-328.47	-319.76	602.52	584.87	17.65	34.140	
2,800.00	2,795.90	2,717.04	2,669.74	9.35	11.27	-167.41	-345.69	-330.22	628.16	609.85	18.31	34.312	
2,900.00	2,895.72	2,813.60	2,764.17	9.69	11.72	-167.02	-362.90	-340.68	653.83	634.86	18.97	34.472	
3,000.00	2,995.55	2,910.16	2,858.60	10.04	12.17	-166.66	-380.12	-351.15	679.53	659.90	19.63	34.621	
3,100.00	3,095.38	3,006.71	2,953.03	10.38	12.62	-166.32	-397.33	-361.61	705.25	684.96	20.29	34.760	
3,200.00	3,195.21	3,103.27	3,047.46	10.72	13.06	-166.01	-414.55	-372.07	730.99	710.03	20.95	34.890	
3,300.00	3,295.04	3,199.83	3,141.90	11.07	13.51	-165.72	-431.76	-382.54	756.75	735.13	21.61	35.013	
3,400.00	3,394.87	3,296.38	3,236.33	11.41	13.96	-165.45	-448.98	-393.00	782.52	760.25	22.28	35.127	
3,500.00	3,494.69	3,392.94	3,330.76	11.76	14.41	-165.20	-466.19	-403.46	808.31	785.37	22.94	35.235	
3,600.00	3,594.52	3,489.50	3,425.19	12.10	14.86	-164.96	-483.41	-413.93	834.12	810.52	23.60	35.337	

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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		
3,700.00	3,694.35	3,586.05	3,519.62	12.45	15.30	164.73	-500.62	-424.39	859.94	835.67	24.27	35.433		
3,800.00	3,794.18	3,682.61	3,614.05	12.79	15.75	164.52	-517.84	-434.85	885.77	860.83	24.93	35.524		
3,900.00	3,894.01	3,779.16	3,708.48	13.13	16.20	164.32	-535.05	-445.32	911.61	886.01	25.60	35.610		
4,000.00	3,993.83	3,875.72	3,802.92	13.48	16.65	164.14	-552.26	-455.78	937.46	911.19	26.27	35.691		
4,100.00	4,093.66	3,972.28	3,897.35	13.82	17.10	163.96	-569.48	-466.24	963.32	936.39	26.93	35.768		
4,200.00	4,193.49	4,068.83	3,991.78	14.17	17.55	163.79	-586.69	-476.70	989.19	961.59	27.60	35.842		
4,300.00	4,293.32	4,165.39	4,086.21	14.51	18.00	163.63	-603.91	-487.17	1,015.06	986.80	28.27	35.912		
4,400.00	4,393.15	4,261.95	4,180.64	14.86	18.44	163.48	-621.12	-497.63	1,040.94	1,012.01	28.93	35.978		
4,500.00	4,492.98	4,358.50	4,275.07	15.20	18.89	163.33	-638.34	-508.09	1,066.83	1,037.23	29.60	36.041		
4,600.00	4,592.80	4,455.06	4,369.51	15.55	19.34	163.19	-655.55	-518.56	1,092.73	1,062.46	30.27	36.102		
4,700.00	4,692.63	4,614.04	4,525.57	15.89	19.96	163.01	-681.30	-534.20	1,117.33	1,086.05	31.28	35.716		
4,800.00	4,792.46	6,234.68	5,538.00	16.23	20.89	-151.29	130.28	-545.88	1,071.39	1,045.16	26.23	40.848		
4,900.00	4,892.29	6,237.63	5,538.00	16.58	20.90	-151.08	133.23	-545.88	1,008.37	980.13	28.23	35.714		
5,000.00	4,992.15	6,240.28	5,538.00	16.90	20.91	-150.50	135.88	-545.88	951.26	920.94	30.32	31.376		
5,099.99	5,092.11	6,241.33	5,538.00	17.16	20.91	-149.82	136.93	-545.88	899.21	866.85	32.36	27.790		
5,200.00	5,192.12	6,241.34	5,538.00	17.44	20.91	-90.00	136.94	-545.88	854.05	819.72	34.34	24.872		
5,299.99	5,292.11	6,241.34	5,538.00	17.76	20.91	-90.00	136.94	-545.88	818.68	782.53	36.16	22.643		
5,400.00	5,391.67	6,233.57	5,538.00	18.04	20.89	91.91	129.17	-545.88	794.48	756.92	37.57	21.149		
5,500.00	5,487.93	6,207.04	5,538.00	18.31	20.82	91.37	102.64	-545.88	782.53	744.15	38.37	20.392		
5,554.28	5,537.53	6,185.06	5,538.00	18.45	20.78	90.08	80.66	-545.88	780.95	742.38	38.56	20.251 SF		
5,600.00	5,577.36	6,162.63	5,538.00	18.57	20.75	88.53	58.23	-545.88	781.97	743.36	38.60	20.256		
5,700.00	5,656.67	6,101.98	5,538.00	18.82	20.67	84.14	-2.42	-545.87	790.01	751.64	38.37	20.591		
5,800.00	5,722.96	6,027.32	5,538.00	19.07	20.65	79.21	-77.08	-545.87	802.73	764.79	37.94	21.157		
5,900.00	5,773.79	5,941.38	5,538.00	19.33	20.69	74.74	-163.02	-545.86	816.04	778.50	37.54	21.736		
6,000.00	5,807.29	5,873.95	5,535.50	19.63	20.76	71.80	-230.37	-545.85	827.70	790.32	37.38	22.143		
6,100.00	5,822.23	5,812.63	5,525.93	20.00	20.83	69.49	-290.90	-545.85	838.27	800.86	37.41	22.408		
6,200.00	5,823.00	5,750.00	5,508.89	20.43	20.92	68.10	-351.13	-545.85	848.82	811.23	37.59	22.582		
6,300.00	5,823.00	5,700.00	5,490.17	20.96	20.99	66.93	-397.47	-545.84	864.23	826.40	37.83	22.847		
6,400.00	5,823.00	5,650.00	5,467.10	21.58	21.07	65.52	-441.81	-545.84	885.26	847.23	38.04	23.273		
6,500.00	5,823.00	5,600.00	5,439.88	22.28	21.13	63.89	-483.73	-545.84	912.26	874.06	38.20	23.883		
6,600.00	5,823.00	5,550.00	5,408.78	23.06	21.20	62.08	-522.85	-545.83	945.53	907.24	38.29	24.694		
6,700.00	5,823.00	5,525.55	5,392.23	23.90	21.22	61.14	-540.85	-545.83	984.64	946.06	38.58	25.520		
6,800.00	5,823.00	5,500.00	5,374.06	24.81	21.25	60.13	-558.81	-545.83	1,029.81	990.99	38.82	26.526		
6,900.00	5,823.00	5,466.15	5,348.67	25.76	21.27	58.75	-581.20	-545.83	1,080.42	1,041.49	38.93	27.754		
7,000.00	5,823.00	5,450.00	5,336.07	26.77	21.29	58.08	-591.28	-545.83	1,136.23	1,097.06	39.17	29.004		
7,100.00	5,823.00	5,419.57	5,311.48	27.81	21.30	56.80	-609.20	-545.83	1,196.48	1,157.25	39.23	30.496		
7,200.00	5,823.00	5,400.00	5,295.13	28.89	21.31	55.97	-619.96	-545.83	1,260.94	1,221.57	39.37	32.026		
7,300.00	5,823.00	5,382.61	5,280.27	30.01	21.32	55.23	-628.99	-545.83	1,329.06	1,289.56	39.50	33.649		
7,400.00	5,823.00	5,350.00	5,251.64	31.16	21.32	53.84	-644.58	-545.82	1,400.74	1,361.28	39.46	35.499		
7,500.00	5,823.00	5,350.00	5,251.64	32.33	21.32	53.84	-644.58	-545.82	1,474.62	1,434.92	39.70	37.148		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-31.17	49.58	-29.99	57.95					
100.00	100.00	100.00	100.00	0.13	0.13	-31.17	49.58	-29.99	57.95	57.68	0.27	217.559		
200.00	200.00	200.00	200.00	0.47	0.47	-31.17	49.58	-29.99	57.95	57.01	0.94	61.603		
300.00	300.00	300.00	300.00	0.81	0.81	-31.17	49.58	-29.99	57.95	56.33	1.61	35.881		
400.00	399.98	401.39	401.37	1.14	1.11	-93.97	47.83	-30.36	56.76	54.48	2.28	24.910		
500.00	499.85	502.18	502.01	1.48	1.42	-103.49	42.61	-31.47	54.17	51.25	2.92	18.525		
600.00	599.68	602.12	601.56	1.81	1.74	-117.83	34.01	-33.30	52.20	48.65	3.55	14.710		
624.95	624.58	626.91	626.20	1.89	1.82	-122.04	31.36	-33.87	52.08	48.38	3.70	14.058	CC, ES	
700.00	699.51	701.06	699.76	2.14	2.07	-135.80	22.17	-35.82	53.39	49.20	4.18	12.758		
800.00	799.33	798.78	796.26	2.48	2.42	-154.46	7.22	-39.00	60.36	55.43	4.93	12.244		
900.00	899.16	895.88	891.70	2.82	2.81	-169.99	-10.25	-42.72	73.79	68.06	5.73	12.874		
1,000.00	998.99	993.21	987.33	3.16	3.20	179.49	-28.03	-46.50	91.14	84.68	6.47	14.097		
1,100.00	1,098.82	1,090.55	1,082.95	3.50	3.61	172.44	-45.81	-50.28	110.55	103.39	7.15	15.457		
1,200.00	1,198.65	1,187.89	1,178.58	3.85	4.02	167.52	-63.58	-54.07	131.09	123.28	7.81	16.780		
1,300.00	1,298.47	1,285.22	1,274.20	4.19	4.44	163.94	-81.36	-57.85	152.32	143.85	8.47	17.988		
1,400.00	1,398.30	1,382.56	1,369.83	4.53	4.86	161.24	-99.13	-61.63	173.97	164.86	9.12	19.079		
1,500.00	1,498.13	1,479.90	1,465.45	4.88	5.28	159.14	-116.91	-65.41	195.92	186.15	9.77	20.056		
1,600.00	1,597.96	1,577.23	1,561.08	5.22	5.70	157.46	-134.68	-69.20	218.07	207.65	10.42	20.927		
1,700.00	1,697.79	1,674.57	1,656.70	5.56	6.12	156.09	-152.46	-72.98	240.36	229.29	11.07	21.706		
1,800.00	1,797.61	1,771.91	1,752.33	5.91	6.55	154.95	-170.24	-76.76	262.76	251.03	11.73	22.404		
1,900.00	1,897.44	1,869.25	1,847.95	6.25	6.97	153.99	-188.01	-80.54	285.25	272.86	12.38	23.032		
2,000.00	1,997.27	1,966.58	1,943.58	6.59	7.40	153.17	-205.79	-84.32	307.79	294.75	13.04	23.598		
2,100.00	2,097.10	2,063.92	2,039.21	6.94	7.83	152.47	-223.56	-88.11	330.40	316.69	13.70	24.111		
2,200.00	2,196.93	2,161.26	2,134.83	7.28	8.26	151.85	-241.34	-91.89	353.04	338.67	14.36	24.577		
2,300.00	2,296.76	2,258.59	2,230.46	7.63	8.68	151.31	-259.12	-95.67	375.72	360.69	15.03	25.002		
2,400.00	2,396.58	2,355.93	2,326.08	7.97	9.11	150.83	-276.89	-99.45	398.42	382.73	15.69	25.391		
2,500.00	2,496.41	2,453.27	2,421.71	8.32	9.54	150.40	-294.67	-103.23	421.15	404.79	16.36	25.748		
2,600.00	2,596.24	2,550.60	2,517.33	8.66	9.97	150.02	-312.44	-107.02	443.90	426.88	17.02	26.077		
2,700.00	2,696.07	2,647.94	2,612.96	9.00	10.40	149.67	-330.22	-110.80	466.66	448.97	17.69	26.381		
2,800.00	2,795.90	2,745.28	2,708.58	9.35	10.83	149.35	-348.00	-114.58	489.44	471.09	18.36	26.663		
2,900.00	2,895.72	2,842.62	2,804.21	9.69	11.26	149.07	-365.77	-118.36	512.24	493.21	19.03	26.924		
3,000.00	2,995.55	2,939.95	2,899.83	10.04	11.69	148.80	-383.55	-122.15	535.04	515.35	19.69	27.168		
3,100.00	3,095.38	3,037.29	2,995.46	10.38	12.12	148.56	-401.32	-125.93	557.86	537.49	20.36	27.395		
3,200.00	3,195.21	3,134.63	3,091.08	10.72	12.55	148.34	-419.10	-129.71	580.68	559.65	21.03	27.607		
3,300.00	3,295.04	3,231.96	3,186.71	11.07	12.98	148.13	-436.88	-133.49	603.51	581.81	21.70	27.806		
3,400.00	3,394.87	3,329.30	3,282.33	11.41	13.41	147.94	-454.65	-137.27	626.35	603.97	22.38	27.993		
3,500.00	3,494.69	3,426.64	3,377.96	11.76	13.84	147.77	-472.43	-141.06	649.19	626.15	23.05	28.169		
3,600.00	3,594.52	3,523.97	3,473.58	12.10	14.27	147.60	-490.20	-144.84	672.04	648.32	23.72	28.334		
3,700.00	3,694.35	3,621.31	3,569.21	12.45	14.70	147.45	-507.98	-148.62	694.90	670.50	24.39	28.490		
3,800.00	3,794.18	3,718.65	3,664.84	12.79	15.13	147.30	-525.76	-152.40	717.75	692.69	25.06	28.638		
3,900.00	3,894.01	3,815.99	3,760.46	13.13	15.56	147.17	-543.53	-156.18	740.62	714.88	25.74	28.777		
4,000.00	3,993.83	3,913.32	3,856.09	13.48	15.99	147.04	-561.31	-159.97	763.48	737.07	26.41	28.910		
4,100.00	4,093.66	4,010.66	3,951.71	13.82	16.42	146.92	-579.08	-163.75	786.35	759.27	27.08	29.035		
4,200.00	4,193.49	4,108.00	4,047.34	14.17	16.85	146.81	-596.86	-167.53	809.23	781.47	27.76	29.154		
4,300.00	4,293.32	4,205.33	4,142.96	14.51	17.28	146.70	-614.63	-171.31	832.10	803.67	28.43	29.268		
4,400.00	4,393.15	4,302.67	4,238.59	14.86	17.72	146.60	-632.41	-175.10	854.98	825.87	29.10	29.376		
4,500.00	4,492.98	4,400.01	4,334.21	15.20	18.15	146.50	-650.19	-178.88	877.86	848.08	29.78	29.479		
4,600.00	4,592.80	4,532.84	4,465.12	15.55	18.60	146.42	-672.16	-183.55	899.14	868.51	30.63	29.551		
4,700.00	4,692.63	4,675.12	4,606.32	15.89	18.96	146.44	-689.13	-187.16	915.80	884.37	31.44	29.133		
4,800.00	4,792.46	4,783.04	4,706.00	16.23	20.69	-152.90	128.99	-192.67	913.84	895.30	18.54	49.291		
4,900.00	4,892.29	4,885.97	4,806.00	16.58	20.70	-152.53	131.93	-192.68	828.78	808.40	20.38	40.662		
5,000.00	4,992.15	4,988.61	4,906.00	16.90	20.71	-151.44	134.57	-192.69	747.11	724.53	22.58	33.089		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	6,289.66	5,606.00	17.16	20.72	-150.06	135.61	-192.69	668.57	643.49	25.09	26.650		
5,200.00	5,192.12	6,289.67	5,606.00	17.44	20.72	-90.18	135.62	-192.69	595.16	567.17	27.99	21.260		
5,299.99	5,292.11	6,289.67	5,606.00	17.76	20.72	-90.18	135.62	-192.69	530.52	499.23	31.29	16.954		
5,400.00	5,391.67	6,281.89	5,606.00	18.04	20.69	94.82	127.85	-192.66	478.38	443.76	34.61	13.821		
5,500.00	5,487.93	6,255.36	5,606.00	18.31	20.60	95.52	101.32	-192.58	443.62	406.38	37.24	11.912		
5,600.00	5,577.36	6,210.96	5,606.00	18.57	20.44	91.93	56.91	-192.44	428.49	390.00	38.50	11.131		
5,635.22	5,606.61	6,191.34	5,606.00	18.66	20.39	89.86	37.30	-192.37	427.50	388.92	38.58	11.081 SF		
5,700.00	5,656.67	6,150.31	5,606.00	18.82	20.29	85.30	-3.74	-192.24	430.41	392.08	38.33	11.228		
5,800.00	5,722.96	6,075.64	5,606.00	19.07	20.13	77.46	-78.40	-192.00	442.99	405.69	37.30	11.877		
5,900.00	5,773.79	5,989.70	5,606.00	19.33	20.03	70.37	-164.34	-191.72	458.88	422.75	36.13	12.700		
6,000.00	5,807.29	5,917.30	5,603.07	19.63	20.01	65.68	-236.63	-191.49	473.75	438.51	35.24	13.443		
6,100.00	5,822.23	5,850.00	5,591.64	20.00	20.02	61.96	-302.91	-191.28	488.06	453.44	34.63	14.095		
6,200.00	5,823.00	5,786.36	5,573.06	20.43	20.05	59.64	-363.74	-191.08	503.10	468.82	34.28	14.674		
6,300.00	5,823.00	5,727.30	5,549.30	20.96	20.09	57.32	-417.78	-190.91	525.43	491.55	33.88	15.509		
6,400.00	5,823.00	5,674.33	5,522.91	21.58	20.13	54.87	-463.68	-190.76	555.92	522.45	33.48	16.607		
6,500.00	5,823.00	5,627.48	5,495.80	22.28	20.17	52.50	-501.87	-190.64	594.67	561.51	33.16	17.934		
6,600.00	5,823.00	5,586.38	5,469.27	23.06	20.21	50.32	-533.24	-190.53	641.30	608.32	32.98	19.447		
6,700.00	5,823.00	5,550.00	5,443.79	23.90	20.24	48.35	-559.19	-190.45	695.14	662.22	32.92	21.114		
6,800.00	5,823.00	5,519.08	5,420.75	24.81	20.26	46.66	-579.81	-190.38	755.34	722.33	33.01	22.885		
6,900.00	5,823.00	5,500.00	5,405.94	25.76	20.27	45.62	-591.83	-190.35	821.11	787.78	33.33	24.636		
7,000.00	5,823.00	5,467.52	5,379.75	26.77	20.28	43.88	-611.03	-190.28	891.33	857.96	33.37	26.707		
7,100.00	5,823.00	5,450.00	5,365.13	27.81	20.29	42.95	-620.70	-190.25	965.58	931.91	33.68	28.672		
7,200.00	5,823.00	5,427.49	5,345.89	28.89	20.29	41.77	-632.39	-190.22	1,043.09	1,009.23	33.86	30.805		
7,300.00	5,823.00	5,400.00	5,321.75	30.01	20.30	40.37	-645.52	-190.17	1,123.53	1,089.58	33.95	33.091		
7,400.00	5,823.00	5,400.00	5,321.75	31.16	20.30	40.37	-645.52	-190.17	1,206.01	1,171.61	34.40	35.057		
7,500.00	5,823.00	5,382.45	5,305.98	32.33	20.29	39.50	-653.23	-190.15	1,290.58	1,256.00	34.57	37.327		
7,600.00	5,823.00	5,370.38	5,294.99	33.53	20.29	38.91	-658.22	-190.13	1,376.84	1,342.05	34.79	39.576		
7,700.00	5,823.00	5,350.00	5,276.19	34.74	20.29	37.93	-666.07	-190.11	1,464.64	1,429.75	34.90	41.972		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	31.17	49.57	29.99	57.93					
100.00	100.00	100.00	100.00	0.13	0.13	31.17	49.57	29.99	57.93	57.67	0.27	217.509		
200.00	200.00	200.00	200.00	0.47	0.47	31.17	49.57	29.99	57.93	56.99	0.94	61.588		
300.00	300.00	300.00	300.00	0.81	0.81	31.17	49.57	29.99	57.93	56.32	1.61	35.873		
400.00	399.98	401.48	401.46	1.14	1.11	-28.28	47.79	30.27	55.05	52.76	2.29	24.015		
500.00	499.85	502.47	502.30	1.48	1.42	-27.02	42.50	31.11	46.59	43.58	3.01	15.488		
600.00	599.68	602.75	602.19	1.81	1.74	-21.69	33.78	32.50	34.96	31.27	3.70	9.454		
700.00	699.51	702.15	700.83	2.14	2.07	-3.75	21.74	34.42	22.25	17.96	4.29	5.188		
780.51	779.88	781.38	779.11	2.41	2.36	37.15	9.72	36.33	16.39	11.61	4.79	3.425 CC, ES		
800.00	799.33	800.43	797.89	2.48	2.43	50.15	6.51	36.84	16.86	11.85	5.01	3.366		
900.00	899.16	897.94	893.71	2.82	2.81	92.59	-11.35	39.68	30.33	24.31	6.02	5.035		
1,000.00	998.99	995.57	989.58	3.16	3.22	106.17	-29.55	42.58	49.97	43.32	6.65	7.514		
1,100.00	1,098.82	1,093.20	1,085.46	3.50	3.63	111.98	-47.75	45.48	70.77	63.52	7.25	9.761		
1,200.00	1,198.65	1,190.84	1,181.34	3.85	4.04	115.13	-65.96	48.38	91.96	84.10	7.86	11.702		
1,300.00	1,298.47	1,288.47	1,277.21	4.19	4.46	117.11	-84.16	51.27	113.32	104.83	8.48	13.358		
1,400.00	1,398.30	1,386.10	1,373.09	4.53	4.88	118.45	-102.36	54.17	134.76	125.64	9.11	14.785		
1,500.00	1,498.13	1,483.74	1,468.97	4.88	5.31	119.43	-120.57	57.07	156.25	146.50	9.75	16.020		
1,600.00	1,597.96	1,581.37	1,564.84	5.22	5.73	120.17	-138.77	59.96	177.78	167.38	10.40	17.096		
1,700.00	1,697.79	1,679.00	1,660.72	5.56	6.16	120.75	-156.98	62.86	199.33	188.28	11.05	18.041		
1,800.00	1,797.61	1,776.63	1,756.60	5.91	6.59	121.22	-175.18	65.76	220.89	209.19	11.70	18.876		
1,900.00	1,897.44	1,874.27	1,852.48	6.25	7.02	121.60	-193.38	68.66	242.47	230.11	12.36	19.618		
2,000.00	1,997.27	1,971.90	1,948.35	6.59	7.45	121.93	-211.59	71.55	264.06	251.04	13.02	20.282		
2,100.00	2,097.10	2,069.53	2,044.23	6.94	7.88	122.20	-229.79	74.45	285.65	271.97	13.68	20.878		
2,200.00	2,196.93	2,167.17	2,140.11	7.28	8.31	122.43	-247.99	77.35	307.24	292.90	14.35	21.417		
2,300.00	2,296.76	2,264.80	2,235.98	7.63	8.74	122.64	-266.20	80.24	328.85	313.83	15.01	21.905		
2,400.00	2,396.58	2,362.43	2,331.86	7.97	9.17	122.81	-284.40	83.14	350.45	334.77	15.68	22.351		
2,500.00	2,496.41	2,460.06	2,427.74	8.32	9.60	122.97	-302.61	86.04	372.06	355.71	16.35	22.758		
2,600.00	2,596.24	2,557.70	2,523.61	8.66	10.03	123.11	-320.81	88.94	393.67	376.65	17.02	23.132		
2,700.00	2,696.07	2,655.33	2,619.49	9.00	10.47	123.24	-339.01	91.83	415.28	397.59	17.69	23.476		
2,800.00	2,795.90	2,752.96	2,715.37	9.35	10.90	123.35	-357.22	94.73	436.89	418.53	18.36	23.794		
2,900.00	2,895.72	2,850.60	2,811.25	9.69	11.33	123.46	-375.42	97.63	458.51	439.48	19.03	24.088		
3,000.00	2,995.55	2,948.23	2,907.12	10.04	11.77	123.55	-393.62	100.52	480.13	460.42	19.71	24.362		
3,100.00	3,095.38	3,045.86	3,003.00	10.38	12.20	123.63	-411.83	103.42	501.74	481.36	20.38	24.617		
3,200.00	3,195.21	3,143.49	3,098.88	10.72	12.63	123.71	-430.03	106.32	523.36	502.31	21.06	24.855		
3,300.00	3,295.04	3,241.13	3,194.75	11.07	13.07	123.78	-448.24	109.22	544.98	523.25	21.73	25.077		
3,400.00	3,394.87	3,338.76	3,290.63	11.41	13.50	123.85	-466.44	112.11	566.60	544.20	22.41	25.286		
3,500.00	3,494.69	3,436.39	3,386.51	11.76	13.93	123.91	-484.64	115.01	588.22	565.14	23.08	25.481		
3,600.00	3,594.52	3,534.02	3,482.38	12.10	14.37	123.97	-502.85	117.91	609.85	586.08	23.76	25.666		
3,700.00	3,694.35	3,631.66	3,578.26	12.45	14.80	124.02	-521.05	120.80	631.47	607.03	24.44	25.839		
3,800.00	3,794.18	3,729.29	3,674.14	12.79	15.24	124.07	-539.25	123.70	653.09	627.98	25.12	26.003		
3,900.00	3,894.01	3,826.92	3,770.01	13.13	15.67	124.12	-557.46	126.60	674.71	648.92	25.79	26.158		
4,000.00	3,993.83	3,924.56	3,865.89	13.48	16.10	124.16	-575.66	129.50	696.34	669.87	26.47	26.305		
4,100.00	4,093.66	4,022.19	3,961.77	13.82	16.54	124.21	-593.87	132.39	717.96	690.81	27.15	26.444		
4,200.00	4,193.49	4,119.82	4,057.65	14.17	16.97	124.24	-612.07	135.29	739.59	711.76	27.83	26.576		
4,300.00	4,293.32	4,217.45	4,153.52	14.51	17.41	124.28	-630.27	138.19	761.21	732.70	28.51	26.702		
4,400.00	4,393.15	4,315.09	4,249.40	14.86	17.84	124.32	-648.48	141.08	782.83	753.65	29.19	26.822		
4,500.00	4,492.98	4,439.13	4,371.50	15.20	18.27	124.38	-670.02	144.51	803.30	773.30	30.00	26.777		
4,600.00	4,592.80	4,575.31	4,506.48	15.55	18.63	124.55	-687.76	147.34	819.44	788.65	30.79	26.611		
4,700.00	4,692.63	4,713.20	4,643.86	15.89	18.96	124.83	-699.26	149.17	830.98	799.45	31.53	26.355		
4,800.00	4,792.46	6,218.26	5,538.00	16.23	20.53	-160.73	129.99	146.27	749.54	739.39	10.15	73.842		
4,900.00	4,892.29	6,221.19	5,538.00	16.58	20.55	-159.32	132.92	146.26	650.94	640.31	10.63	61.213		
5,000.00	4,992.15	6,223.82	5,538.00	16.90	20.56	-155.69	135.55	146.25	552.73	541.39	11.34	48.722		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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 #30G-1911 - 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	Vertical Depth	Measured Depth	Vertical Depth	Reference	Offset	Highside Toolface	Offset Wellbore Centre	Between Centres	Between Ellipses	Minimum Separation	Separation Factor							
(usft)	(usft)	(usft)	(usft)	(usft)	(usft)	(°)	+N/-S (usft)	+E/-W (usft)	(usft)	(usft)	(usft)							
5,099.99	5,092.11	6,224.87	5,538.00	17.16	20.56	-150.50	136.60	146.25	454.64	442.33	12.31	36.943						
5,200.00	5,192.12	6,224.87	5,538.00	17.44	20.56	-90.26	136.60	146.24	357.09	343.30	13.78	25.907						
5,299.99	5,292.11	6,224.87	5,538.00	17.76	20.56	-90.26	136.60	146.24	261.42	244.89	16.53	15.818						
5,400.00	5,391.67	6,217.10	5,538.00	18.04	20.53	105.68	128.83	146.28	171.13	148.78	22.35	7.658						
5,500.00	5,487.93	6,190.57	5,538.00	18.31	20.42	101.23	102.30	146.40	101.81	67.48	34.33	2.966						
5,554.96	5,538.14	6,168.28	5,538.00	18.45	20.35	89.79	80.02	146.50	88.57	50.17	38.40	2.306 SF						
5,600.00	5,577.36	6,146.16	5,538.00	18.57	20.28	76.63	57.90	146.60	96.86	62.11	34.75	2.787						
5,700.00	5,656.67	6,085.51	5,538.00	18.82	20.10	47.47	-2.75	146.87	147.92	125.09	22.84	6.477						
5,800.00	5,722.96	6,010.85	5,538.00	19.07	19.93	30.48	-77.42	147.20	204.86	188.05	16.81	12.190						
5,900.00	5,773.79	5,924.91	5,538.00	19.33	19.83	22.34	-163.36	147.58	251.60	237.68	13.92	18.071						
6,000.00	5,807.29	5,850.00	5,535.12	19.63	19.78	18.65	-238.16	147.91	286.54	274.31	12.23	23.433						
6,100.00	5,822.23	5,800.00	5,527.49	20.00	19.78	16.74	-287.56	148.13	314.92	302.38	12.54	25.113						
6,200.00	5,823.00	5,734.86	5,510.52	20.43	19.80	15.59	-350.40	148.41	341.12	327.36	13.76	24.789						
6,300.00	5,823.00	5,679.18	5,489.89	20.96	19.83	14.64	-402.10	148.64	377.06	361.19	15.86	23.768						
6,400.00	5,823.00	5,628.49	5,466.42	21.58	19.87	13.69	-447.00	148.84	422.28	404.12	18.16	23.257						
6,500.00	5,823.00	5,582.98	5,441.71	22.28	19.90	12.82	-485.20	149.01	475.56	455.18	20.38	23.337						
6,600.00	5,823.00	5,550.00	5,421.77	23.06	19.93	12.19	-511.46	149.13	535.81	513.04	22.78	23.523						
6,700.00	5,823.00	5,500.00	5,388.48	23.90	19.97	11.27	-548.74	149.30	601.70	577.81	23.89	25.191						
6,800.00	5,823.00	5,474.95	5,370.49	24.81	19.99	10.82	-566.17	149.37	672.33	646.62	25.71	26.155						
6,900.00	5,823.00	5,450.00	5,351.76	25.76	20.00	10.40	-582.65	149.45	747.05	719.94	27.11	27.553						
7,000.00	5,823.00	5,422.17	5,329.97	26.77	20.02	9.94	-599.96	149.52	825.06	796.93	28.13	29.327						
7,100.00	5,823.00	5,400.00	5,311.97	27.81	20.03	9.59	-612.89	149.58	905.86	876.78	29.08	31.147						
7,200.00	5,823.00	5,380.57	5,295.75	28.89	20.04	9.30	-623.59	149.63	988.98	959.08	29.91	33.070						
7,300.00	5,823.00	5,350.00	5,269.46	30.01	20.04	8.86	-639.18	149.70	1,074.30	1,043.93	30.37	35.379						
7,400.00	5,823.00	5,350.00	5,269.46	31.16	20.04	8.86	-639.18	149.70	1,160.80	1,129.53	31.27	37.125						
7,500.00	5,823.00	5,350.00	5,269.46	32.33	20.04	8.86	-639.18	149.70	1,249.31	1,217.31	32.01	39.033						
7,600.00	5,823.00	5,320.39	5,243.16	33.53	20.04	8.46	-652.79	149.76	1,338.28	1,306.05	32.23	41.525						
7,700.00	5,823.00	5,300.00	5,224.63	34.74	20.04	8.20	-661.27	149.80	1,428.77	1,396.23	32.54	43.911						
7,800.00	5,823.00	5,300.00	5,224.63	35.98	20.04	8.20	-661.27	149.80	1,519.97	1,486.93	33.04	46.007						



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	61.16	49.55	89.97	102.71					
100.00	100.00	100.00	100.00	0.13	0.13	61.16	49.55	89.97	102.71	102.44	0.27	385.626		
200.00	200.00	200.00	200.00	0.47	0.47	61.16	49.55	89.97	102.71	101.77	0.94	109.192		
300.00	300.00	300.00	300.00	0.81	0.81	61.16	49.55	89.97	102.71	101.10	1.61	63.600		
400.00	399.98	400.05	400.03	1.14	1.11	2.41	47.99	90.76	100.93	98.68	2.25	44.928		
500.00	499.85	499.73	499.57	1.48	1.41	5.66	43.35	93.13	95.95	93.08	2.88	33.364		
600.00	599.68	598.86	598.32	1.81	1.73	11.46	35.67	97.04	90.96	87.44	3.52	25.835		
700.00	699.51	697.26	695.98	2.14	2.06	19.92	25.05	102.45	87.94	83.72	4.21	20.863		
738.14	737.58	734.55	732.88	2.27	2.19	23.78	20.24	104.90	87.64	83.14	4.50	19.474 CC, ES		
800.00	799.33	794.70	792.24	2.48	2.42	30.60	11.58	109.30	88.53	83.55	4.98	17.769		
900.00	899.16	890.97	886.79	2.82	2.81	42.22	-4.57	117.53	94.34	88.52	5.82	16.216		
1,000.00	998.99	988.32	982.00	3.16	3.22	52.98	-22.64	126.73	105.28	98.70	6.58	16.010		
1,100.00	1,098.82	1,085.88	1,077.42	3.50	3.64	61.57	-40.76	135.96	119.29	112.02	7.27	16.414		
1,200.00	1,198.65	1,183.45	1,172.85	3.85	4.07	68.28	-58.88	145.19	135.42	127.50	7.92	17.104		
1,300.00	1,298.47	1,281.02	1,268.27	4.19	4.50	73.54	-76.99	154.41	152.99	144.44	8.56	17.880		
1,400.00	1,398.30	1,378.58	1,363.70	4.53	4.94	77.70	-95.11	163.64	171.57	162.39	9.19	18.673		
1,500.00	1,498.13	1,476.15	1,459.12	4.88	5.38	81.04	-113.23	172.87	190.87	181.05	9.82	19.437		
1,600.00	1,597.96	1,573.72	1,554.55	5.22	5.82	83.77	-131.35	182.10	210.67	200.22	10.45	20.153		
1,700.00	1,697.79	1,671.28	1,649.97	5.56	6.27	86.03	-149.47	191.32	230.87	219.77	11.09	20.815		
1,800.00	1,797.61	1,768.85	1,745.39	5.91	6.71	87.92	-167.59	200.55	251.35	239.61	11.73	21.421		
1,900.00	1,897.44	1,866.42	1,840.82	6.25	7.16	89.53	-185.71	209.78	272.05	259.68	12.38	21.976		
2,000.00	1,997.27	1,963.98	1,936.24	6.59	7.61	90.91	-203.83	219.01	292.94	279.91	13.03	22.484		
2,100.00	2,097.10	2,061.55	2,031.67	6.94	8.06	92.11	-221.95	228.23	313.97	300.28	13.68	22.947		
2,200.00	2,196.93	2,159.12	2,127.09	7.28	8.51	93.16	-240.07	237.46	335.11	320.77	14.34	23.372		
2,300.00	2,296.76	2,256.68	2,222.51	7.63	8.96	94.08	-258.19	246.69	356.34	341.35	15.00	23.762		
2,400.00	2,396.58	2,354.25	2,317.94	7.97	9.41	94.90	-276.31	255.92	377.66	362.00	15.66	24.120		
2,500.00	2,496.41	2,451.82	2,413.36	8.32	9.86	95.64	-294.43	265.15	399.04	382.72	16.32	24.450		
2,600.00	2,596.24	2,549.38	2,508.79	8.66	10.31	96.29	-312.55	274.37	420.48	403.49	16.99	24.755		
2,700.00	2,696.07	2,646.95	2,604.21	9.00	10.76	96.89	-330.67	283.60	441.96	424.31	17.65	25.037		
2,800.00	2,795.90	2,744.52	2,699.64	9.35	11.21	97.43	-348.79	292.83	463.49	445.17	18.32	25.299		
2,900.00	2,895.72	2,842.08	2,795.06	9.69	11.66	97.92	-366.91	302.06	485.05	466.06	18.99	25.543		
3,000.00	2,995.55	2,939.65	2,890.48	10.04	12.11	98.37	-385.03	311.28	506.65	486.99	19.66	25.770		
3,100.00	3,095.38	3,037.22	2,985.91	10.38	12.56	98.78	-403.15	320.51	528.27	507.94	20.33	25.982		
3,200.00	3,195.21	3,134.78	3,081.33	10.72	13.02	99.16	-421.27	329.74	549.91	528.91	21.00	26.181		
3,300.00	3,295.04	3,232.35	3,176.76	11.07	13.47	99.51	-439.39	338.97	571.58	549.90	21.68	26.367		
3,400.00	3,394.87	3,329.92	3,272.18	11.41	13.92	99.84	-457.51	348.20	593.27	570.91	22.35	26.542		
3,500.00	3,494.69	3,427.48	3,367.61	11.76	14.37	100.14	-475.63	357.42	614.97	591.94	23.03	26.706		
3,600.00	3,594.52	3,525.05	3,463.03	12.10	14.83	100.43	-493.75	366.65	636.69	612.98	23.70	26.861		
3,700.00	3,694.35	3,622.62	3,558.45	12.45	15.28	100.69	-511.87	375.88	658.42	634.04	24.38	27.007		
3,800.00	3,794.18	3,720.18	3,653.88	12.79	15.73	100.94	-529.99	385.11	680.16	655.10	25.06	27.145		
3,900.00	3,894.01	3,817.75	3,749.30	13.13	16.18	101.17	-548.11	394.33	701.92	676.18	25.73	27.276		
4,000.00	3,993.83	3,915.32	3,844.73	13.48	16.64	101.39	-566.23	403.56	723.68	697.27	26.41	27.400		
4,100.00	4,093.66	4,012.88	3,940.15	13.82	17.09	101.59	-584.35	412.79	745.46	718.37	27.09	27.518		
4,200.00	4,193.49	4,110.45	4,035.58	14.17	17.54	101.78	-602.47	422.02	767.24	739.47	27.77	27.630		
4,300.00	4,293.32	4,208.02	4,131.00	14.51	18.00	101.97	-620.59	431.25	789.03	760.58	28.45	27.736		
4,400.00	4,393.15	4,305.58	4,226.42	14.86	18.45	102.14	-638.71	440.47	810.83	781.70	29.13	27.837		
4,500.00	4,492.98	4,417.07	4,335.55	15.20	18.91	102.33	-656.95	450.83	832.35	802.46	29.89	27.851		
4,600.00	4,592.80	4,555.52	4,472.01	15.55	19.29	102.61	-675.78	461.39	850.19	819.47	30.72	27.674		
4,700.00	4,692.63	4,695.98	4,611.45	15.89	19.66	102.96	-694.78	469.03	863.31	831.81	31.50	27.408		
4,800.00	4,792.46	6,305.06	5,606.00	16.23	20.85	36.66	131.27	471.80	850.57	838.48	12.09	70.362		
4,900.00	4,892.29	6,307.99	5,606.00	16.58	20.86	35.86	134.20	471.79	754.00	741.05	12.95	58.210		
5,000.00	4,992.15	6,310.63	5,606.00	16.90	20.87	33.14	136.84	471.78	658.60	644.45	14.14	46.568		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	6,311.68	5,606.00	17.16	20.87	30.24	137.89	471.78	565.82	549.91	15.91	35.570		
5,200.00	5,192.12	6,311.68	5,606.00	17.44	20.87	89.78	137.90	471.78	476.82	458.28	18.54	25.719		
5,299.99	5,292.11	6,311.68	5,606.00	17.76	20.87	89.78	137.90	471.78	393.18	370.83	22.36	17.588		
5,400.00	5,391.67	6,303.91	5,606.00	18.04	20.84	-98.99	130.12	471.81	319.39	291.78	27.61	11.567		
5,500.00	5,487.93	6,277.38	5,606.00	18.31	20.77	-100.22	103.59	471.91	264.66	230.94	33.72	7.848		
5,600.00	5,577.36	6,232.97	5,606.00	18.57	20.66	-93.78	59.19	472.07	238.70	200.58	38.12	6.262		
5,633.95	5,605.57	6,214.11	5,606.00	18.65	20.62	-90.18	40.32	472.15	237.03	198.34	38.68	6.128 SF		
5,700.00	5,656.67	6,172.32	5,606.00	18.82	20.55	-81.83	-1.46	472.30	242.48	204.08	38.41	6.313		
5,800.00	5,722.96	6,097.66	5,606.00	19.07	20.47	-68.36	-76.13	472.59	264.58	228.55	36.03	7.343		
5,900.00	5,773.79	6,011.72	5,606.00	19.33	20.46	-57.44	-162.07	472.91	290.82	257.34	33.49	8.685		
6,000.00	5,807.29	5,937.52	5,603.52	19.63	20.50	-50.98	-236.19	473.19	313.78	281.97	31.81	9.865		
6,100.00	5,822.23	5,870.67	5,592.77	20.00	20.57	-46.44	-302.12	473.44	334.80	303.83	30.97	10.811		
6,200.00	5,823.00	5,800.00	5,572.33	20.43	20.65	-43.52	-369.71	473.70	356.17	325.57	30.60	11.638		
6,300.00	5,823.00	5,750.00	5,552.43	20.96	20.71	-41.36	-415.56	473.87	386.66	355.77	30.88	12.521		
6,400.00	5,823.00	5,700.00	5,528.23	21.58	20.77	-38.95	-459.29	474.04	426.78	395.61	31.18	13.688		
6,500.00	5,823.00	5,650.00	5,499.95	22.28	20.83	-36.43	-500.50	474.19	475.59	444.16	31.43	15.130		
6,600.00	5,823.00	5,600.00	5,467.85	23.06	20.88	-33.88	-538.81	474.34	532.22	500.59	31.63	16.827		
6,700.00	5,823.00	5,568.30	5,445.65	23.90	20.91	-32.30	-561.44	474.42	595.42	563.03	32.40	18.379		
6,800.00	5,823.00	5,550.00	5,432.23	24.81	20.92	-31.41	-573.87	474.47	664.47	631.07	33.41	19.890		
6,900.00	5,823.00	5,500.00	5,393.41	25.76	20.96	-29.05	-605.36	474.59	737.63	704.26	33.37	22.108		
7,000.00	5,823.00	5,484.67	5,380.92	26.77	20.96	-28.37	-614.25	474.62	814.57	780.42	34.15	23.852		
7,100.00	5,823.00	5,450.00	5,351.76	27.81	20.98	-26.87	-632.98	474.69	894.99	860.62	34.37	26.042		
7,200.00	5,823.00	5,450.00	5,351.76	28.89	20.98	-26.87	-632.98	474.69	977.50	942.31	35.19	27.778		
7,300.00	5,823.00	5,427.48	5,332.17	30.01	20.98	-25.94	-644.08	474.73	1,062.30	1,026.82	35.48	29.944		
7,400.00	5,823.00	5,400.00	5,307.65	31.16	20.98	-24.86	-656.48	474.78	1,149.14	1,113.50	35.64	32.244		
7,500.00	5,823.00	5,400.00	5,307.65	32.33	20.98	-24.86	-656.48	474.78	1,237.06	1,200.91	36.15	34.223		
7,600.00	5,823.00	5,400.00	5,307.65	33.53	20.98	-24.86	-656.48	474.78	1,326.69	1,290.12	36.57	36.282		
7,700.00	5,823.00	5,375.83	5,285.56	34.74	20.97	-23.96	-666.30	474.82	1,416.95	1,380.29	36.66	38.654		
7,800.00	5,823.00	5,350.00	5,261.49	35.98	20.96	-23.04	-675.64	474.85	1,508.70	1,471.97	36.72	41.086		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-50.42	49.59	-59.98	77.82					
100.00	100.00	100.00	100.00	0.13	0.13	-50.42	49.59	-59.98	77.82	77.56	0.27	292.191		
200.00	200.00	200.00	200.00	0.47	0.47	-50.42	49.59	-59.98	77.82	76.88	0.94	82.735		
300.00	300.00	300.00	300.00	0.81	0.81	-50.42	49.59	-59.98	77.82	76.21	1.61	48.190		
400.00	399.98	401.12	401.07	1.14	1.12	-113.27	47.09	-60.94	77.70	75.44	2.26	34.444		
405.56	405.53	406.72	406.66	1.16	1.14	-113.62	46.81	-61.05	77.70	75.41	2.29	33.912 CC, ES		
500.00	499.85	501.15	500.77	1.48	1.44	-122.23	39.72	-63.79	78.56	75.69	2.87	27.349		
600.00	599.68	599.53	598.31	1.81	1.78	-134.61	27.72	-68.42	82.19	78.65	3.54	23.227		
700.00	699.51	696.53	693.77	2.14	2.12	-148.09	11.72	-74.60	90.81	86.50	4.32	21.033		
800.00	799.33	793.78	789.33	2.48	2.48	-159.26	-5.10	-81.10	104.11	99.01	5.10	20.425		
900.00	899.16	891.03	884.90	2.82	2.88	-167.74	-21.91	-87.59	120.48	114.65	5.83	20.671		
1,000.00	998.99	988.28	980.46	3.16	3.29	-174.14	-38.73	-94.08	138.84	132.31	6.52	21.288		
1,100.00	1,098.82	1,085.53	1,076.03	3.50	3.70	-179.02	-55.55	-100.58	158.50	151.31	7.19	22.046		
1,200.00	1,198.65	1,182.78	1,171.59	3.85	4.12	177.19	-72.37	-107.07	179.03	171.18	7.85	22.810		
1,300.00	1,298.47	1,280.03	1,267.15	4.19	4.54	174.17	-89.18	-113.57	200.17	191.67	8.50	23.547		
1,400.00	1,398.30	1,377.28	1,362.72	4.53	4.96	171.74	-106.00	-120.06	221.74	212.59	9.15	24.231		
1,500.00	1,498.13	1,474.53	1,458.28	4.88	5.38	169.73	-122.82	-126.55	243.63	233.83	9.80	24.858		
1,600.00	1,597.96	1,571.78	1,553.85	5.22	5.80	168.06	-139.63	-133.05	265.76	255.31	10.45	25.427		
1,700.00	1,697.79	1,669.03	1,649.41	5.56	6.23	166.64	-156.45	-139.54	288.07	276.97	11.10	25.943		
1,800.00	1,797.61	1,766.27	1,744.97	5.91	6.65	165.42	-173.27	-146.04	310.53	298.77	11.76	26.411		
1,900.00	1,897.44	1,863.52	1,840.54	6.25	7.08	164.37	-190.09	-152.53	333.10	320.68	12.41	26.836		
2,000.00	1,997.27	1,960.77	1,936.10	6.59	7.51	163.46	-206.90	-159.02	355.76	342.69	13.07	27.222		
2,100.00	2,097.10	2,058.02	2,031.67	6.94	7.93	162.65	-223.72	-165.52	378.50	364.77	13.73	27.574		
2,200.00	2,196.93	2,155.27	2,127.23	7.28	8.36	161.93	-240.54	-172.01	401.30	386.91	14.39	27.895		
2,300.00	2,296.76	2,252.52	2,222.79	7.63	8.79	161.29	-257.35	-178.51	424.16	409.11	15.05	28.190		
2,400.00	2,396.58	2,349.77	2,318.36	7.97	9.22	160.72	-274.17	-185.00	447.06	431.35	15.71	28.461		
2,500.00	2,496.41	2,447.02	2,413.92	8.32	9.64	160.20	-290.99	-191.49	470.00	453.63	16.37	28.710		
2,600.00	2,596.24	2,544.27	2,509.49	8.66	10.07	159.73	-307.81	-197.99	492.97	475.94	17.03	28.940		
2,700.00	2,696.07	2,641.52	2,605.05	9.00	10.50	159.30	-324.62	-204.48	515.97	498.27	17.70	29.154		
2,800.00	2,795.90	2,738.77	2,700.61	9.35	10.93	158.91	-341.44	-210.98	539.00	520.63	18.36	29.352		
2,900.00	2,895.72	2,836.02	2,796.18	9.69	11.36	158.55	-358.26	-217.47	562.05	543.02	19.03	29.536		
3,000.00	2,995.55	2,933.27	2,891.74	10.04	11.79	158.22	-375.07	-223.96	585.11	565.42	19.70	29.708		
3,100.00	3,095.38	3,030.52	2,987.31	10.38	12.22	157.92	-391.89	-230.46	608.20	587.84	20.36	29.869		
3,200.00	3,195.21	3,127.77	3,082.87	10.72	12.65	157.63	-408.71	-236.95	631.30	610.27	21.03	30.019		
3,300.00	3,295.04	3,225.02	3,178.43	11.07	13.07	157.37	-425.53	-243.45	654.41	632.71	21.70	30.160		
3,400.00	3,394.87	3,322.27	3,274.00	11.41	13.50	157.12	-442.34	-249.94	677.54	655.17	22.37	30.293		
3,500.00	3,494.69	3,419.52	3,369.56	11.76	13.93	156.89	-459.16	-256.43	700.67	677.64	23.04	30.417		
3,600.00	3,594.52	3,516.77	3,465.13	12.10	14.36	156.68	-475.98	-262.93	723.82	700.12	23.70	30.535		
3,700.00	3,694.35	3,614.02	3,560.69	12.45	14.79	156.48	-492.79	-269.42	746.98	722.60	24.37	30.646		
3,800.00	3,794.18	3,711.27	3,656.25	12.79	15.22	156.29	-509.61	-275.92	770.14	745.10	25.04	30.751		
3,900.00	3,894.01	3,808.51	3,751.82	13.13	15.65	156.11	-526.43	-282.41	793.31	767.60	25.71	30.851		
4,000.00	3,993.83	3,905.76	3,847.38	13.48	16.08	155.94	-543.25	-288.90	816.49	790.11	26.39	30.945		
4,100.00	4,093.66	4,003.01	3,942.95	13.82	16.51	155.78	-560.06	-295.40	839.68	812.62	27.06	31.034		
4,200.00	4,193.49	4,100.26	4,038.51	14.17	16.94	155.63	-576.88	-301.89	862.87	835.14	27.73	31.120		
4,300.00	4,293.32	4,197.51	4,134.07	14.51	17.37	155.49	-593.70	-308.39	886.06	857.66	28.40	31.201		
4,400.00	4,393.15	4,294.76	4,229.64	14.86	17.80	155.35	-610.51	-314.88	909.26	880.19	29.07	31.278		
4,500.00	4,492.98	4,392.01	4,325.20	15.20	18.23	155.22	-627.33	-321.37	932.47	902.73	29.74	31.351		
4,600.00	4,592.80	4,489.26	4,420.77	15.55	18.66	155.10	-644.15	-327.87	955.68	925.26	30.41	31.421		
4,700.00	4,692.63	4,603.39	4,533.00	15.89	19.12	154.97	-663.47	-335.33	978.60	947.42	31.18	31.384		
4,800.00	4,792.46	4,751.05	4,679.13	16.23	19.50	154.89	-683.09	-342.91	997.69	965.66	32.03	31.148		
4,900.00	4,892.29	4,901.25	4,828.69	16.58	19.86	154.92	-695.81	-347.82	1,011.80	978.98	32.81	30.836		
5,000.00	4,992.15	6,419.20	5,735.00	16.90	21.11	-151.29	133.72	-353.14	946.36	922.31	24.06	39.338		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	6,420.25	5,735.00	17.16	21.12	-150.08	134.77	-353.14	871.32	845.17	26.15	33.315		
5,200.00	5,192.12	6,420.26	5,735.00	17.44	21.12	-90.22	134.78	-353.14	800.40	771.93	28.47	28.114		
5,299.99	5,292.11	6,420.26	5,735.00	17.76	21.12	-90.22	134.78	-353.14	736.25	705.25	31.00	23.747		
5,400.00	5,391.67	6,412.48	5,735.00	18.04	21.09	95.60	127.00	-353.11	681.00	647.44	33.57	20.287		
5,500.00	5,487.93	6,385.95	5,735.00	18.31	21.00	98.39	100.47	-353.01	637.85	602.00	35.85	17.791		
5,600.00	5,577.36	6,341.55	5,735.00	18.57	20.88	97.95	56.07	-352.84	608.71	571.13	37.58	16.196		
5,700.00	5,656.67	6,280.90	5,735.00	18.82	20.75	95.08	-4.58	-352.61	592.99	554.38	38.61	15.358		
5,800.00	5,722.96	6,206.23	5,735.00	19.07	20.64	90.86	-79.25	-352.33	587.73	548.69	39.04	15.054		
5,825.10	5,737.26	6,185.60	5,735.00	19.13	20.62	89.74	-99.88	-352.25	587.56	548.46	39.09	15.029 SF		
5,900.00	5,773.79	6,120.29	5,735.00	19.33	20.60	86.52	-165.19	-352.01	588.67	549.51	39.16	15.033		
6,000.00	5,807.29	6,036.24	5,730.46	19.63	20.61	82.97	-249.04	-351.69	592.24	553.02	39.22	15.099		
6,100.00	5,822.23	5,957.09	5,714.13	20.00	20.67	79.73	-326.41	-351.40	597.61	558.31	39.30	15.207		
6,200.00	5,823.00	5,882.28	5,688.09	20.43	20.73	77.05	-396.47	-351.13	605.09	565.69	39.40	15.358		
6,300.00	5,823.00	5,815.94	5,656.81	20.96	20.80	74.18	-454.93	-350.91	618.13	578.72	39.41	15.685		
6,400.00	5,823.00	5,758.60	5,623.99	21.58	20.86	71.26	-501.90	-350.73	638.37	599.06	39.31	16.239		
6,500.00	5,823.00	5,709.68	5,592.04	22.28	20.90	68.50	-538.92	-350.59	666.77	627.63	39.14	17.037		
6,600.00	5,823.00	5,668.14	5,562.28	23.06	20.94	66.03	-567.89	-350.48	703.62	664.69	38.93	18.073		
6,700.00	5,823.00	5,632.85	5,535.26	23.90	20.96	63.86	-590.57	-350.40	748.62	709.89	38.73	19.328		
6,800.00	5,823.00	5,600.00	5,508.77	24.81	20.97	61.81	-610.00	-350.33	801.11	762.58	38.53	20.794		
6,900.00	5,823.00	5,576.96	5,489.49	25.76	20.98	60.36	-622.61	-350.28	860.17	821.73	38.43	22.380		
7,000.00	5,823.00	5,550.00	5,466.25	26.77	20.98	58.68	-636.27	-350.23	924.95	886.67	38.28	24.162		
7,100.00	5,823.00	5,550.00	5,466.25	27.81	20.98	58.68	-636.27	-350.23	994.77	956.31	38.47	25.861		
7,200.00	5,823.00	5,518.44	5,438.19	28.89	20.98	56.72	-650.71	-350.17	1,068.13	1,029.88	38.25	27.923		
7,300.00	5,823.00	5,500.00	5,421.41	30.01	20.98	55.58	-658.34	-350.14	1,145.19	1,106.99	38.20	29.977		
7,400.00	5,823.00	5,500.00	5,421.41	31.16	20.98	55.58	-658.34	-350.14	1,225.19	1,186.84	38.35	31.951		
7,500.00	5,823.00	5,478.63	5,401.63	32.33	20.97	54.29	-666.45	-350.11	1,307.37	1,269.11	38.26	34.169		
7,600.00	5,823.00	5,468.11	5,391.79	33.53	20.96	53.66	-670.14	-350.10	1,391.71	1,353.42	38.29	36.350		
7,700.00	5,823.00	5,450.00	5,374.66	34.74	20.95	52.59	-676.02	-350.08	1,477.86	1,439.61	38.24	38.642		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	0.00	49.57	0.00	49.57					
100.00	100.00	100.00	100.00	0.13	0.13	0.00	49.57	0.00	49.57	49.31	0.27	186.128		
200.00	200.00	200.00	200.00	0.47	0.47	0.00	49.57	0.00	49.57	48.63	0.94	52.703		
300.00	300.00	300.00	300.00	0.81	0.81	0.00	49.57	0.00	49.57	47.96	1.61	30.698		
400.00	399.98	401.66	401.64	1.14	1.11	-61.82	47.78	-0.12	46.95	44.64	2.32	20.253		
500.00	499.85	502.75	502.58	1.48	1.42	-69.27	42.42	-0.48	39.60	36.54	3.07	12.921		
600.00	599.68	603.04	602.47	1.81	1.74	-83.90	33.60	-1.08	29.89	26.11	3.78	7.909		
700.00	699.51	702.36	701.04	2.14	2.07	-115.87	21.43	-1.90	21.66	17.36	4.30	5.037		
731.64	731.09	733.55	731.90	2.25	2.18	-131.26	16.90	-2.20	20.90	16.47	4.44	4.711	CC, ES, SF	
800.00	799.33	800.51	797.96	2.48	2.43	-164.20	6.06	-2.93	24.82	19.88	4.94	5.021		
900.00	899.16	898.27	894.25	2.82	2.81	169.40	-10.78	-4.07	40.15	34.36	5.79	6.929		
1,000.00	998.99	996.03	990.54	3.16	3.20	158.49	-27.63	-5.20	59.11	52.62	6.49	9.104		
1,100.00	1,098.82	1,093.79	1,086.83	3.50	3.60	152.95	-44.48	-6.34	79.14	71.99	7.15	11.073		
1,200.00	1,198.65	1,191.55	1,183.13	3.85	4.00	149.66	-61.33	-7.47	99.58	91.79	7.79	12.786		
1,300.00	1,298.47	1,289.31	1,279.42	4.19	4.41	147.50	-78.18	-8.61	120.23	111.80	8.43	14.257		
1,400.00	1,398.30	1,387.07	1,375.71	4.53	4.82	145.97	-95.03	-9.74	141.00	131.92	9.08	15.529		
1,500.00	1,498.13	1,484.83	1,472.00	4.88	5.23	144.83	-111.88	-10.88	161.85	152.12	9.73	16.635		
1,600.00	1,597.96	1,582.59	1,568.29	5.22	5.65	143.95	-128.73	-12.01	182.73	172.35	10.38	17.600		
1,700.00	1,697.79	1,680.35	1,664.58	5.56	6.06	143.25	-145.57	-13.15	203.66	192.62	11.04	18.450		
1,800.00	1,797.61	1,778.11	1,760.87	5.91	6.47	142.69	-162.42	-14.29	224.60	212.90	11.70	19.203		
1,900.00	1,897.44	1,875.87	1,857.16	6.25	6.89	142.22	-179.27	-15.42	245.56	233.21	12.36	19.873		
2,000.00	1,997.27	1,973.63	1,953.45	6.59	7.31	141.82	-196.12	-16.56	266.54	253.52	13.02	20.473		
2,100.00	2,097.10	2,071.39	2,049.74	6.94	7.72	141.48	-212.97	-17.69	287.52	273.84	13.68	21.013		
2,200.00	2,196.93	2,169.15	2,146.03	7.28	8.14	141.19	-229.82	-18.83	308.52	294.17	14.35	21.502		
2,300.00	2,296.76	2,266.91	2,242.32	7.63	8.56	140.93	-246.67	-19.96	329.52	314.50	15.02	21.946		
2,400.00	2,396.58	2,364.67	2,338.61	7.97	8.98	140.71	-263.52	-21.10	350.53	334.84	15.68	22.351		
2,500.00	2,496.41	2,462.43	2,434.90	8.32	9.40	140.51	-280.36	-22.23	371.54	355.18	16.35	22.721		
2,600.00	2,596.24	2,560.19	2,531.19	8.66	9.81	140.33	-297.21	-23.37	392.55	375.53	17.02	23.062		
2,700.00	2,696.07	2,657.95	2,627.48	9.00	10.23	140.17	-314.06	-24.50	413.57	395.88	17.69	23.376		
2,800.00	2,795.90	2,755.71	2,723.77	9.35	10.65	140.03	-330.91	-25.64	434.59	416.23	18.36	23.666		
2,900.00	2,895.72	2,853.47	2,820.06	9.69	11.07	139.89	-347.76	-26.77	455.61	436.58	19.04	23.935		
3,000.00	2,995.55	2,951.23	2,916.35	10.04	11.49	139.77	-364.61	-27.91	476.64	456.93	19.71	24.185		
3,100.00	3,095.38	3,048.99	3,012.64	10.38	11.91	139.66	-381.46	-29.04	497.67	477.28	20.38	24.418		
3,200.00	3,195.21	3,146.75	3,108.93	10.72	12.33	139.56	-398.30	-30.18	518.69	497.64	21.05	24.636		
3,300.00	3,295.04	3,244.51	3,205.23	11.07	12.75	139.47	-415.15	-31.32	539.73	518.00	21.73	24.839		
3,400.00	3,394.87	3,342.27	3,301.52	11.41	13.17	139.39	-432.00	-32.45	560.76	538.35	22.40	25.031		
3,500.00	3,494.69	3,440.03	3,397.81	11.76	13.59	139.31	-448.85	-33.59	581.79	558.71	23.08	25.210		
3,600.00	3,594.52	3,537.79	3,494.10	12.10	14.01	139.23	-465.70	-34.72	602.82	579.07	23.75	25.379		
3,700.00	3,694.35	3,635.55	3,590.39	12.45	14.43	139.16	-482.55	-35.86	623.86	599.43	24.43	25.538		
3,800.00	3,794.18	3,733.31	3,686.68	12.79	14.85	139.10	-499.40	-36.99	644.89	619.79	25.10	25.689		
3,900.00	3,894.01	3,831.07	3,782.97	13.13	15.27	139.04	-516.25	-38.13	665.93	640.15	25.78	25.831		
4,000.00	3,993.83	3,928.83	3,879.26	13.48	15.69	138.98	-533.09	-39.26	686.97	660.51	26.46	25.966		
4,100.00	4,093.66	4,026.59	3,975.55	13.82	16.11	138.93	-549.94	-40.40	708.00	680.87	27.13	26.094		
4,200.00	4,193.49	4,124.35	4,071.84	14.17	16.53	138.88	-566.79	-41.53	729.04	701.23	27.81	26.216		
4,300.00	4,293.32	4,222.11	4,168.13	14.51	16.95	138.83	-583.64	-42.67	750.08	721.59	28.49	26.331		
4,400.00	4,393.15	4,319.87	4,264.42	14.86	17.37	138.78	-600.49	-43.80	771.12	741.95	29.16	26.442		
4,500.00	4,492.98	4,417.63	4,360.71	15.20	17.80	138.74	-617.34	-44.94	792.16	762.32	29.84	26.546		
4,600.00	4,592.80	4,515.39	4,457.00	15.55	18.22	138.70	-634.19	-46.07	813.20	782.68	30.52	26.647		
4,700.00	4,692.63	4,613.15	4,553.29	15.89	18.64	138.66	-651.04	-47.21	834.24	803.04	31.20	26.742		
4,800.00	4,792.46	4,728.39	4,666.91	16.23	19.06	138.63	-670.27	-48.51	854.84	822.87	31.96	26.745		
4,900.00	4,892.29	4,867.53	4,804.89	16.58	19.41	138.69	-688.01	-49.70	871.57	838.79	32.77	26.593		
5,000.00	4,992.15	6,501.92	5,823.00	16.90	21.42	-152.69	135.94	-50.74	878.03	862.53	15.50	56.664		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	6,502.97	5,823.00	17.16	21.43	-150.01	136.99	-50.74	784.75	767.92	16.84	46.605		
5,200.00	5,192.12	6,502.98	5,823.00	17.44	21.43	-90.00	137.00	-50.74	692.57	674.08	18.49	37.450		
5,299.99	5,292.11	6,502.98	5,823.00	17.76	21.43	-90.00	137.00	-50.74	602.90	582.26	20.65	29.199		
5,400.00	5,391.67	6,495.21	5,823.00	18.04	21.40	104.63	129.23	-50.74	517.40	493.97	23.42	22.088		
5,500.00	5,487.93	6,468.68	5,823.00	18.31	21.31	112.76	102.69	-50.74	440.39	413.54	26.85	16.402		
5,600.00	5,577.36	6,424.27	5,823.00	18.57	21.15	114.48	58.29	-50.74	376.89	346.13	30.76	12.252		
5,700.00	5,656.67	6,363.62	5,823.00	18.82	20.98	111.65	-2.36	-50.74	330.77	296.18	34.60	9.561		
5,800.00	5,722.96	6,288.96	5,823.00	19.07	20.81	105.82	-77.03	-50.74	303.00	265.49	37.51	8.077		
5,900.00	5,773.79	6,203.01	5,823.00	19.33	20.69	98.88	-162.97	-50.74	290.32	251.19	39.13	7.420		
6,000.00	5,807.29	6,107.19	5,817.41	19.63	20.64	91.91	-258.52	-50.74	286.42	246.57	39.84	7.189		
6,024.40	5,812.68	6,084.38	5,813.59	19.72	20.64	90.19	-281.00	-50.74	286.26	246.33	39.93	7.169		
6,100.00	5,822.23	6,016.00	5,796.29	20.00	20.65	84.93	-347.10	-50.74	287.66	247.69	39.96	7.198		
6,200.00	5,823.00	5,931.85	5,763.37	20.43	20.68	78.24	-424.45	-50.74	294.29	254.74	39.55	7.441		
6,300.00	5,823.00	5,859.64	5,725.51	20.96	20.72	71.21	-485.88	-50.74	310.69	272.26	38.43	8.084		
6,400.00	5,823.00	5,800.00	5,688.08	21.58	20.76	64.79	-532.26	-50.74	340.09	303.16	36.94	9.207		
6,500.00	5,823.00	5,750.00	5,652.78	22.28	20.79	59.29	-567.65	-50.74	382.93	347.36	35.57	10.764		
6,600.00	5,823.00	5,700.00	5,614.25	23.06	20.82	53.94	-599.49	-50.74	437.72	403.34	34.37	12.734		
6,700.00	5,823.00	5,674.06	5,593.11	23.90	20.82	51.27	-614.51	-50.74	501.71	467.52	34.19	14.673		
6,800.00	5,823.00	5,650.00	5,572.85	24.81	20.83	48.89	-627.49	-50.74	573.12	538.94	34.19	16.763		
6,900.00	5,823.00	5,621.23	5,547.88	25.76	20.83	46.18	-641.76	-50.74	649.95	615.83	34.12	19.050		
7,000.00	5,823.00	5,600.00	5,528.96	26.77	20.83	44.28	-651.39	-50.74	730.98	696.72	34.26	21.336		
7,100.00	5,823.00	5,582.89	5,513.44	27.81	20.82	42.81	-658.59	-50.74	815.20	780.73	34.47	23.648		
7,200.00	5,823.00	5,567.52	5,499.30	28.89	20.81	41.54	-664.62	-50.74	901.90	867.22	34.68	26.003		
7,300.00	5,823.00	5,550.00	5,482.98	30.01	20.81	40.14	-670.98	-50.74	990.59	955.75	34.83	28.438		
7,400.00	5,823.00	5,550.00	5,482.98	31.16	20.81	40.14	-670.98	-50.74	1,080.87	1,045.67	35.20	30.707		
7,500.00	5,823.00	5,531.78	5,465.78	32.33	20.79	38.76	-677.01	-50.74	1,172.28	1,137.00	35.29	33.223		
7,600.00	5,823.00	5,522.43	5,456.88	33.53	20.79	38.07	-679.87	-50.74	1,264.82	1,229.36	35.46	35.666		
7,700.00	5,823.00	5,500.00	5,435.33	34.74	20.77	36.49	-686.08	-50.74	1,358.48	1,322.99	35.49	38.281		
7,800.00	5,823.00	5,500.00	5,435.33	35.98	20.77	36.49	-686.08	-50.74	1,452.40	1,416.68	35.72	40.655		
7,900.00	5,823.00	5,500.00	5,435.33	37.23	20.77	36.49	-686.08	-50.74	1,547.09	1,511.15	35.93	43.053		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	50.43	49.56	59.98	77.80					
100.00	100.00	100.00	100.00	0.13	0.13	50.43	49.56	59.98	77.80	77.54	0.27	292.115		
200.00	200.00	200.00	200.00	0.47	0.47	50.43	49.56	59.98	77.80	76.86	0.94	82.714		
300.00	300.00	300.00	300.00	0.81	0.81	50.43	49.56	59.98	77.80	76.19	1.61	48.178		
400.00	399.98	400.95	400.93	1.14	1.11	-8.30	47.86	60.52	75.44	73.18	2.26	33.399		
500.00	499.85	501.46	501.29	1.48	1.42	-4.77	42.81	62.12	68.68	65.78	2.91	23.634		
600.00	599.68	601.34	600.78	1.81	1.74	2.69	34.47	64.78	60.74	57.20	3.54	17.167		
700.00	699.51	700.40	699.09	2.14	2.07	15.71	22.94	68.44	54.18	49.99	4.19	12.930		
778.59	777.96	777.53	775.32	2.41	2.35	30.12	11.72	72.01	52.10	47.32	4.78	10.905 CC		
800.00	799.33	798.42	795.90	2.48	2.43	34.49	8.34	73.08	52.28	47.33	4.95	10.555		
900.00	899.16	895.99	891.81	2.82	2.81	54.53	-8.75	78.51	58.08	52.28	5.80	10.006		
1,000.00	998.99	993.83	987.94	3.16	3.21	69.74	-26.13	84.04	69.85	63.29	6.55	10.661		
1,100.00	1,098.82	1,091.67	1,084.06	3.50	3.62	80.16	-43.51	89.56	85.08	77.86	7.22	11.784		
1,200.00	1,198.65	1,189.51	1,180.19	3.85	4.04	87.30	-60.89	95.09	102.24	94.39	7.85	13.019		
1,300.00	1,298.47	1,287.35	1,276.31	4.19	4.46	92.36	-78.27	100.61	120.51	112.03	8.49	14.202		
1,400.00	1,398.30	1,385.19	1,372.44	4.53	4.88	96.07	-95.66	106.14	139.45	130.34	9.12	15.295		
1,500.00	1,498.13	1,483.03	1,468.56	4.88	5.30	98.89	-113.04	111.67	158.83	149.07	9.75	16.283		
1,600.00	1,597.96	1,580.87	1,564.69	5.22	5.72	101.10	-130.42	117.19	178.49	168.10	10.40	17.169		
1,700.00	1,697.79	1,678.71	1,660.81	5.56	6.15	102.87	-147.80	122.72	198.37	187.32	11.04	17.963		
1,800.00	1,797.61	1,776.55	1,756.94	5.91	6.58	104.32	-165.18	128.24	218.39	206.69	11.69	18.675		
1,900.00	1,897.44	1,874.39	1,853.06	6.25	7.01	105.52	-182.57	133.77	238.52	226.17	12.35	19.315		
2,000.00	1,997.27	1,972.23	1,949.19	6.59	7.43	106.54	-199.95	139.29	258.73	245.73	13.01	19.892		
2,100.00	2,097.10	2,070.07	2,045.31	6.94	7.86	107.41	-217.33	144.82	279.02	265.35	13.67	20.414		
2,200.00	2,196.93	2,167.91	2,141.44	7.28	8.29	108.16	-234.71	150.34	299.35	285.02	14.33	20.889		
2,300.00	2,296.76	2,265.74	2,237.56	7.63	8.72	108.81	-252.09	155.87	319.73	304.74	15.00	21.321		
2,400.00	2,396.58	2,363.58	2,333.68	7.97	9.15	109.39	-269.48	161.39	340.15	324.49	15.66	21.716		
2,500.00	2,496.41	2,461.42	2,429.81	8.32	9.59	109.90	-286.86	166.92	360.59	344.26	16.33	22.079		
2,600.00	2,596.24	2,559.26	2,525.93	8.66	10.02	110.36	-304.24	172.45	381.06	364.06	17.00	22.413		
2,700.00	2,696.07	2,657.10	2,622.06	9.00	10.45	110.77	-321.62	177.97	401.55	383.88	17.67	22.721		
2,800.00	2,795.90	2,754.94	2,718.18	9.35	10.88	111.14	-339.00	183.50	422.06	403.72	18.35	23.006		
2,900.00	2,895.72	2,852.78	2,814.31	9.69	11.31	111.48	-356.39	189.02	442.59	423.57	19.02	23.271		
3,000.00	2,995.55	2,950.62	2,910.43	10.04	11.74	111.78	-373.77	194.55	463.12	443.43	19.69	23.517		
3,100.00	3,095.38	3,048.46	3,006.56	10.38	12.18	112.06	-391.15	200.07	483.67	463.30	20.37	23.747		
3,200.00	3,195.21	3,146.30	3,102.68	10.72	12.61	112.32	-408.53	205.60	504.23	483.19	21.04	23.962		
3,300.00	3,295.04	3,244.14	3,198.81	11.07	13.04	112.56	-425.91	211.12	524.80	503.08	21.72	24.163		
3,400.00	3,394.87	3,341.98	3,294.93	11.41	13.48	112.78	-443.30	216.65	545.37	522.98	22.40	24.351		
3,500.00	3,494.69	3,439.82	3,391.06	11.76	13.91	112.98	-460.68	222.17	565.96	542.88	23.07	24.529		
3,600.00	3,594.52	3,537.66	3,487.18	12.10	14.34	113.17	-478.06	227.70	586.55	562.79	23.75	24.696		
3,700.00	3,694.35	3,635.50	3,583.31	12.45	14.77	113.35	-495.44	233.23	607.14	582.71	24.43	24.853		
3,800.00	3,794.18	3,733.34	3,679.43	12.79	15.21	113.51	-512.82	238.75	627.74	602.63	25.11	25.002		
3,900.00	3,894.01	3,831.18	3,775.56	13.13	15.64	113.66	-530.21	244.28	648.34	622.56	25.79	25.143		
4,000.00	3,993.83	3,929.02	3,871.68	13.48	16.07	113.81	-547.59	249.80	668.95	642.49	26.47	25.276		
4,100.00	4,093.66	4,026.86	3,967.80	13.82	16.51	113.95	-564.97	255.33	689.57	662.42	27.15	25.403		
4,200.00	4,193.49	4,124.70	4,063.93	14.17	16.94	114.07	-582.35	260.85	710.18	682.36	27.83	25.523		
4,300.00	4,293.32	4,222.54	4,160.05	14.51	17.37	114.20	-599.74	266.38	730.80	702.30	28.51	25.637		
4,400.00	4,393.15	4,320.38	4,256.18	14.86	17.81	114.31	-617.12	271.90	751.42	722.24	29.19	25.746		
4,500.00	4,492.98	4,418.22	4,352.30	15.20	18.24	114.42	-634.50	277.43	772.05	742.18	29.87	25.850		
4,600.00	4,592.80	4,516.06	4,448.43	15.55	18.67	114.52	-651.88	282.95	792.68	762.13	30.55	25.949		
4,700.00	4,692.63	4,619.10	4,559.56	15.89	19.11	114.66	-672.39	289.47	812.29	780.93	31.36	25.904		
4,800.00	4,792.46	4,776.21	4,705.48	16.23	19.46	114.91	-689.56	294.93	827.58	795.42	32.16	25.736		
4,900.00	4,892.29	4,914.94	4,843.70	16.58	19.80	115.24	-700.61	298.45	838.22	805.33	32.89	25.482		
5,000.00	4,992.15	6,424.27	5,735.00	16.90	21.25	49.78	136.10	297.85	745.66	736.50	9.16	81.363		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	6,425.32	5,735.00	17.16	21.25	31.14	137.15	297.85	645.96	636.69	9.27	69.665		
5,200.00	5,192.12	6,425.32	5,735.00	17.44	21.25	89.86	137.16	297.85	546.51	537.04	9.47	57.701		
5,299.99	5,292.11	6,425.32	5,735.00	17.76	21.25	89.86	137.16	297.85	447.33	437.49	9.84	45.461		
5,400.00	5,391.67	6,417.55	5,735.00	18.04	21.22	-133.27	129.38	297.87	349.04	338.55	10.49	33.268		
5,500.00	5,487.93	6,391.02	5,735.00	18.31	21.12	-144.52	102.85	297.94	254.95	243.14	11.82	21.578		
5,600.00	5,577.36	6,346.61	5,735.00	18.57	20.99	-142.95	58.45	298.05	169.75	154.56	15.19	11.176		
5,700.00	5,656.67	6,285.96	5,735.00	18.82	20.83	-130.26	-2.20	298.20	100.54	76.53	24.01	4.187		
5,800.00	5,722.96	6,211.30	5,735.00	19.07	20.70	-98.80	-76.87	298.39	64.26	26.06	38.20	1.682		
5,820.80	5,734.88	6,194.25	5,735.00	19.12	20.67	-90.13	-93.92	298.44	63.15	23.91	39.23	1.610 ES, SF		
5,900.00	5,773.79	6,125.36	5,735.00	19.33	20.62	-60.97	-162.81	298.61	74.18	39.44	34.74	2.135		
6,000.00	5,807.29	6,040.44	5,731.16	19.63	20.60	-41.52	-247.57	298.82	99.48	72.05	27.42	3.628		
6,100.00	5,822.23	5,960.82	5,715.52	20.00	20.63	-31.16	-325.56	299.02	127.74	104.03	23.71	5.387		
6,200.00	5,823.00	5,885.49	5,689.96	20.43	20.68	-25.53	-396.34	299.20	158.91	135.99	22.93	6.932		
6,300.00	5,823.00	5,818.57	5,658.90	20.96	20.73	-21.19	-455.57	299.35	202.47	178.92	23.54	8.599		
6,400.00	5,823.00	5,760.67	5,626.08	21.58	20.78	-17.92	-503.23	299.47	257.03	232.02	25.00	10.279		
6,500.00	5,823.00	5,711.24	5,594.03	22.28	20.82	-15.55	-540.84	299.56	320.36	293.68	26.69	12.005		
6,600.00	5,823.00	5,669.26	5,564.11	23.06	20.85	-13.83	-570.27	299.64	390.55	362.30	28.26	13.821		
6,700.00	5,823.00	5,633.60	5,536.90	23.90	20.87	-12.57	-593.31	299.70	466.06	436.44	29.62	15.736		
6,800.00	5,823.00	5,600.00	5,509.88	24.81	20.88	-11.52	-613.27	299.75	545.73	515.10	30.63	17.819		
6,900.00	5,823.00	5,577.15	5,490.80	25.76	20.89	-10.88	-625.83	299.78	628.61	596.91	31.70	19.833		
7,000.00	5,823.00	5,550.00	5,467.43	26.77	20.89	-10.18	-639.65	299.81	714.12	681.77	32.35	22.078		
7,100.00	5,823.00	5,550.00	5,467.43	27.81	20.89	-10.18	-639.65	299.81	801.98	768.51	33.47	23.964		
7,200.00	5,823.00	5,518.11	5,439.11	28.89	20.89	-9.44	-654.30	299.85	890.85	857.18	33.67	26.458		
7,300.00	5,823.00	5,500.00	5,422.64	30.01	20.89	-9.06	-661.84	299.87	981.46	947.38	34.08	28.799		
7,400.00	5,823.00	5,500.00	5,422.64	31.16	20.89	-9.06	-661.84	299.87	1,073.33	1,038.64	34.69	30.943		
7,500.00	5,823.00	5,478.00	5,402.30	32.33	20.88	-8.63	-670.22	299.89	1,165.86	1,130.98	34.88	33.429		
7,600.00	5,823.00	5,450.00	5,375.94	33.53	20.86	-8.13	-679.64	299.92	1,259.75	1,224.79	34.96	36.032		
7,700.00	5,823.00	5,450.00	5,375.94	34.74	20.86	-8.13	-679.64	299.92	1,353.58	1,318.22	35.36	38.283		
7,800.00	5,823.00	5,450.00	5,375.94	35.98	20.86	-8.13	-679.64	299.92	1,448.23	1,412.54	35.69	40.577		
7,900.00	5,823.00	5,450.00	5,375.94	37.23	20.86	-8.13	-679.64	299.92	1,543.56	1,507.58	35.98	42.902		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.99	0.01	-89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	-89.99	0.01	-89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	-89.99	0.01	-89.97	89.97	89.03	0.94	95.645		
300.00	300.00	300.00	300.00	0.81	0.81	-89.99	0.01	-89.97	89.97	88.35	1.61	55.709 CC, ES		
400.00	399.98	397.61	397.60	1.14	1.13	-149.58	1.10	-91.22	92.76	90.45	2.31	40.226		
500.00	499.85	496.28	496.16	1.48	1.47	-149.29	4.06	-94.60	100.54	97.55	2.99	33.616		
600.00	599.68	595.90	595.66	1.81	1.80	-149.20	7.24	-98.23	109.25	105.62	3.63	30.088		
700.00	699.51	695.52	695.16	2.14	2.13	-149.12	10.42	-101.87	117.95	113.67	4.28	27.553		
800.00	799.33	795.14	794.67	2.48	2.47	-149.05	13.60	-105.51	126.66	121.72	4.94	25.655		
900.00	899.16	894.76	894.17	2.82	2.81	-148.99	16.79	-109.14	135.37	129.77	5.60	24.186		
1,000.00	998.99	994.38	993.67	3.16	3.15	-148.94	19.97	-112.78	144.07	137.82	6.26	23.017		
1,100.00	1,098.82	1,094.00	1,093.17	3.50	3.49	-148.89	23.15	-116.41	152.78	145.86	6.92	22.066		
1,200.00	1,198.65	1,193.62	1,192.68	3.85	3.83	-148.85	26.33	-120.05	161.49	153.90	7.59	21.277		
1,300.00	1,298.47	1,293.24	1,292.18	4.19	4.17	-148.82	29.51	-123.69	170.20	161.94	8.26	20.613		
1,400.00	1,398.30	1,392.86	1,391.68	4.53	4.51	-148.78	32.70	-127.32	178.90	169.98	8.92	20.046		
1,500.00	1,498.13	1,492.48	1,491.19	4.88	4.85	-148.75	35.88	-130.96	187.61	178.02	9.59	19.557		
1,600.00	1,597.96	1,592.10	1,590.69	5.22	5.19	-148.72	39.06	-134.60	196.32	186.06	10.26	19.130		
1,700.00	1,697.79	1,691.72	1,690.19	5.56	5.53	-148.70	42.24	-138.23	205.03	194.10	10.93	18.756		
1,800.00	1,797.61	1,791.34	1,789.69	5.91	5.87	-148.68	45.42	-141.87	213.74	202.13	11.60	18.423		
1,900.00	1,897.44	1,890.96	1,889.20	6.25	6.21	-148.65	48.61	-145.51	222.44	210.17	12.27	18.127		
2,000.00	1,997.27	1,990.58	1,988.70	6.59	6.55	-148.63	51.79	-149.14	231.15	218.21	12.94	17.861		
2,100.00	2,097.10	2,090.20	2,088.20	6.94	6.89	-148.62	54.97	-152.78	239.86	226.25	13.61	17.621		
2,200.00	2,196.93	2,189.82	2,187.71	7.28	7.23	-148.60	58.15	-156.42	248.57	234.28	14.28	17.403		
2,300.00	2,296.76	2,289.44	2,287.21	7.63	7.57	-148.58	61.33	-160.05	257.27	242.32	14.95	17.205		
2,400.00	2,396.58	2,389.06	2,386.71	7.97	7.91	-148.57	64.51	-163.69	265.98	250.36	15.62	17.023		
2,500.00	2,496.41	2,488.68	2,486.21	8.32	8.25	-148.55	67.70	-167.33	274.69	258.39	16.30	16.856		
2,600.00	2,596.24	2,588.30	2,585.72	8.66	8.59	-148.54	70.88	-170.96	283.40	266.43	16.97	16.703		
2,700.00	2,696.07	2,687.92	2,685.22	9.00	8.93	-148.53	74.06	-174.60	292.11	274.47	17.64	16.561		
2,800.00	2,795.90	2,787.54	2,784.72	9.35	9.28	-148.52	77.24	-178.24	300.81	282.50	18.31	16.429		
2,900.00	2,895.72	2,887.16	2,884.23	9.69	9.62	-148.51	80.42	-181.87	309.52	290.54	18.98	16.307		
3,000.00	2,995.55	2,986.78	2,983.73	10.04	9.96	-148.50	83.61	-185.51	318.23	298.58	19.65	16.193		
3,100.00	3,095.38	3,086.40	3,083.23	10.38	10.30	-148.49	86.79	-189.14	326.94	306.61	20.32	16.086		
3,200.00	3,195.21	3,186.02	3,182.73	10.72	10.64	-148.48	89.97	-192.78	335.65	314.65	21.00	15.986		
3,300.00	3,295.04	3,285.64	3,282.24	11.07	10.98	-148.47	93.15	-196.42	344.35	322.69	21.67	15.892		
3,400.00	3,394.87	3,385.26	3,381.74	11.41	11.32	-148.46	96.33	-200.05	353.06	330.72	22.34	15.804		
3,500.00	3,494.69	3,484.88	3,481.24	11.76	11.66	-148.45	99.52	-203.69	361.77	338.76	23.01	15.721		
3,600.00	3,594.52	3,584.50	3,580.75	12.10	12.00	-148.44	102.70	-207.33	370.48	346.79	23.68	15.643		
3,700.00	3,694.35	3,684.12	3,680.25	12.45	12.34	-148.44	105.88	-210.96	379.19	354.83	24.35	15.569		
3,800.00	3,794.18	3,783.74	3,779.75	12.79	12.68	-148.43	109.06	-214.60	387.89	362.87	25.03	15.499		
3,900.00	3,894.01	3,883.36	3,879.25	13.13	13.03	-148.42	112.24	-218.24	396.60	370.90	25.70	15.433		
4,000.00	3,993.83	3,982.98	3,978.76	13.48	13.37	-148.42	115.43	-221.87	405.31	378.94	26.37	15.370		
4,100.00	4,093.66	4,082.60	4,078.26	13.82	13.71	-148.41	118.61	-225.51	414.02	386.97	27.04	15.310		
4,200.00	4,193.49	4,182.22	4,177.76	14.17	14.05	-148.41	121.79	-229.15	422.73	395.01	27.71	15.253		
4,300.00	4,293.32	4,281.84	4,277.27	14.51	14.39	-148.40	124.97	-232.78	431.43	403.05	28.39	15.198		
4,400.00	4,393.15	4,381.46	4,376.77	14.86	14.73	-148.40	128.15	-236.42	440.14	411.08	29.06	15.147		
4,500.00	4,492.98	4,481.08	4,476.27	15.20	15.07	-148.39	131.34	-240.06	448.85	419.12	29.73	15.097		
4,600.00	4,592.80	4,580.70	4,575.77	15.55	15.41	-148.38	134.52	-243.69	457.56	427.15	30.40	15.050		
4,700.00	4,692.63	4,680.32	4,675.28	15.89	15.75	-148.38	137.70	-247.33	466.27	435.19	31.08	15.004		
4,800.00	4,792.46	4,779.01	4,788.90	16.23	16.05	-148.34	139.92	-249.86	473.54	441.80	31.74	14.919		
4,900.00	4,892.29	4,877.39	4,892.29	16.58	16.34	-148.91	140.01	-249.97	478.64	446.26	32.38	14.784		
5,000.00	4,992.15	4,977.25	4,992.15	16.90	16.66	-149.26	140.01	-249.97	483.16	450.15	33.01	14.637		
5,099.99	5,092.11	5,097.13	5,091.77	17.16	16.95	-150.04	134.62	-249.97	484.96	451.40	33.56	14.453		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,191.97	5,183.87	17.44	17.19	-92.88	112.56	-249.97	485.65	451.60	34.05	14.264		
5,299.99	5,292.11	5,276.48	5,261.39	17.76	17.41	-96.80	79.13	-249.96	489.37	454.92	34.45	14.205		
5,400.00	5,391.67	5,350.00	5,323.67	18.04	17.59	78.49	40.19	-249.96	497.74	463.16	34.58	14.394		
5,500.00	5,487.93	5,424.36	5,380.46	18.31	17.76	73.80	-7.71	-249.96	508.88	474.41	34.47	14.763		
5,600.00	5,577.36	5,500.00	5,430.64	18.57	17.93	69.54	-64.23	-249.95	521.35	487.16	34.20	15.246		
5,700.00	5,656.67	5,562.06	5,465.36	18.82	18.06	66.32	-115.63	-249.95	533.64	500.02	33.62	15.874		
5,800.00	5,722.96	5,628.69	5,495.54	19.07	18.21	63.58	-174.97	-249.94	544.74	511.62	33.13	16.445		
5,900.00	5,773.79	5,700.00	5,519.17	19.33	18.40	61.47	-242.20	-249.94	553.75	520.90	32.84	16.861		
6,000.00	5,807.29	5,759.45	5,531.71	19.63	18.59	60.23	-300.28	-249.93	559.87	527.18	32.69	17.127		
6,100.00	5,822.23	5,824.19	5,537.75	20.00	18.84	59.63	-364.69	-249.93	562.82	529.85	32.97	17.073		
6,200.00	5,823.00	5,915.27	5,538.00	20.43	19.25	59.59	-455.77	-249.92	563.11	529.37	33.74	16.691		
6,300.00	5,823.00	6,015.27	5,538.00	20.96	19.80	59.60	-555.77	-249.91	563.21	528.46	34.75	16.209		
6,400.00	5,823.00	6,115.27	5,538.00	21.58	20.45	59.61	-655.77	-249.90	563.31	527.40	35.91	15.685		
6,500.00	5,823.00	6,215.27	5,538.00	22.28	21.18	59.61	-755.77	-249.90	563.41	526.18	37.23	15.134		
6,600.00	5,823.00	6,315.27	5,538.00	23.06	21.99	59.62	-855.77	-249.89	563.51	524.84	38.67	14.572		
6,700.00	5,823.00	6,415.27	5,538.00	23.90	22.86	59.62	-955.77	-249.88	563.61	523.39	40.23	14.010		
6,800.00	5,823.00	6,515.27	5,538.00	24.81	23.80	59.63	-1,055.77	-249.87	563.72	521.83	41.89	13.457		
6,900.00	5,823.00	6,615.27	5,538.00	25.76	24.79	59.64	-1,155.77	-249.86	563.82	520.17	43.64	12.919		
7,000.00	5,823.00	6,715.27	5,538.00	26.77	25.82	59.64	-1,255.77	-249.86	563.92	518.44	45.48	12.400		
7,100.00	5,823.00	6,815.27	5,538.00	27.81	26.90	59.65	-1,355.77	-249.85	564.02	516.64	47.38	11.904		
7,200.00	5,823.00	6,915.27	5,538.00	28.89	28.01	59.65	-1,455.77	-249.84	564.12	514.77	49.35	11.431		
7,300.00	5,823.00	7,015.27	5,538.00	30.01	29.15	59.66	-1,555.77	-249.83	564.22	512.85	51.38	10.982		
7,400.00	5,823.00	7,115.27	5,538.00	31.16	30.32	59.67	-1,655.77	-249.82	564.32	510.87	53.45	10.558		
7,500.00	5,823.00	7,215.27	5,538.00	32.33	31.52	59.67	-1,755.77	-249.82	564.42	508.85	55.57	10.157		
7,600.00	5,823.00	7,315.27	5,538.00	33.53	32.74	59.68	-1,855.77	-249.81	564.52	506.80	57.73	9.779		
7,700.00	5,823.00	7,415.27	5,538.00	34.74	33.98	59.68	-1,955.77	-249.80	564.62	504.71	59.92	9.423		
7,800.00	5,823.00	7,515.27	5,538.00	35.98	35.24	59.69	-2,055.77	-249.79	564.73	502.58	62.14	9.088		
7,900.00	5,823.00	7,615.27	5,538.00	37.23	36.51	59.70	-2,155.77	-249.78	564.83	500.43	64.40	8.771		
8,000.00	5,823.00	7,715.27	5,538.00	38.50	37.80	59.70	-2,255.77	-249.78	564.93	498.25	66.67	8.473		
8,100.00	5,823.00	7,815.27	5,538.00	39.79	39.10	59.71	-2,355.77	-249.77	565.03	496.06	68.97	8.192		
8,200.00	5,823.00	7,915.27	5,538.00	41.08	40.41	59.71	-2,455.77	-249.76	565.13	493.83	71.30	7.927		
8,300.00	5,823.00	8,015.27	5,538.00	42.39	41.73	59.72	-2,555.77	-249.75	565.23	491.60	73.64	7.676		
8,400.00	5,823.00	8,115.27	5,538.00	43.71	43.07	59.73	-2,655.77	-249.74	565.33	489.34	75.99	7.439		
8,500.00	5,823.00	8,215.27	5,538.00	45.03	44.41	59.73	-2,755.77	-249.74	565.43	487.07	78.37	7.215		
8,600.00	5,823.00	8,315.27	5,538.00	46.37	45.76	59.74	-2,855.77	-249.73	565.54	484.78	80.75	7.003		
8,700.00	5,823.00	8,415.27	5,538.00	47.71	47.11	59.74	-2,955.77	-249.72	565.64	482.48	83.15	6.802		
8,800.00	5,823.00	8,515.27	5,538.00	49.07	48.48	59.75	-3,055.77	-249.71	565.74	480.17	85.57	6.612		
8,900.00	5,823.00	8,615.27	5,538.00	50.42	49.85	59.76	-3,155.77	-249.70	565.84	477.85	87.99	6.431		
9,000.00	5,823.00	8,715.27	5,538.00	51.79	51.22	59.76	-3,255.77	-249.70	565.94	475.52	90.42	6.259		
9,100.00	5,823.00	8,815.27	5,538.00	53.16	52.60	59.77	-3,355.77	-249.69	566.04	473.18	92.86	6.095		
9,200.00	5,823.00	8,915.27	5,538.00	54.53	53.99	59.77	-3,455.77	-249.68	566.14	470.83	95.32	5.940		
9,300.00	5,823.00	9,015.27	5,538.00	55.91	55.38	59.78	-3,555.77	-249.67	566.24	468.47	97.78	5.791		
9,400.00	5,823.00	9,115.27	5,538.00	57.30	56.77	59.79	-3,655.77	-249.66	566.34	466.10	100.24	5.650		
9,500.00	5,823.00	9,215.27	5,538.00	58.69	58.17	59.79	-3,755.77	-249.66	566.45	463.73	102.72	5.515		
9,600.00	5,823.00	9,315.27	5,538.00	60.08	59.57	59.80	-3,855.77	-249.65	566.55	461.35	105.20	5.386		
9,700.00	5,823.00	9,415.27	5,538.00	61.48	60.98	59.80	-3,955.77	-249.64	566.65	458.97	107.68	5.262		
9,800.00	5,823.00	9,515.27	5,538.00	62.88	62.39	59.81	-4,055.77	-249.63	566.75	456.58	110.17	5.144		
9,900.00	5,823.00	9,615.27	5,538.00	64.28	63.80	59.82	-4,155.77	-249.62	566.85	454.18	112.67	5.031		
10,000.00	5,823.00	9,715.27	5,538.00	65.69	65.21	59.82	-4,255.77	-249.62	566.95	451.78	115.17	4.923		
10,100.00	5,823.00	9,815.27	5,538.00	67.10	66.63	59.83	-4,355.77	-249.61	567.05	449.37	117.68	4.819		
10,200.00	5,823.00	9,915.27	5,538.00	68.51	68.04	59.83	-4,455.77	-249.60	567.15	446.96	120.19	4.719		
10,300.00	5,823.00	10,015.27	5,538.00	69.93	69.47	59.84	-4,555.77	-249.59	567.26	444.55	122.70	4.623		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	5,823.00	10,115.27	5,538.00	71.34	70.89	59.85	-4,655.77	-249.58	567.36	442.13	125.22	4.531		
10,500.00	5,823.00	10,215.27	5,538.00	72.76	72.31	59.85	-4,755.77	-249.58	567.46	439.71	127.75	4.442		
10,600.00	5,823.00	10,315.27	5,538.00	74.18	73.74	59.86	-4,855.77	-249.57	567.56	437.29	130.27	4.357		
10,700.00	5,823.00	10,415.27	5,538.00	75.60	75.17	59.86	-4,955.77	-249.56	567.66	434.86	132.80	4.274		
10,800.00	5,823.00	10,515.27	5,538.00	77.03	76.60	59.87	-5,055.77	-249.55	567.76	432.43	135.34	4.195		
10,900.00	5,823.00	10,615.27	5,538.00	78.46	78.03	59.88	-5,155.77	-249.54	567.86	429.99	137.87	4.119		
11,000.00	5,823.00	10,715.27	5,538.00	79.88	79.46	59.88	-5,255.77	-249.54	567.96	427.56	140.41	4.045		
11,100.00	5,823.00	10,815.27	5,538.00	81.31	80.90	59.89	-5,355.77	-249.53	568.07	425.12	142.95	3.974		
11,200.00	5,823.00	10,915.27	5,538.00	82.75	82.33	59.89	-5,455.77	-249.52	568.17	422.67	145.49	3.905		
11,300.00	5,823.00	11,015.27	5,538.00	84.18	83.77	59.90	-5,555.77	-249.51	568.27	420.23	148.04	3.839		
11,400.00	5,823.00	11,115.27	5,538.00	85.61	85.21	59.91	-5,655.77	-249.50	568.37	417.78	150.59	3.774		
11,500.00	5,823.00	11,215.27	5,538.00	87.05	86.65	59.91	-5,755.77	-249.50	568.47	415.33	153.14	3.712		
11,600.00	5,823.00	11,315.27	5,538.00	88.48	88.09	59.92	-5,855.77	-249.49	568.57	412.88	155.69	3.652		
11,700.00	5,823.00	11,415.27	5,538.00	89.92	89.53	59.92	-5,955.77	-249.48	568.67	410.43	158.25	3.594		
11,800.00	5,823.00	11,515.27	5,538.00	91.36	90.97	59.93	-6,055.77	-249.47	568.78	407.97	160.80	3.537		
11,900.00	5,823.00	11,615.27	5,538.00	92.80	92.41	59.93	-6,155.77	-249.47	568.88	405.51	163.36	3.482		
12,000.00	5,823.00	11,715.27	5,538.00	94.24	93.86	59.94	-6,255.77	-249.46	568.98	403.06	165.92	3.429		
12,100.00	5,823.00	11,815.27	5,538.00	95.68	95.30	59.95	-6,355.77	-249.45	569.08	400.59	168.49	3.378		
12,200.00	5,823.00	11,915.27	5,538.00	97.12	96.75	59.95	-6,455.77	-249.44	569.18	398.13	171.05	3.328		
12,300.00	5,823.00	12,015.27	5,538.00	98.57	98.19	59.96	-6,555.77	-249.43	569.28	395.67	173.61	3.279		
12,400.00	5,823.00	12,115.27	5,538.00	100.01	99.64	59.96	-6,655.77	-249.43	569.38	393.20	176.18	3.232		
12,500.00	5,823.00	12,215.27	5,538.00	101.46	101.09	59.97	-6,755.77	-249.42	569.49	390.73	178.75	3.186		
12,600.00	5,823.00	12,315.27	5,538.00	102.90	102.54	59.98	-6,855.77	-249.41	569.59	388.27	181.32	3.141		
12,700.00	5,823.00	12,415.27	5,538.00	104.35	103.99	59.98	-6,955.77	-249.40	569.69	385.80	183.89	3.098		
12,800.00	5,823.00	12,515.27	5,538.00	105.80	105.44	59.99	-7,055.77	-249.39	569.79	383.33	186.46	3.056		
12,900.00	5,823.00	12,615.27	5,538.00	107.25	106.89	59.99	-7,155.77	-249.39	569.89	380.85	189.04	3.015		
13,000.00	5,823.00	12,715.27	5,538.00	108.69	108.34	60.00	-7,255.77	-249.38	569.99	378.38	191.61	2.975		
13,100.00	5,823.00	12,815.27	5,538.00	110.14	109.79	60.01	-7,355.77	-249.37	570.09	375.90	194.19	2.936		
13,200.00	5,823.00	12,915.27	5,538.00	111.59	111.24	60.01	-7,455.77	-249.36	570.19	373.43	196.77	2.898		
13,300.00	5,823.00	13,015.27	5,538.00	113.04	112.69	60.02	-7,555.77	-249.35	570.30	370.95	199.35	2.861		
13,400.00	5,823.00	13,115.27	5,538.00	114.49	114.15	60.02	-7,655.77	-249.35	570.40	368.47	201.93	2.825		
13,500.00	5,823.00	13,215.27	5,538.00	115.95	115.60	60.03	-7,755.77	-249.34	570.50	365.99	204.51	2.790		
13,600.00	5,823.00	13,315.27	5,538.00	117.40	117.05	60.03	-7,855.77	-249.33	570.60	363.51	207.09	2.755		
13,700.00	5,823.00	13,415.27	5,538.00	118.85	118.51	60.04	-7,955.77	-249.32	570.70	361.03	209.67	2.722		
13,800.00	5,823.00	13,515.27	5,538.00	120.30	119.96	60.05	-8,055.77	-249.31	570.80	358.55	212.26	2.689		
13,899.97	5,823.00	13,615.24	5,538.00	121.76	121.42	60.05	-8,155.74	-249.31	570.91	356.07	214.84	2.657		
13,903.39	5,823.00	13,617.62	5,538.00	121.81	121.45	60.05	-8,158.12	-249.31	570.91	356.00	214.91	2.656 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	-89.98	0.01	-29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	-89.98	0.01	-29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	-89.98	0.01	-29.99	29.99	29.05	0.94	31.882		
300.00	300.00	300.00	300.00	0.81	0.81	-89.98	0.01	-29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	400.65	400.63	1.14	1.15	-148.80	1.39	-28.89	30.41	28.11	2.30	13.218 ES		
500.00	499.85	500.71	500.61	1.48	1.48	-147.93	4.45	-26.44	32.34	29.39	2.96	10.936		
600.00	599.68	600.68	600.50	1.81	1.82	-147.85	7.54	-23.99	34.95	31.34	3.61	9.673		
700.00	699.51	700.64	700.39	2.14	2.15	-147.78	10.62	-21.53	37.56	33.29	4.28	8.786		
800.00	799.33	800.61	800.28	2.48	2.49	-147.73	13.70	-19.07	40.17	35.23	4.94	8.131		
900.00	899.16	900.57	900.16	2.82	2.82	-147.67	16.78	-16.62	42.78	37.17	5.61	7.629		
1,000.00	998.99	1,000.54	1,000.05	3.16	3.16	-147.63	19.87	-14.16	45.39	39.11	6.28	7.232		
1,100.00	1,098.82	1,100.51	1,099.94	3.50	3.50	-147.59	22.95	-11.70	48.00	41.05	6.95	6.910		
1,200.00	1,198.65	1,200.47	1,199.83	3.85	3.84	-147.55	26.03	-9.25	50.61	42.99	7.62	6.644		
1,300.00	1,298.47	1,300.44	1,299.72	4.19	4.18	-147.52	29.11	-6.79	53.22	44.93	8.29	6.421		
1,400.00	1,398.30	1,400.40	1,399.61	4.53	4.51	-147.49	32.20	-4.33	55.83	46.87	8.96	6.231		
1,500.00	1,498.13	1,500.37	1,499.49	4.88	4.85	-147.46	35.28	-1.87	58.44	48.80	9.63	6.067		
1,600.00	1,597.96	1,600.33	1,599.38	5.22	5.19	-147.43	38.36	0.58	61.05	50.74	10.30	5.924		
1,700.00	1,697.79	1,700.30	1,699.27	5.56	5.53	-147.41	41.44	3.04	63.66	52.68	10.98	5.799		
1,800.00	1,797.61	1,800.27	1,799.16	5.91	5.87	-147.39	44.53	5.50	66.27	54.61	11.65	5.688		
1,900.00	1,897.44	1,900.23	1,899.05	6.25	6.21	-147.37	47.61	7.95	68.87	56.55	12.32	5.589		
2,000.00	1,997.27	2,000.20	1,998.93	6.59	6.54	-147.35	50.69	10.41	71.48	58.49	13.00	5.500		
2,100.00	2,097.10	2,100.16	2,098.82	6.94	6.88	-147.34	53.77	12.87	74.09	60.42	13.67	5.420		
2,200.00	2,196.93	2,200.13	2,198.71	7.28	7.22	-147.32	56.86	15.32	76.70	62.36	14.34	5.348		
2,300.00	2,296.76	2,300.10	2,298.60	7.63	7.56	-147.31	59.94	17.78	79.31	64.30	15.02	5.281		
2,400.00	2,396.58	2,400.06	2,398.49	7.97	7.90	-147.29	63.02	20.24	81.92	66.23	15.69	5.221		
2,500.00	2,496.41	2,500.03	2,498.38	8.32	8.24	-147.28	66.10	22.70	84.53	68.17	16.36	5.166		
2,600.00	2,596.24	2,599.99	2,598.26	8.66	8.58	-147.27	69.19	25.15	87.14	70.10	17.04	5.114		
2,700.00	2,696.07	2,699.96	2,698.15	9.00	8.91	-147.26	72.27	27.61	89.75	72.04	17.71	5.067		
2,800.00	2,795.90	2,799.93	2,798.04	9.35	9.25	-147.25	75.35	30.07	92.36	73.97	18.39	5.023		
2,900.00	2,895.72	2,899.89	2,897.93	9.69	9.59	-147.24	78.43	32.52	94.97	75.91	19.06	4.983		
3,000.00	2,995.55	2,999.86	2,997.82	10.04	9.93	-147.23	81.52	34.98	97.58	77.84	19.73	4.945		
3,100.00	3,095.38	3,099.82	3,097.71	10.38	10.27	-147.22	84.60	37.44	100.19	79.78	20.41	4.909		
3,200.00	3,195.21	3,199.79	3,197.59	10.72	10.61	-147.21	87.68	39.89	102.80	81.72	21.08	4.876		
3,300.00	3,295.04	3,299.76	3,297.48	11.07	10.95	-147.20	90.76	42.35	105.41	83.65	21.76	4.845		
3,400.00	3,394.87	3,399.72	3,397.37	11.41	11.29	-147.19	93.85	44.81	108.02	85.59	22.43	4.816		
3,500.00	3,494.69	3,499.69	3,497.26	11.76	11.62	-147.18	96.93	47.27	110.63	87.52	23.10	4.788		
3,600.00	3,594.52	3,599.65	3,597.15	12.10	11.96	-147.18	100.01	49.72	113.23	89.46	23.78	4.762		
3,700.00	3,694.35	3,699.62	3,697.03	12.45	12.30	-147.17	103.09	52.18	115.84	91.39	24.45	4.738		
3,800.00	3,794.18	3,799.59	3,796.92	12.79	12.64	-147.16	106.17	54.64	118.45	93.33	25.13	4.714		
3,900.00	3,894.01	3,899.55	3,896.81	13.13	12.98	-147.16	109.26	57.09	121.06	95.26	25.80	4.692		
4,000.00	3,993.83	3,999.52	3,996.70	13.48	13.32	-147.15	112.34	59.55	123.67	97.20	26.47	4.672		
4,100.00	4,093.66	4,099.48	4,096.59	13.82	13.66	-147.15	115.42	62.01	126.28	99.13	27.15	4.652		
4,200.00	4,193.49	4,199.45	4,196.48	14.17	14.00	-147.14	118.50	64.46	128.89	101.07	27.82	4.633		
4,300.00	4,293.32	4,299.42	4,296.36	14.51	14.34	-147.14	121.59	66.92	131.50	103.01	28.50	4.615		
4,400.00	4,393.15	4,399.38	4,396.25	14.86	14.67	-147.13	124.67	69.38	134.11	104.94	29.17	4.598		
4,500.00	4,492.98	4,499.35	4,496.14	15.20	15.01	-147.13	127.75	71.84	136.72	106.88	29.84	4.581		
4,600.00	4,592.80	4,599.31	4,596.03	15.55	15.35	-147.12	130.83	74.29	139.33	108.81	30.52	4.565		
4,700.00	4,692.63	4,699.28	4,695.92	15.89	15.69	-147.12	133.92	76.75	141.94	110.75	31.19	4.550		
4,800.00	4,792.46	4,798.56	4,795.12	16.23	16.02	-147.14	136.91	79.13	144.60	112.75	31.85	4.540		
4,900.00	4,892.29	4,895.74	4,892.29	16.58	16.27	-147.89	138.01	80.01	148.69	116.26	32.43	4.585		
5,000.00	4,992.15	4,995.60	4,992.15	16.90	16.59	-148.97	138.01	80.01	153.18	120.12	33.07	4.633		
5,099.99	5,092.11	5,095.57	5,092.12	17.16	16.92	-149.40	137.96	80.01	154.98	121.32	33.66	4.605		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,194.30	5,190.12	17.44	17.18	-93.58	127.29	80.01	155.30	121.14	34.16	4.546		
5,299.99	5,292.11	5,285.93	5,277.79	17.76	17.42	-103.07	101.03	80.01	159.75	125.31	34.44	4.638		
5,400.00	5,391.67	5,369.52	5,352.63	18.04	17.64	65.47	64.01	80.02	172.62	138.64	33.99	5.079		
5,500.00	5,487.93	5,450.00	5,418.22	18.31	17.84	56.09	17.51	80.02	190.12	157.38	32.74	5.807		
5,600.00	5,577.36	5,526.12	5,472.98	18.57	18.01	49.10	-35.27	80.03	209.03	178.27	30.76	6.795		
5,700.00	5,656.67	5,600.00	5,518.23	18.82	18.17	43.97	-93.59	80.03	227.07	198.65	28.41	7.992		
5,800.00	5,722.96	5,673.86	5,554.77	19.07	18.33	40.28	-157.70	80.04	242.68	216.55	26.13	9.287		
5,900.00	5,773.79	5,750.00	5,582.57	19.33	18.53	37.73	-228.51	80.04	254.93	230.63	24.30	10.492		
6,000.00	5,807.29	5,816.89	5,598.25	19.63	18.73	36.31	-293.49	80.05	263.04	240.48	22.56	11.660		
6,100.00	5,822.23	5,887.60	5,605.65	20.00	18.99	35.68	-363.76	80.05	266.79	244.81	21.97	12.142		
6,200.00	5,823.00	5,979.59	5,606.00	20.43	19.41	35.66	-455.75	80.06	267.07	244.57	22.49	11.873		
6,300.00	5,823.00	6,079.59	5,606.00	20.96	19.95	35.68	-555.75	80.07	267.14	243.84	23.30	11.465		
6,400.00	5,823.00	6,179.59	5,606.00	21.58	20.59	35.70	-655.75	80.08	267.20	242.97	24.23	11.027		
6,500.00	5,823.00	6,279.59	5,606.00	22.28	21.31	35.72	-755.75	80.09	267.27	242.00	25.28	10.574		
6,600.00	5,823.00	6,379.59	5,606.00	23.06	22.11	35.74	-855.75	80.09	267.34	240.92	26.42	10.118		
6,700.00	5,823.00	6,479.59	5,606.00	23.90	22.98	35.76	-955.75	80.10	267.41	239.75	27.65	9.670		
6,800.00	5,823.00	6,579.59	5,606.00	24.81	23.90	35.78	-1,055.75	80.11	267.48	238.51	28.97	9.234		
6,900.00	5,823.00	6,679.59	5,606.00	25.76	24.88	35.80	-1,155.75	80.12	267.55	237.20	30.34	8.817		
7,000.00	5,823.00	6,779.59	5,606.00	26.77	25.91	35.82	-1,255.75	80.13	267.61	235.83	31.78	8.421		
7,100.00	5,823.00	6,879.59	5,606.00	27.81	26.98	35.84	-1,355.75	80.14	267.68	234.41	33.27	8.046		
7,200.00	5,823.00	6,979.59	5,606.00	28.89	28.08	35.86	-1,455.75	80.14	267.75	232.95	34.80	7.694		
7,300.00	5,823.00	7,079.59	5,606.00	30.01	29.22	35.88	-1,555.75	80.15	267.82	231.45	36.37	7.363		
7,400.00	5,823.00	7,179.59	5,606.00	31.16	30.38	35.90	-1,655.75	80.16	267.89	229.91	37.98	7.053		
7,500.00	5,823.00	7,279.59	5,606.00	32.33	31.57	35.92	-1,755.75	80.17	267.96	228.34	39.62	6.763		
7,600.00	5,823.00	7,379.59	5,606.00	33.53	32.79	35.94	-1,855.75	80.18	268.02	226.74	41.28	6.492		
7,700.00	5,823.00	7,479.59	5,606.00	34.74	34.02	35.96	-1,955.75	80.19	268.09	225.12	42.97	6.239		
7,800.00	5,823.00	7,579.59	5,606.00	35.98	35.28	35.98	-2,055.75	80.19	268.16	223.48	44.68	6.001		
7,900.00	5,823.00	7,679.59	5,606.00	37.23	36.55	36.00	-2,155.75	80.20	268.23	221.81	46.42	5.779		
8,000.00	5,823.00	7,779.59	5,606.00	38.50	37.83	36.02	-2,255.75	80.21	268.30	220.13	48.16	5.571		
8,100.00	5,823.00	7,879.59	5,606.00	39.79	39.13	36.04	-2,355.75	80.22	268.37	218.44	49.93	5.375		
8,200.00	5,823.00	7,979.59	5,606.00	41.08	40.44	36.06	-2,455.75	80.23	268.44	216.73	51.71	5.192		
8,300.00	5,823.00	8,079.59	5,606.00	42.39	41.76	36.08	-2,555.75	80.24	268.50	215.01	53.50	5.019		
8,400.00	5,823.00	8,179.59	5,606.00	43.71	43.08	36.10	-2,655.75	80.24	268.57	213.27	55.30	4.856		
8,500.00	5,823.00	8,279.59	5,606.00	45.03	44.42	36.12	-2,755.75	80.25	268.64	211.53	57.12	4.703		
8,600.00	5,823.00	8,379.59	5,606.00	46.37	45.77	36.14	-2,855.75	80.26	268.71	209.77	58.94	4.559		
8,700.00	5,823.00	8,479.59	5,606.00	47.71	47.12	36.16	-2,955.75	80.27	268.78	208.01	60.77	4.423		
8,800.00	5,823.00	8,579.59	5,606.00	49.07	48.49	36.18	-3,055.75	80.28	268.85	206.23	62.62	4.294		
8,900.00	5,823.00	8,679.59	5,606.00	50.42	49.85	36.20	-3,155.75	80.29	268.92	204.45	64.47	4.171		
9,000.00	5,823.00	8,779.59	5,606.00	51.79	51.23	36.22	-3,255.75	80.30	268.99	202.66	66.33	4.056		
9,100.00	5,823.00	8,879.59	5,606.00	53.16	52.61	36.24	-3,355.75	80.30	269.06	200.87	68.19	3.946		
9,200.00	5,823.00	8,979.59	5,606.00	54.53	53.99	36.26	-3,455.75	80.31	269.12	199.06	70.06	3.841		
9,300.00	5,823.00	9,079.59	5,606.00	55.91	55.38	36.28	-3,555.74	80.32	269.19	197.26	71.94	3.742		
9,400.00	5,823.00	9,179.59	5,606.00	57.30	56.77	36.30	-3,655.74	80.33	269.26	195.44	73.82	3.648		
9,500.00	5,823.00	9,279.59	5,606.00	58.69	58.17	36.32	-3,755.74	80.34	269.33	193.62	75.71	3.557		
9,600.00	5,823.00	9,379.59	5,606.00	60.08	59.57	36.34	-3,855.74	80.35	269.40	191.80	77.60	3.472		
9,700.00	5,823.00	9,479.59	5,606.00	61.48	60.97	36.36	-3,955.74	80.35	269.47	189.97	79.50	3.390		
9,800.00	5,823.00	9,579.59	5,606.00	62.88	62.38	36.38	-4,055.74	80.36	269.54	188.14	81.40	3.311		
9,900.00	5,823.00	9,679.59	5,606.00	64.28	63.78	36.40	-4,155.74	80.37	269.61	186.30	83.31	3.236		
10,000.00	5,823.00	9,779.59	5,606.00	65.69	65.20	36.42	-4,255.74	80.38	269.68	184.46	85.22	3.164		
10,100.00	5,823.00	9,879.59	5,606.00	67.10	66.61	36.44	-4,355.74	80.39	269.75	182.61	87.14	3.096		
10,200.00	5,823.00	9,979.59	5,606.00	68.51	68.03	36.46	-4,455.74	80.40	269.82	180.76	89.06	3.030		
10,300.00	5,823.00	10,079.59	5,606.00	69.93	69.45	36.48	-4,555.74	80.40	269.89	178.91	90.98	2.967		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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
10,400.00	5,823.00	10,179.59	5,606.00	71.34	70.87	36.50	-4,655.74	80.41	269.96	177.05	92.90	2.906	
10,500.00	5,823.00	10,279.59	5,606.00	72.76	72.29	36.52	-4,755.74	80.42	270.02	175.19	94.83	2.847	
10,600.00	5,823.00	10,379.59	5,606.00	74.18	73.72	36.54	-4,855.74	80.43	270.09	173.33	96.77	2.791	
10,700.00	5,823.00	10,479.59	5,606.00	75.60	75.15	36.56	-4,955.74	80.44	270.16	171.46	98.70	2.737	
10,800.00	5,823.00	10,579.59	5,606.00	77.03	76.57	36.58	-5,055.74	80.45	270.23	169.59	100.64	2.685	
10,900.00	5,823.00	10,679.59	5,606.00	78.46	78.00	36.60	-5,155.74	80.45	270.30	167.72	102.58	2.635	
11,000.00	5,823.00	10,779.59	5,606.00	79.88	79.44	36.62	-5,255.74	80.46	270.37	165.85	104.53	2.587	
11,100.00	5,823.00	10,879.59	5,606.00	81.31	80.87	36.64	-5,355.74	80.47	270.44	163.97	106.47	2.540	
11,200.00	5,823.00	10,979.59	5,606.00	82.75	82.31	36.66	-5,455.74	80.48	270.51	162.09	108.42	2.495	
11,300.00	5,823.00	11,079.59	5,606.00	84.18	83.74	36.68	-5,555.74	80.49	270.58	160.21	110.37	2.451	
11,400.00	5,823.00	11,179.59	5,606.00	85.61	85.18	36.70	-5,655.74	80.50	270.65	158.32	112.33	2.409	
11,500.00	5,823.00	11,279.59	5,606.00	87.05	86.62	36.72	-5,755.74	80.50	270.72	156.44	114.29	2.369	
11,600.00	5,823.00	11,379.59	5,606.00	88.48	88.06	36.74	-5,855.74	80.51	270.79	154.55	116.25	2.329	
11,700.00	5,823.00	11,479.59	5,606.00	89.92	89.50	36.76	-5,955.74	80.52	270.86	152.65	118.21	2.291	
11,800.00	5,823.00	11,579.59	5,606.00	91.36	90.94	36.78	-6,055.74	80.53	270.93	150.76	120.17	2.255	
11,900.00	5,823.00	11,679.59	5,606.00	92.80	92.38	36.80	-6,155.74	80.54	271.00	148.86	122.14	2.219	
12,000.00	5,823.00	11,779.59	5,606.00	94.24	93.82	36.82	-6,255.74	80.55	271.07	146.96	124.11	2.184	
12,100.00	5,823.00	11,879.59	5,606.00	95.68	95.27	36.84	-6,355.74	80.55	271.14	145.06	126.08	2.151	
12,200.00	5,823.00	11,979.59	5,606.00	97.12	96.71	36.86	-6,455.74	80.56	271.21	143.16	128.05	2.118	
12,300.00	5,823.00	12,079.59	5,606.00	98.57	98.16	36.88	-6,555.74	80.57	271.28	141.26	130.02	2.086	
12,400.00	5,823.00	12,179.59	5,606.00	100.01	99.61	36.90	-6,655.74	80.58	271.35	139.35	132.00	2.056	
12,500.00	5,823.00	12,279.59	5,606.00	101.46	101.05	36.92	-6,755.74	80.59	271.42	137.44	133.98	2.026	
12,600.00	5,823.00	12,379.59	5,606.00	102.90	102.50	36.94	-6,855.74	80.60	271.49	135.53	135.96	1.997	
12,700.00	5,823.00	12,479.59	5,606.00	104.35	103.95	36.96	-6,955.74	80.61	271.56	133.62	137.94	1.969	
12,800.00	5,823.00	12,579.59	5,606.00	105.80	105.40	36.98	-7,055.74	80.61	271.63	131.70	139.93	1.941	
12,900.00	5,823.00	12,679.59	5,606.00	107.25	106.85	37.00	-7,155.74	80.62	271.70	129.79	141.91	1.915	
13,000.00	5,823.00	12,779.59	5,606.00	108.69	108.30	37.02	-7,255.74	80.63	271.77	127.87	143.90	1.889	
13,100.00	5,823.00	12,879.59	5,606.00	110.14	109.75	37.04	-7,355.74	80.64	271.84	125.95	145.89	1.863	
13,200.00	5,823.00	12,979.59	5,606.00	111.59	111.20	37.06	-7,455.74	80.65	271.91	124.03	147.88	1.839	
13,300.00	5,823.00	13,079.59	5,606.00	113.04	112.66	37.08	-7,555.74	80.66	271.98	122.11	149.88	1.815	
13,400.00	5,823.00	13,179.59	5,606.00	114.49	114.11	37.09	-7,655.74	80.66	272.05	120.18	151.87	1.791	
13,500.00	5,823.00	13,279.59	5,606.00	115.95	115.56	37.11	-7,755.74	80.67	272.12	118.26	153.87	1.769	
13,600.00	5,823.00	13,379.59	5,606.00	117.40	117.02	37.13	-7,855.74	80.68	272.19	116.33	155.87	1.746	
13,700.00	5,823.00	13,479.59	5,606.00	118.85	118.47	37.15	-7,955.74	80.69	272.26	114.40	157.87	1.725	
13,800.00	5,823.00	13,579.59	5,606.00	120.30	119.92	37.17	-8,055.74	80.70	272.33	112.47	159.87	1.703	
13,899.97	5,823.00	13,679.56	5,606.00	121.76	121.38	37.19	-8,155.71	80.71	272.41	110.53	161.87	1.683	
13,903.39	5,823.00	13,682.96	5,606.00	121.81	121.43	37.19	-8,159.11	80.71	272.41	110.47	161.94	1.682 SF	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	Hz	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.98	0.01	29.99	29.99					
100.00	100.00	100.00	100.00	0.13	0.13	89.98	0.01	29.99	29.99	29.72	0.27	112.594		
200.00	200.00	200.00	200.00	0.47	0.47	89.98	0.01	29.99	29.99	29.05	0.94	31.882		
300.00	300.00	300.00	300.00	0.81	0.81	89.98	0.01	29.99	29.99	28.37	1.61	18.570 CC		
400.00	399.98	399.02	399.00	1.14	1.13	30.78	0.59	31.60	30.11	27.79	2.32	12.989		
500.00	499.85	498.04	497.88	1.48	1.46	32.23	2.32	36.43	30.64	27.58	3.06	10.020 ES		
600.00	599.68	597.24	596.71	1.81	1.81	32.16	5.19	44.38	33.60	29.82	3.78	8.883		
700.00	699.51	697.16	696.19	2.14	2.14	31.56	8.40	53.31	37.47	33.06	4.41	8.500		
800.00	799.33	797.09	795.66	2.48	2.49	31.06	11.61	62.23	41.34	36.29	5.05	8.193		
900.00	899.16	897.01	895.14	2.82	2.84	30.65	14.82	71.15	45.21	39.52	5.69	7.942		
1,000.00	998.99	996.94	994.61	3.16	3.19	30.31	18.03	80.08	49.09	42.74	6.35	7.736		
1,100.00	1,098.82	1,096.86	1,094.08	3.50	3.55	30.02	21.24	89.00	52.96	45.96	7.00	7.564		
1,200.00	1,198.65	1,196.78	1,193.56	3.85	3.90	29.76	24.45	97.92	56.84	49.18	7.66	7.418		
1,300.00	1,298.47	1,296.71	1,293.03	4.19	4.26	29.54	27.66	106.85	60.72	52.40	8.33	7.294		
1,400.00	1,398.30	1,396.63	1,392.50	4.53	4.62	29.35	30.87	115.77	64.60	55.61	8.99	7.186		
1,500.00	1,498.13	1,496.56	1,491.98	4.88	4.97	29.17	34.08	124.69	68.48	58.83	9.66	7.092		
1,600.00	1,597.96	1,596.48	1,591.45	5.22	5.33	29.02	37.29	133.62	72.36	62.04	10.32	7.010		
1,700.00	1,697.79	1,696.41	1,690.92	5.56	5.69	28.88	40.51	142.54	76.24	65.25	10.99	6.936		
1,800.00	1,797.61	1,796.33	1,790.40	5.91	6.05	28.76	43.72	151.47	80.13	68.47	11.66	6.871		
1,900.00	1,897.44	1,896.26	1,889.87	6.25	6.41	28.64	46.93	160.39	84.01	71.68	12.33	6.813		
2,000.00	1,997.27	1,996.18	1,989.34	6.59	6.76	28.54	50.14	169.31	87.89	74.89	13.00	6.760		
2,100.00	2,097.10	2,096.10	2,088.82	6.94	7.12	28.44	53.35	178.24	91.78	78.10	13.67	6.712		
2,200.00	2,196.93	2,196.03	2,188.29	7.28	7.48	28.36	56.56	187.16	95.66	81.31	14.35	6.668		
2,300.00	2,296.76	2,295.95	2,287.76	7.63	7.84	28.28	59.77	196.08	99.54	84.52	15.02	6.628		
2,400.00	2,396.58	2,395.88	2,387.24	7.97	8.20	28.20	62.98	205.01	103.43	87.74	15.69	6.592		
2,500.00	2,496.41	2,495.80	2,486.71	8.32	8.56	28.13	66.19	213.93	107.31	90.95	16.36	6.558		
2,600.00	2,596.24	2,595.73	2,586.18	8.66	8.92	28.07	69.40	222.85	111.19	94.16	17.04	6.527		
2,700.00	2,696.07	2,695.65	2,686.66	9.00	9.28	28.01	72.61	231.78	115.08	97.37	17.71	6.498		
2,800.00	2,795.90	2,795.58	2,785.13	9.35	9.64	27.95	75.82	240.70	118.96	100.58	18.38	6.472		
2,900.00	2,895.72	2,895.50	2,884.60	9.69	10.00	27.90	79.03	249.62	122.85	103.79	19.06	6.447		
3,000.00	2,995.55	2,995.42	2,984.08	10.04	10.35	27.85	82.24	258.55	126.73	107.00	19.73	6.423		
3,100.00	3,095.38	3,095.35	3,083.55	10.38	10.71	27.81	85.46	267.47	130.61	110.21	20.40	6.402		
3,200.00	3,195.21	3,195.27	3,183.02	10.72	11.07	27.76	88.67	276.39	134.50	113.42	21.08	6.381		
3,300.00	3,295.04	3,295.20	3,282.50	11.07	11.43	27.72	91.88	285.32	138.38	116.63	21.75	6.362		
3,400.00	3,394.87	3,395.12	3,381.97	11.41	11.79	27.68	95.09	294.24	142.27	119.84	22.43	6.344		
3,500.00	3,494.69	3,495.05	3,481.44	11.76	12.15	27.65	98.30	303.16	146.15	123.05	23.10	6.327		
3,600.00	3,594.52	3,594.97	3,580.92	12.10	12.51	27.61	101.51	312.09	150.04	126.26	23.77	6.311		
3,700.00	3,694.35	3,694.90	3,680.39	12.45	12.87	27.58	104.72	321.01	153.92	129.47	24.45	6.296		
3,800.00	3,794.18	3,794.82	3,779.86	12.79	13.23	27.55	107.93	329.93	157.81	132.68	25.12	6.281		
3,900.00	3,894.01	3,894.74	3,879.34	13.13	13.59	27.52	111.14	338.86	161.69	135.89	25.80	6.268		
4,000.00	3,993.83	3,994.67	3,978.81	13.48	13.95	27.49	114.35	347.78	165.58	139.10	26.47	6.255		
4,100.00	4,093.66	4,094.59	4,078.29	13.82	14.31	27.46	117.56	356.70	169.46	142.31	27.15	6.242		
4,200.00	4,193.49	4,194.52	4,177.76	14.17	14.67	27.43	120.77	365.63	173.35	145.52	27.82	6.230		
4,300.00	4,293.32	4,294.44	4,277.23	14.51	15.03	27.41	123.98	374.55	177.23	148.73	28.50	6.219		
4,400.00	4,393.15	4,394.37	4,376.71	14.86	15.39	27.39	127.19	383.47	181.12	151.95	29.17	6.208		
4,500.00	4,492.98	4,494.29	4,476.18	15.20	15.74	27.36	130.41	392.40	185.00	155.16	29.85	6.198		
4,600.00	4,592.80	4,596.28	4,577.72	15.55	16.10	27.36	133.62	401.33	188.72	158.20	30.52	6.183		
4,700.00	4,692.63	4,703.02	4,684.23	15.89	16.38	27.62	135.97	407.85	189.73	158.59	31.14	6.093		
4,800.00	4,792.46	4,809.67	4,790.83	16.23	16.65	28.24	136.97	410.64	187.20	155.48	31.71	5.903		
4,900.00	4,892.29	4,911.12	4,892.29	16.58	16.93	29.11	137.01	410.75	182.16	149.83	32.33	5.634		
5,000.00	4,992.15	5,010.98	4,992.15	16.90	17.24	29.91	137.01	410.75	177.57	144.61	32.96	5.387		
5,096.89	5,089.01	5,107.40	5,088.34	17.15	17.50	31.83	132.10	410.75	175.84	142.33	33.51	5.247		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,092.11	5,110.43	5,091.34	17.16	17.51	31.97	131.68	410.75	175.85	142.31	33.53	5.244		
5,200.00	5,192.12	5,204.77	5,182.99	17.44	17.75	98.78	109.86	410.75	178.07	143.91	34.15	5.214		
5,299.99	5,292.11	5,288.95	5,260.27	17.76	17.97	108.93	76.72	410.75	188.51	154.01	34.50	5.464		
5,400.00	5,391.67	5,364.37	5,324.19	18.04	18.16	-59.64	36.81	410.76	209.72	175.85	33.86	6.193		
5,500.00	5,487.93	5,436.45	5,379.29	18.31	18.33	-50.67	-9.57	410.76	235.13	202.82	32.30	7.279		
5,600.00	5,577.36	5,500.00	5,422.15	18.57	18.49	-44.34	-56.44	410.77	260.98	231.12	29.86	8.739		
5,700.00	5,656.67	5,573.96	5,464.42	18.82	18.68	-39.21	-117.05	410.77	284.52	256.60	27.92	10.191		
5,800.00	5,722.96	5,640.52	5,494.78	19.07	18.86	-35.83	-176.23	410.78	304.48	278.74	25.74	11.829		
5,900.00	5,773.79	5,700.00	5,515.34	19.33	19.05	-33.65	-232.01	410.78	319.89	296.14	23.75	13.469		
6,000.00	5,807.29	5,771.22	5,531.40	19.63	19.30	-32.19	-301.34	410.79	329.86	306.95	22.91	14.397		
6,100.00	5,822.23	5,835.94	5,537.68	20.00	19.56	-31.60	-365.72	410.79	334.30	311.50	22.80	14.663		
6,200.00	5,823.00	5,925.95	5,538.00	20.43	19.98	-31.56	-455.72	410.80	334.47	311.02	23.45	14.265		
6,300.00	5,823.00	6,025.95	5,538.00	20.96	20.53	-31.54	-555.72	410.81	334.41	310.18	24.23	13.804		
6,400.00	5,823.00	6,125.95	5,538.00	21.58	21.18	-31.53	-655.72	410.82	334.35	309.24	25.11	13.316		
6,500.00	5,823.00	6,225.95	5,538.00	22.28	21.90	-31.51	-755.72	410.83	334.29	308.20	26.08	12.816		
6,600.00	5,823.00	6,325.95	5,538.00	23.06	22.70	-31.49	-855.72	410.84	334.23	307.09	27.14	12.314		
6,700.00	5,823.00	6,425.95	5,538.00	23.90	23.57	-31.48	-955.72	410.85	334.17	305.89	28.27	11.819		
6,800.00	5,823.00	6,525.95	5,538.00	24.81	24.49	-31.46	-1,055.72	410.86	334.11	304.64	29.47	11.337		
6,900.00	5,823.00	6,625.95	5,538.00	25.76	25.47	-31.44	-1,155.72	410.86	334.05	303.32	30.72	10.873		
7,000.00	5,823.00	6,725.95	5,538.00	26.77	26.49	-31.42	-1,255.72	410.87	333.99	301.96	32.03	10.428		
7,100.00	5,823.00	6,825.95	5,538.00	27.81	27.55	-31.41	-1,355.72	410.88	333.93	300.55	33.37	10.006		
7,200.00	5,823.00	6,925.95	5,538.00	28.89	28.65	-31.39	-1,455.72	410.89	333.86	299.11	34.76	9.605		
7,300.00	5,823.00	7,025.95	5,538.00	30.01	29.78	-31.37	-1,555.72	410.90	333.80	297.63	36.18	9.227		
7,400.00	5,823.00	7,125.95	5,538.00	31.16	30.94	-31.36	-1,655.72	410.91	333.74	296.12	37.63	8.870		
7,500.00	5,823.00	7,225.95	5,538.00	32.33	32.13	-31.34	-1,755.72	410.92	333.68	294.58	39.10	8.533		
7,600.00	5,823.00	7,325.95	5,538.00	33.53	33.34	-31.32	-1,855.72	410.93	333.62	293.02	40.60	8.216		
7,700.00	5,823.00	7,425.95	5,538.00	34.74	34.57	-31.31	-1,955.72	410.94	333.56	291.44	42.12	7.918		
7,800.00	5,823.00	7,525.95	5,538.00	35.98	35.82	-31.29	-2,055.72	410.94	333.50	289.84	43.66	7.638		
7,900.00	5,823.00	7,625.95	5,538.00	37.23	37.08	-31.27	-2,155.72	410.95	333.44	288.22	45.22	7.374		
8,000.00	5,823.00	7,725.95	5,538.00	38.50	38.36	-31.25	-2,255.72	410.96	333.38	286.59	46.79	7.125		
8,100.00	5,823.00	7,825.95	5,538.00	39.79	39.66	-31.24	-2,355.72	410.97	333.32	284.95	48.37	6.891		
8,200.00	5,823.00	7,925.95	5,538.00	41.08	40.96	-31.22	-2,455.72	410.98	333.26	283.29	49.97	6.669		
8,300.00	5,823.00	8,025.95	5,538.00	42.39	42.28	-31.20	-2,555.72	410.99	333.20	281.63	51.58	6.460		
8,400.00	5,823.00	8,125.95	5,538.00	43.71	43.60	-31.19	-2,655.72	411.00	333.14	279.95	53.19	6.263		
8,500.00	5,823.00	8,225.95	5,538.00	45.03	44.94	-31.17	-2,755.72	411.01	333.08	278.27	54.82	6.076		
8,600.00	5,823.00	8,325.95	5,538.00	46.37	46.28	-31.15	-2,855.72	411.02	333.02	276.57	56.45	5.900		
8,700.00	5,823.00	8,425.95	5,538.00	47.71	47.63	-31.13	-2,955.72	411.02	332.96	274.87	58.09	5.732		
8,800.00	5,823.00	8,525.95	5,538.00	49.07	48.99	-31.12	-3,055.72	411.03	332.90	273.17	59.73	5.573		
8,900.00	5,823.00	8,625.95	5,538.00	50.42	50.35	-31.10	-3,155.72	411.04	332.84	271.46	61.38	5.422		
9,000.00	5,823.00	8,725.95	5,538.00	51.79	51.72	-31.08	-3,255.72	411.05	332.78	269.74	63.04	5.279		
9,100.00	5,823.00	8,825.95	5,538.00	53.16	53.10	-31.07	-3,355.72	411.06	332.72	268.02	64.70	5.143		
9,200.00	5,823.00	8,925.95	5,538.00	54.53	54.48	-31.05	-3,455.72	411.07	332.66	266.30	66.36	5.013		
9,300.00	5,823.00	9,025.95	5,538.00	55.91	55.87	-31.03	-3,555.72	411.08	332.60	264.57	68.03	4.889		
9,400.00	5,823.00	9,125.95	5,538.00	57.30	57.26	-31.01	-3,655.72	411.09	332.54	262.84	69.70	4.771		
9,500.00	5,823.00	9,225.94	5,538.00	58.69	58.65	-31.00	-3,755.72	411.09	332.48	261.10	71.38	4.658		
9,600.00	5,823.00	9,325.94	5,538.00	60.08	60.05	-30.98	-3,855.72	411.10	332.42	259.36	73.06	4.550		
9,700.00	5,823.00	9,425.94	5,538.00	61.48	61.45	-30.96	-3,955.72	411.11	332.36	257.62	74.74	4.447		
9,800.00	5,823.00	9,525.94	5,538.00	62.88	62.85	-30.95	-4,055.72	411.12	332.30	255.88	76.42	4.348		
9,900.00	5,823.00	9,625.94	5,538.00	64.28	64.26	-30.93	-4,155.72	411.13	332.24	254.13	78.11	4.254		
10,000.00	5,823.00	9,725.94	5,538.00	65.69	65.67	-30.91	-4,255.72	411.14	332.18	252.39	79.79	4.163		
10,100.00	5,823.00	9,825.94	5,538.00	67.10	67.08	-30.89	-4,355.72	411.15	332.12	250.64	81.48	4.076		
10,200.00	5,823.00	9,925.94	5,538.00	68.51	68.50	-30.88	-4,455.72	411.16	332.06	248.89	83.17	3.992		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,823.00	10,025.94	5,538.00	69.93	69.91	-30.86	-4,555.72	411.17	332.00	247.14	84.86	3.912		
10,400.00	5,823.00	10,125.94	5,538.00	71.34	71.33	-30.84	-4,655.72	411.17	331.94	245.39	86.56	3.835		
10,500.00	5,823.00	10,225.94	5,538.00	72.76	72.76	-30.83	-4,755.72	411.18	331.88	243.63	88.25	3.761		
10,600.00	5,823.00	10,325.94	5,538.00	74.18	74.18	-30.81	-4,855.72	411.19	331.82	241.88	89.95	3.689		
10,700.00	5,823.00	10,425.94	5,538.00	75.60	75.60	-30.79	-4,955.72	411.20	331.76	240.12	91.64	3.620		
10,800.00	5,823.00	10,525.94	5,538.00	77.03	77.03	-30.77	-5,055.72	411.21	331.70	238.37	93.34	3.554		
10,900.00	5,823.00	10,625.94	5,538.00	78.46	78.46	-30.76	-5,155.72	411.22	331.65	236.61	95.03	3.490		
11,000.00	5,823.00	10,725.94	5,538.00	79.88	79.89	-30.74	-5,255.72	411.23	331.59	234.85	96.73	3.428		
11,100.00	5,823.00	10,825.94	5,538.00	81.31	81.32	-30.72	-5,355.72	411.24	331.53	233.10	98.43	3.368		
11,200.00	5,823.00	10,925.94	5,538.00	82.75	82.76	-30.70	-5,455.72	411.25	331.47	231.34	100.13	3.310		
11,300.00	5,823.00	11,025.94	5,538.00	84.18	84.19	-30.69	-5,555.72	411.25	331.41	229.58	101.83	3.255		
11,400.00	5,823.00	11,125.94	5,538.00	85.61	85.63	-30.67	-5,655.71	411.26	331.35	227.82	103.53	3.201		
11,500.00	5,823.00	11,225.94	5,538.00	87.05	87.06	-30.65	-5,755.71	411.27	331.29	226.07	105.22	3.148		
11,600.00	5,823.00	11,325.94	5,538.00	88.48	88.50	-30.64	-5,855.71	411.28	331.23	224.31	106.92	3.098		
11,700.00	5,823.00	11,425.94	5,538.00	89.92	89.94	-30.62	-5,955.71	411.29	331.17	222.55	108.62	3.049		
11,800.00	5,823.00	11,525.94	5,538.00	91.36	91.38	-30.60	-6,055.71	411.30	331.11	220.79	110.32	3.001		
11,900.00	5,823.00	11,625.94	5,538.00	92.80	92.82	-30.58	-6,155.71	411.31	331.05	219.03	112.02	2.955		
12,000.00	5,823.00	11,725.94	5,538.00	94.24	94.27	-30.57	-6,255.71	411.32	330.99	217.27	113.72	2.911		
12,100.00	5,823.00	11,825.94	5,538.00	95.68	95.71	-30.55	-6,355.71	411.33	330.93	215.52	115.42	2.867		
12,200.00	5,823.00	11,925.94	5,538.00	97.12	97.15	-30.53	-6,455.71	411.33	330.88	213.76	117.12	2.825		
12,300.00	5,823.00	12,025.94	5,538.00	98.57	98.60	-30.51	-6,555.71	411.34	330.82	212.00	118.81	2.784		
12,400.00	5,823.00	12,125.94	5,538.00	100.01	100.04	-30.50	-6,655.71	411.35	330.76	210.25	120.51	2.745		
12,500.00	5,823.00	12,225.94	5,538.00	101.46	101.49	-30.48	-6,755.71	411.36	330.70	208.49	122.21	2.706		
12,600.00	5,823.00	12,325.94	5,538.00	102.90	102.94	-30.46	-6,855.71	411.37	330.64	206.73	123.91	2.668		
12,700.00	5,823.00	12,425.94	5,538.00	104.35	104.38	-30.44	-6,955.71	411.38	330.58	204.98	125.60	2.632		
12,800.00	5,823.00	12,525.94	5,538.00	105.80	105.83	-30.43	-7,055.71	411.39	330.52	203.22	127.30	2.596		
12,900.00	5,823.00	12,625.94	5,538.00	107.25	107.28	-30.41	-7,155.71	411.40	330.46	201.47	128.99	2.562		
13,000.00	5,823.00	12,725.94	5,538.00	108.69	108.73	-30.39	-7,255.71	411.41	330.40	199.71	130.69	2.528		
13,100.00	5,823.00	12,825.94	5,538.00	110.14	110.18	-30.38	-7,355.71	411.41	330.35	197.96	132.38	2.495		
13,200.00	5,823.00	12,925.94	5,538.00	111.59	111.63	-30.36	-7,455.71	411.42	330.29	196.21	134.08	2.463		
13,300.00	5,823.00	13,025.94	5,538.00	113.04	113.08	-30.34	-7,555.71	411.43	330.23	194.46	135.77	2.432		
13,400.00	5,823.00	13,125.94	5,538.00	114.49	114.54	-30.32	-7,655.71	411.44	330.17	192.70	137.46	2.402		
13,500.00	5,823.00	13,225.94	5,538.00	115.95	115.99	-30.31	-7,755.71	411.45	330.11	190.95	139.16	2.372		
13,600.00	5,823.00	13,325.94	5,538.00	117.40	117.44	-30.29	-7,855.71	411.46	330.05	189.20	140.85	2.343		
13,700.00	5,823.00	13,425.94	5,538.00	118.85	118.90	-30.27	-7,955.71	411.47	329.99	187.45	142.54	2.315		
13,800.00	5,823.00	13,525.94	5,538.00	120.30	120.35	-30.25	-8,055.71	411.48	329.93	185.70	144.23	2.288		
13,899.97	5,823.00	13,625.91	5,538.00	121.76	121.80	-30.24	-8,155.69	411.49	329.88	183.96	145.92	2.261		
13,903.39	5,823.00	13,629.31	5,538.00	121.81	121.85	-30.24	-8,159.09	411.49	329.87	183.90	145.98	2.260 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
0.00	0.00	0.00	0.00	0.00	0.00	89.99	0.01	89.97	89.97					
100.00	100.00	100.00	100.00	0.13	0.13	89.99	0.01	89.97	89.97	89.70	0.27	337.782		
200.00	200.00	200.00	200.00	0.47	0.47	89.99	0.01	89.97	89.97	89.03	0.94	95.645		
300.00	300.00	300.00	300.00	0.81	0.81	89.99	0.01	89.97	89.97	88.35	1.61	55.709 CC		
400.00	399.98	397.02	397.00	1.14	1.12	30.55	0.36	91.57	90.12	87.80	2.31	38.981		
500.00	499.85	494.03	493.88	1.48	1.44	31.45	1.41	96.39	90.73	87.68	3.05	29.758 ES		
600.00	599.68	590.94	590.44	1.81	1.78	32.09	3.15	104.39	93.96	90.15	3.81	24.659		
700.00	699.51	687.56	686.37	2.14	2.11	32.21	5.58	115.54	100.48	95.90	4.58	21.943		
800.00	799.33	785.48	783.23	2.48	2.47	31.94	8.64	129.63	109.82	104.56	5.26	20.884		
900.00	899.16	885.00	881.61	2.82	2.84	31.66	11.85	144.33	119.55	113.68	5.87	20.372		
1,000.00	998.99	984.53	979.99	3.16	3.22	31.43	15.05	159.03	129.29	122.79	6.49	19.915		
1,100.00	1,098.82	1,084.05	1,078.37	3.50	3.60	31.23	18.25	173.73	139.02	131.90	7.12	19.513		
1,200.00	1,198.65	1,183.57	1,176.75	3.85	3.99	31.05	21.45	188.43	148.76	141.00	7.76	19.159		
1,300.00	1,298.47	1,283.10	1,275.13	4.19	4.38	30.90	24.65	203.13	158.50	150.09	8.41	18.843		
1,400.00	1,398.30	1,382.62	1,373.51	4.53	4.77	30.76	27.85	217.83	168.24	159.18	9.06	18.564		
1,500.00	1,498.13	1,482.14	1,471.89	4.88	5.16	30.64	31.05	232.53	177.98	168.27	9.72	18.315		
1,600.00	1,597.96	1,581.67	1,570.27	5.22	5.55	30.54	34.25	247.23	187.73	177.35	10.38	18.093		
1,700.00	1,697.79	1,681.19	1,668.65	5.56	5.94	30.44	37.45	261.93	197.47	186.43	11.04	17.893		
1,800.00	1,797.61	1,780.72	1,767.03	5.91	6.33	30.35	40.65	276.63	207.21	195.52	11.70	17.713		
1,900.00	1,897.44	1,880.24	1,865.41	6.25	6.72	30.27	43.85	291.33	216.96	204.60	12.36	17.550		
2,000.00	1,997.27	1,979.76	1,963.79	6.59	7.12	30.20	47.05	306.03	226.70	213.67	13.03	17.402		
2,100.00	2,097.10	2,079.29	2,062.17	6.94	7.51	30.13	50.25	320.73	236.45	222.75	13.69	17.266		
2,200.00	2,196.93	2,178.81	2,160.55	7.28	7.90	30.07	53.46	335.43	246.19	231.83	14.36	17.142		
2,300.00	2,296.76	2,278.33	2,258.93	7.63	8.29	30.01	56.66	350.13	255.94	240.91	15.03	17.028		
2,400.00	2,396.58	2,377.86	2,357.31	7.97	8.69	29.96	59.86	364.83	265.68	249.98	15.70	16.923		
2,500.00	2,496.41	2,477.38	2,456.69	8.32	9.08	29.91	63.06	379.53	275.43	259.06	16.37	16.825		
2,600.00	2,596.24	2,576.91	2,554.07	8.66	9.48	29.86	66.26	394.23	285.17	268.13	17.04	16.735		
2,700.00	2,696.07	2,676.43	2,652.45	9.00	9.87	29.82	69.46	408.93	294.92	277.21	17.71	16.651		
2,800.00	2,795.90	2,775.95	2,750.83	9.35	10.27	29.78	72.66	423.62	304.67	286.28	18.38	16.573		
2,900.00	2,895.72	2,875.48	2,849.21	9.69	10.66	29.74	75.86	438.32	314.41	295.36	19.06	16.499		
3,000.00	2,995.55	2,975.00	2,947.59	10.04	11.05	29.70	79.06	453.02	324.16	304.43	19.73	16.431		
3,100.00	3,095.38	3,074.52	3,045.97	10.38	11.45	29.67	82.26	467.72	333.91	313.50	20.40	16.367		
3,200.00	3,195.21	3,174.05	3,144.35	10.72	11.84	29.64	85.46	482.42	343.65	322.58	21.07	16.306		
3,300.00	3,295.04	3,273.57	3,242.73	11.07	12.24	29.61	88.66	497.12	353.40	331.65	21.75	16.249		
3,400.00	3,394.87	3,373.10	3,341.11	11.41	12.63	29.58	91.87	511.82	363.15	340.72	22.42	16.196		
3,500.00	3,494.69	3,472.62	3,439.49	11.76	13.03	29.55	95.07	526.52	372.89	349.80	23.10	16.145		
3,600.00	3,594.52	3,572.14	3,537.87	12.10	13.42	29.53	98.27	541.22	382.64	358.87	23.77	16.097		
3,700.00	3,694.35	3,671.67	3,636.25	12.45	13.82	29.50	101.47	555.92	392.39	367.94	24.45	16.052		
3,800.00	3,794.18	3,771.19	3,734.63	12.79	14.21	29.48	104.67	570.62	402.14	377.02	25.12	16.008		
3,900.00	3,894.01	3,870.71	3,833.01	13.13	14.61	29.46	107.87	585.32	411.88	386.09	25.80	15.967		
4,000.00	3,993.83	3,970.24	3,931.39	13.48	15.00	29.44	111.07	600.02	421.63	395.16	26.47	15.928		
4,100.00	4,093.66	4,069.76	4,029.77	13.82	15.40	29.42	114.27	614.72	431.38	404.23	27.15	15.891		
4,200.00	4,193.49	4,169.28	4,128.15	14.17	15.79	29.40	117.47	629.42	441.13	413.30	27.82	15.856		
4,300.00	4,293.32	4,268.81	4,226.53	14.51	16.19	29.38	120.67	644.12	450.87	422.38	28.50	15.822		
4,400.00	4,393.15	4,368.33	4,324.91	14.86	16.58	29.36	123.87	658.82	460.62	431.45	29.17	15.790		
4,500.00	4,492.98	4,467.86	4,423.29	15.20	16.98	29.35	127.07	673.52	470.37	440.52	29.85	15.759		
4,600.00	4,592.80	4,561.22	4,535.53	15.55	17.34	29.36	130.46	689.06	479.10	448.55	30.55	15.684		
4,700.00	4,692.63	4,700.80	4,654.48	15.89	17.67	29.48	133.03	700.89	483.93	452.72	31.21	15.504		
4,800.00	4,792.46	4,820.63	4,774.09	16.23	17.98	29.72	134.55	707.87	484.67	452.84	31.83	15.227		
4,900.00	4,892.29	4,938.85	4,892.29	16.58	18.27	30.08	135.01	709.97	481.34	448.94	32.40	14.855		
5,000.00	4,992.15	5,038.71	4,992.15	16.90	18.54	30.37	135.01	709.97	476.79	443.77	33.02	14.441		
5,099.99	5,092.11	5,138.62	5,092.06	17.16	18.82	30.49	134.96	709.97	474.99	441.40	33.59	14.142		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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		
5,148.75	5,140.87	5,186.81	5,140.15	17.30	18.94	30.84	132.08	709.98	474.91	441.04	33.87	14.022		
5,200.00	5,192.12	5,236.47	5,189.20	17.44	19.06	91.51	124.48	710.01	475.18	441.01	34.17	13.907		
5,299.99	5,292.11	5,327.40	5,276.26	17.76	19.28	94.62	98.64	710.11	476.92	442.12	34.79	13.708		
5,400.00	5,391.67	5,410.49	5,350.79	18.04	19.48	-81.18	62.11	710.24	481.69	446.38	35.31	13.643		
5,500.00	5,487.93	5,489.86	5,415.71	18.31	19.65	-77.34	16.59	710.42	488.48	452.86	35.61	13.716		
5,600.00	5,577.36	5,566.42	5,471.10	18.57	19.83	-73.94	-36.18	710.62	496.32	460.62	35.70	13.901		
5,700.00	5,656.67	5,640.88	5,516.99	18.82	20.00	-71.06	-94.73	710.84	504.28	468.63	35.65	14.145		
5,800.00	5,722.96	5,713.78	5,553.38	19.07	20.18	-68.75	-157.82	711.08	511.55	475.96	35.59	14.375		
5,900.00	5,773.79	5,785.57	5,580.28	19.33	20.38	-67.05	-224.32	711.33	517.44	481.79	35.65	14.516		
6,000.00	5,807.29	5,850.00	5,596.44	19.63	20.58	-66.01	-286.65	711.57	521.52	485.59	35.94	14.513		
6,100.00	5,822.23	5,927.31	5,605.51	20.00	20.86	-65.52	-363.36	711.86	523.29	486.69	36.60	14.296		
6,200.00	5,823.00	6,017.89	5,606.00	20.43	21.25	-65.51	-453.92	712.21	523.56	486.03	37.52	13.954		
6,300.00	5,823.00	6,117.89	5,606.00	20.96	21.77	-65.53	-553.92	712.59	523.79	485.19	38.60	13.570		
6,400.00	5,823.00	6,217.88	5,606.00	21.58	22.37	-65.54	-653.92	712.97	524.02	484.19	39.83	13.155		
6,500.00	5,823.00	6,317.88	5,606.00	22.28	23.06	-65.55	-753.92	713.35	524.25	483.04	41.21	12.721		
6,600.00	5,823.00	6,417.88	5,606.00	23.06	23.82	-65.56	-853.92	713.73	524.48	481.76	42.72	12.277		
6,700.00	5,823.00	6,517.88	5,606.00	23.90	24.65	-65.57	-953.92	714.11	524.72	480.37	44.34	11.833		
6,800.00	5,823.00	6,617.88	5,606.00	24.81	25.53	-65.58	-1,053.92	714.49	524.95	478.88	46.07	11.395		
6,900.00	5,823.00	6,717.88	5,606.00	25.76	26.47	-65.59	-1,153.92	714.87	525.18	477.29	47.89	10.966		
7,000.00	5,823.00	6,817.88	5,606.00	26.77	27.46	-65.61	-1,253.91	715.25	525.41	475.62	49.79	10.552		
7,100.00	5,823.00	6,917.88	5,606.00	27.81	28.49	-65.62	-1,353.91	715.63	525.65	473.88	51.77	10.153		
7,200.00	5,823.00	7,017.88	5,606.00	28.89	29.56	-65.63	-1,453.91	716.01	525.88	472.07	53.81	9.772		
7,300.00	5,823.00	7,117.88	5,606.00	30.01	30.66	-65.64	-1,553.91	716.39	526.11	470.20	55.91	9.409		
7,400.00	5,823.00	7,217.88	5,606.00	31.16	31.79	-65.65	-1,653.91	716.77	526.34	468.28	58.07	9.065		
7,500.00	5,823.00	7,317.88	5,606.00	32.33	32.95	-65.66	-1,753.91	717.15	526.57	466.31	60.27	8.738		
7,600.00	5,823.00	7,417.88	5,606.00	33.53	34.14	-65.67	-1,853.91	717.53	526.81	464.30	62.51	8.428		
7,700.00	5,823.00	7,517.88	5,606.00	34.74	35.34	-65.69	-1,953.91	717.91	527.04	462.25	64.79	8.135		
7,800.00	5,823.00	7,617.88	5,606.00	35.98	36.57	-65.70	-2,053.91	718.29	527.27	460.17	67.10	7.858		
7,900.00	5,823.00	7,717.88	5,606.00	37.23	37.81	-65.71	-2,153.91	718.67	527.50	458.06	69.44	7.596		
8,000.00	5,823.00	7,817.88	5,606.00	38.50	39.07	-65.72	-2,253.90	719.05	527.74	455.93	71.81	7.349		
8,100.00	5,823.00	7,917.88	5,606.00	39.79	40.35	-65.73	-2,353.90	719.43	527.97	453.76	74.21	7.115		
8,200.00	5,823.00	8,017.88	5,606.00	41.08	41.63	-65.74	-2,453.90	719.81	528.20	451.58	76.62	6.893		
8,300.00	5,823.00	8,117.88	5,606.00	42.39	42.93	-65.75	-2,553.90	720.19	528.43	449.37	79.06	6.684		
8,400.00	5,823.00	8,217.88	5,606.00	43.71	44.24	-65.77	-2,653.90	720.57	528.67	447.15	81.52	6.485		
8,500.00	5,823.00	8,317.88	5,606.00	45.03	45.56	-65.78	-2,753.90	720.95	528.90	444.91	83.99	6.297		
8,600.00	5,823.00	8,417.88	5,606.00	46.37	46.89	-65.79	-2,853.90	721.33	529.13	442.65	86.48	6.118		
8,700.00	5,823.00	8,517.88	5,606.00	47.71	48.23	-65.80	-2,953.90	721.71	529.36	440.38	88.99	5.949		
8,800.00	5,823.00	8,617.88	5,606.00	49.07	49.58	-65.81	-3,053.90	722.09	529.60	438.09	91.51	5.788		
8,900.00	5,823.00	8,717.88	5,606.00	50.42	50.93	-65.82	-3,153.89	722.47	529.83	435.79	94.03	5.634		
9,000.00	5,823.00	8,817.88	5,606.00	51.79	52.29	-65.83	-3,253.89	722.85	530.06	433.49	96.58	5.489		
9,100.00	5,823.00	8,917.88	5,606.00	53.16	53.65	-65.84	-3,353.89	723.23	530.29	431.17	99.13	5.350		
9,200.00	5,823.00	9,017.88	5,606.00	54.53	55.02	-65.86	-3,453.89	723.61	530.53	428.84	101.69	5.217		
9,300.00	5,823.00	9,117.88	5,606.00	55.91	56.40	-65.87	-3,553.89	723.99	530.76	426.50	104.26	5.091		
9,400.00	5,823.00	9,217.88	5,606.00	57.30	57.78	-65.88	-3,653.89	724.37	530.99	424.15	106.84	4.970		
9,500.00	5,823.00	9,317.87	5,606.00	58.69	59.16	-65.89	-3,753.89	724.75	531.23	421.80	109.42	4.855		
9,600.00	5,823.00	9,417.87	5,606.00	60.08	60.55	-65.90	-3,853.89	725.13	531.46	419.44	112.02	4.744		
9,700.00	5,823.00	9,517.87	5,606.00	61.48	61.94	-65.91	-3,953.89	725.51	531.69	417.07	114.62	4.639		
9,800.00	5,823.00	9,617.87	5,606.00	62.88	63.34	-65.92	-4,053.89	725.89	531.92	414.70	117.23	4.538		
9,900.00	5,823.00	9,717.87	5,606.00	64.28	64.74	-65.93	-4,153.88	726.27	532.16	412.32	119.84	4.441		
10,000.00	5,823.00	9,817.87	5,606.00	65.69	66.14	-65.95	-4,253.88	726.65	532.39	409.93	122.46	4.348		
10,100.00	5,823.00	9,917.87	5,606.00	67.10	67.55	-65.96	-4,353.88	727.03	532.62	407.54	125.08	4.258		
10,200.00	5,823.00	10,017.87	5,606.00	68.51	68.96	-65.97	-4,453.88	727.41	532.86	405.14	127.71	4.172		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,823.00	10,117.87	5,606.00	69.93	70.37	-65.98	-4,553.88	727.79	533.09	402.74	130.35	4.090		
10,400.00	5,823.00	10,217.87	5,606.00	71.34	71.78	-65.99	-4,653.88	728.17	533.32	400.34	132.98	4.010		
10,500.00	5,823.00	10,317.87	5,606.00	72.76	73.20	-66.00	-4,753.88	728.55	533.55	397.93	135.63	3.934		
10,600.00	5,823.00	10,417.87	5,606.00	74.18	74.62	-66.01	-4,853.88	728.93	533.79	395.51	138.27	3.860		
10,700.00	5,823.00	10,517.87	5,606.00	75.60	76.04	-66.02	-4,953.88	729.31	534.02	393.10	140.92	3.789		
10,800.00	5,823.00	10,617.87	5,606.00	77.03	77.46	-66.04	-5,053.87	729.69	534.25	390.67	143.58	3.721		
10,900.00	5,823.00	10,717.87	5,606.00	78.46	78.88	-66.05	-5,153.87	730.07	534.49	388.25	146.24	3.655		
11,000.00	5,823.00	10,817.87	5,606.00	79.88	80.31	-66.06	-5,253.87	730.45	534.72	385.82	148.90	3.591		
11,100.00	5,823.00	10,917.87	5,606.00	81.31	81.74	-66.07	-5,353.87	730.83	534.95	383.39	151.56	3.530		
11,200.00	5,823.00	11,017.87	5,606.00	82.75	83.17	-66.08	-5,453.87	731.21	535.19	380.96	154.23	3.470		
11,300.00	5,823.00	11,117.87	5,606.00	84.18	84.60	-66.09	-5,553.87	731.59	535.42	378.52	156.90	3.413		
11,400.00	5,823.00	11,217.87	5,606.00	85.61	86.03	-66.10	-5,653.87	731.97	535.65	376.08	159.57	3.357		
11,500.00	5,823.00	11,317.87	5,606.00	87.05	87.46	-66.11	-5,753.87	732.35	535.88	373.64	162.25	3.303		
11,600.00	5,823.00	11,417.87	5,606.00	88.48	88.90	-66.12	-5,853.87	732.73	536.12	371.19	164.92	3.251		
11,700.00	5,823.00	11,517.87	5,606.00	89.92	90.33	-66.13	-5,953.87	733.11	536.35	368.75	167.61	3.200		
11,800.00	5,823.00	11,617.87	5,606.00	91.36	91.77	-66.15	-6,053.86	733.49	536.58	366.30	170.29	3.151		
11,900.00	5,823.00	11,717.87	5,606.00	92.80	93.21	-66.16	-6,153.86	733.87	536.82	363.85	172.97	3.103		
12,000.00	5,823.00	11,817.87	5,606.00	94.24	94.65	-66.17	-6,253.86	734.25	537.05	361.39	175.66	3.057		
12,100.00	5,823.00	11,917.87	5,606.00	95.68	96.09	-66.18	-6,353.86	734.63	537.28	358.94	178.35	3.013		
12,200.00	5,823.00	12,017.87	5,606.00	97.12	97.53	-66.19	-6,453.86	735.01	537.52	356.48	181.04	2.969		
12,300.00	5,823.00	12,117.87	5,606.00	98.57	98.97	-66.20	-6,553.86	735.39	537.75	354.02	183.73	2.927		
12,400.00	5,823.00	12,217.87	5,606.00	100.01	100.41	-66.21	-6,653.86	735.77	537.98	351.56	186.43	2.886		
12,500.00	5,823.00	12,317.87	5,606.00	101.46	101.86	-66.22	-6,753.86	736.15	538.22	349.09	189.12	2.846		
12,600.00	5,823.00	12,417.86	5,606.00	102.90	103.30	-66.23	-6,853.86	736.53	538.45	346.63	191.82	2.807		
12,700.00	5,823.00	12,517.86	5,606.00	104.35	104.75	-66.24	-6,953.85	736.91	538.68	344.16	194.52	2.769		
12,800.00	5,823.00	12,617.86	5,606.00	105.80	106.19	-66.26	-7,053.85	737.29	538.92	341.69	197.22	2.733		
12,900.00	5,823.00	12,717.86	5,606.00	107.25	107.64	-66.27	-7,153.85	737.67	539.15	339.22	199.93	2.697		
13,000.00	5,823.00	12,817.86	5,606.00	108.69	109.09	-66.28	-7,253.85	738.05	539.38	336.75	202.63	2.662		
13,100.00	5,823.00	12,917.86	5,606.00	110.14	110.54	-66.29	-7,353.85	738.43	539.62	334.28	205.34	2.628		
13,200.00	5,823.00	13,017.86	5,606.00	111.59	111.99	-66.30	-7,453.85	738.81	539.85	331.81	208.04	2.595		
13,300.00	5,823.00	13,117.86	5,606.00	113.04	113.44	-66.31	-7,553.85	739.19	540.09	329.33	210.75	2.563		
13,400.00	5,823.00	13,217.86	5,606.00	114.49	114.89	-66.32	-7,653.85	739.57	540.32	326.86	213.46	2.531		
13,500.00	5,823.00	13,317.86	5,606.00	115.95	116.34	-66.33	-7,753.85	739.95	540.55	324.38	216.18	2.501		
13,600.00	5,823.00	13,417.86	5,606.00	117.40	117.79	-66.34	-7,853.85	740.33	540.79	321.90	218.89	2.471		
13,700.00	5,823.00	13,517.86	5,606.00	118.85	119.24	-66.35	-7,953.84	740.71	541.02	319.42	221.60	2.441		
13,800.00	5,823.00	13,617.86	5,606.00	120.30	120.69	-66.36	-8,053.84	741.09	541.25	316.94	224.32	2.413		
13,899.97	5,823.00	13,717.83	5,606.00	121.76	122.14	-66.37	-8,153.81	741.47	541.49	314.45	227.03	2.385		
13,903.39	5,823.00	13,721.25	5,606.00	121.81	122.19	-66.38	-8,157.24	741.49	541.49	314.37	227.13	2.384 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-179.94	179.94					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.01	-179.94	179.94	179.67	0.27	675.565		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.01	-179.94	179.94	178.99	0.94	191.289		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.01	-179.94	179.94	178.32	1.61	111.419 CC, ES		
400.00	399.98	394.12	394.10	1.14	1.11	-149.88	0.33	-181.45	183.05	180.74	2.31	79.299		
500.00	499.85	487.70	487.57	1.48	1.42	-150.25	1.29	-185.95	192.23	189.16	3.06	62.749		
600.00	599.68	580.56	580.11	1.81	1.74	-150.54	2.86	-193.36	205.26	201.46	3.81	53.945		
700.00	699.51	672.58	671.53	2.14	2.06	-150.63	5.04	-203.60	221.42	216.87	4.55	48.716		
800.00	799.33	763.57	761.55	2.48	2.40	-150.54	7.79	-216.54	240.63	235.36	5.28	45.614		
900.00	899.16	857.03	853.59	2.82	2.76	-150.32	11.16	-232.41	262.55	256.62	5.93	44.296		
1,000.00	998.99	954.49	949.49	3.16	3.14	-150.12	14.77	-249.37	284.91	278.40	6.51	43.749		
1,100.00	1,098.82	1,051.95	1,045.40	3.50	3.54	-149.94	18.37	-266.33	307.27	300.16	7.11	43.190		
1,200.00	1,198.65	1,149.41	1,141.31	3.85	3.94	-149.79	21.98	-283.30	329.64	321.93	7.72	42.727		
1,300.00	1,298.47	1,246.88	1,237.22	4.19	4.34	-149.66	25.59	-300.26	352.01	343.67	8.34	42.207		
1,400.00	1,398.30	1,344.34	1,333.12	4.53	4.74	-149.54	29.19	-317.23	374.38	365.41	8.97	41.751		
1,500.00	1,498.13	1,441.80	1,429.03	4.88	5.15	-149.43	32.80	-334.19	396.75	387.15	9.60	41.331		
1,600.00	1,597.96	1,539.27	1,524.94	5.22	5.55	-149.34	36.40	-351.15	419.13	408.89	10.24	40.945		
1,700.00	1,697.79	1,636.73	1,620.85	5.56	5.96	-149.26	40.01	-368.12	441.50	430.62	10.88	40.591		
1,800.00	1,797.61	1,734.19	1,716.75	5.91	6.37	-149.18	43.62	-385.08	463.87	452.35	11.52	40.265		
1,900.00	1,897.44	1,831.66	1,812.66	6.25	6.78	-149.11	47.22	-402.05	486.25	474.08	12.17	39.965		
2,000.00	1,997.27	1,929.12	1,908.57	6.59	7.19	-149.05	50.83	-419.01	508.63	495.81	12.82	39.688		
2,100.00	2,097.10	2,026.58	2,004.48	6.94	7.60	-148.99	54.43	-435.97	531.00	517.54	13.47	39.432		
2,200.00	2,196.93	2,124.04	2,100.38	7.28	8.01	-148.94	58.04	-452.94	553.38	539.26	14.12	39.196		
2,300.00	2,296.76	2,221.51	2,196.29	7.63	8.42	-148.89	61.64	-469.90	575.76	560.98	14.77	38.976		
2,400.00	2,396.58	2,318.97	2,292.20	7.97	8.83	-148.85	65.25	-486.86	598.13	582.71	15.43	38.772		
2,500.00	2,496.41	2,416.43	2,388.11	8.32	9.24	-148.81	68.86	-503.83	620.51	604.43	16.08	38.582		
2,600.00	2,596.24	2,513.90	2,484.01	8.66	9.65	-148.77	72.46	-520.79	642.89	626.15	16.74	38.405		
2,700.00	2,696.07	2,611.36	2,579.92	9.00	10.06	-148.73	76.07	-537.76	665.27	647.87	17.40	38.239		
2,800.00	2,795.90	2,708.82	2,675.83	9.35	10.47	-148.70	79.67	-554.72	687.65	669.59	18.06	38.084		
2,900.00	2,895.72	2,806.29	2,771.74	9.69	10.88	-148.67	83.28	-571.68	710.03	691.31	18.72	37.938		
3,000.00	2,995.55	2,903.75	2,867.64	10.04	11.30	-148.64	86.89	-588.65	732.41	713.03	19.38	37.801		
3,100.00	3,095.38	3,001.21	2,963.55	10.38	11.71	-148.61	90.49	-605.61	754.79	734.75	20.04	37.671		
3,200.00	3,195.21	3,098.68	3,059.46	10.72	12.12	-148.58	94.10	-622.58	777.17	756.47	20.70	37.550		
3,300.00	3,295.04	3,196.14	3,155.37	11.07	12.53	-148.56	97.70	-639.54	799.54	778.19	21.36	37.435		
3,400.00	3,394.87	3,293.60	3,251.28	11.41	12.95	-148.53	101.31	-656.50	821.92	799.90	22.02	37.326		
3,500.00	3,494.69	3,391.06	3,347.18	11.76	13.36	-148.51	104.92	-673.47	844.30	821.62	22.68	37.222		
3,600.00	3,594.52	3,488.53	3,443.09	12.10	13.77	-148.49	108.52	-690.43	866.68	843.34	23.35	37.125		
3,700.00	3,694.35	3,585.99	3,539.00	12.45	14.18	-148.47	112.13	-707.40	889.06	865.06	24.01	37.032		
3,800.00	3,794.18	3,683.45	3,634.91	12.79	14.60	-148.45	115.73	-724.36	911.45	886.77	24.67	36.943		
3,900.00	3,894.01	3,780.92	3,730.81	13.13	15.01	-148.43	119.34	-741.32	933.83	908.49	25.34	36.859		
4,000.00	3,993.83	3,878.38	3,826.72	13.48	15.42	-148.42	122.95	-758.29	956.21	930.21	26.00	36.779		
4,100.00	4,093.66	3,975.84	3,922.63	13.82	15.83	-148.40	126.55	-775.25	978.59	951.92	26.66	36.702		
4,200.00	4,193.49	4,073.31	4,018.54	14.17	16.25	-148.38	130.16	-792.22	1,000.97	973.64	27.33	36.629		
4,300.00	4,293.32	4,170.77	4,114.44	14.51	16.66	-148.37	133.76	-809.18	1,023.35	995.36	27.99	36.558		
4,400.00	4,393.15	4,268.23	4,210.35	14.86	17.07	-148.35	137.37	-826.14	1,045.73	1,017.07	28.66	36.491		
4,500.00	4,492.98	4,365.69	4,306.26	15.20	17.49	-148.34	140.98	-843.11	1,068.11	1,038.79	29.32	36.427		
4,600.00	4,592.80	4,463.16	4,402.17	15.55	17.90	-148.33	144.58	-860.07	1,090.49	1,060.50	29.99	36.365		
4,700.00	4,692.63	4,560.62	4,498.07	15.89	18.31	-148.31	148.19	-877.03	1,112.87	1,082.22	30.65	36.306		
4,800.00	4,792.46	4,718.87	4,654.48	16.23	18.80	-148.33	153.17	-900.46	1,132.69	1,101.11	31.58	35.870		
4,900.00	4,892.29	4,881.34	4,816.18	16.58	19.23	-148.44	156.40	-915.68	1,147.07	1,114.65	32.41	35.388		
5,000.00	4,992.15	5,045.95	4,980.64	16.90	19.62	-148.65	157.73	-921.94	1,155.38	1,122.24	33.14	34.867		
5,099.99	5,092.11	5,157.42	5,092.11	17.16	19.91	-148.73	157.76	-922.08	1,157.25	1,123.54	33.71	34.328		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,257.43	5,192.12	17.44	20.18	-88.97	157.76	-922.08	1,157.27	1,122.96	34.30	33.735		
5,299.99	5,292.11	5,357.41	5,292.11	17.76	20.45	-88.97	157.76	-922.08	1,157.27	1,122.35	34.92	33.138		
5,400.00	5,391.67	5,457.06	5,391.31	18.04	20.69	91.08	150.07	-922.23	1,157.43	1,121.96	35.47	32.632		
5,500.00	5,487.93	5,556.66	5,487.22	18.31	20.92	91.03	123.77	-922.76	1,157.99	1,122.05	35.94	32.224		
5,600.00	5,577.36	5,656.30	5,576.41	18.57	21.13	90.94	79.71	-923.63	1,158.93	1,122.56	36.36	31.872		
5,700.00	5,656.67	5,755.97	5,655.62	18.82	21.33	90.81	19.48	-924.82	1,160.20	1,123.42	36.78	31.542		
5,800.00	5,722.96	5,855.68	5,721.95	19.07	21.53	90.65	-54.76	-926.29	1,161.77	1,124.53	37.24	31.193		
5,900.00	5,773.79	5,955.46	5,772.97	19.33	21.73	90.47	-140.31	-927.99	1,163.58	1,125.79	37.79	30.791		
6,000.00	5,807.29	6,055.30	5,806.79	19.63	21.96	90.27	-234.07	-929.84	1,165.56	1,127.12	38.45	30.316		
6,100.00	5,822.23	6,155.22	5,822.11	20.00	22.25	90.06	-332.63	-931.80	1,167.64	1,128.42	39.22	29.771		
6,200.00	5,823.00	6,255.19	5,823.00	20.43	22.60	90.00	-432.57	-933.78	1,169.75	1,129.61	40.14	29.142		
6,300.00	5,823.00	6,355.17	5,823.00	20.96	23.04	90.00	-532.52	-935.76	1,171.85	1,130.61	41.24	28.414		
6,400.00	5,823.00	6,455.15	5,823.00	21.58	23.58	90.00	-632.48	-937.74	1,173.96	1,131.44	42.52	27.610		
6,500.00	5,823.00	6,555.13	5,823.00	22.28	24.19	90.00	-732.44	-939.72	1,176.06	1,132.11	43.96	26.755		
6,600.00	5,823.00	6,655.10	5,823.00	23.06	24.88	90.00	-832.40	-941.70	1,178.17	1,132.63	45.54	25.872		
6,700.00	5,823.00	6,755.08	5,823.00	23.90	25.65	90.00	-932.36	-943.68	1,180.28	1,133.03	47.25	24.980		
6,800.00	5,823.00	6,855.06	5,823.00	24.81	26.47	90.00	-1,032.32	-945.66	1,182.38	1,133.30	49.08	24.092		
6,900.00	5,823.00	6,955.04	5,823.00	25.76	27.36	90.00	-1,132.27	-947.64	1,184.49	1,133.48	51.01	23.221		
7,000.00	5,823.00	7,055.02	5,823.00	26.77	28.29	90.00	-1,232.23	-949.62	1,186.59	1,133.56	53.03	22.374		
7,100.00	5,823.00	7,154.99	5,823.00	27.81	29.27	90.00	-1,332.19	-951.60	1,188.70	1,133.56	55.14	21.557		
7,200.00	5,823.00	7,254.97	5,823.00	28.89	30.29	90.00	-1,432.15	-953.58	1,190.80	1,133.48	57.32	20.774		
7,300.00	5,823.00	7,354.95	5,823.00	30.01	31.35	90.00	-1,532.11	-955.56	1,192.91	1,133.34	59.57	20.026		
7,400.00	5,823.00	7,454.93	5,823.00	31.16	32.44	90.00	-1,632.07	-957.54	1,195.01	1,133.14	61.87	19.314		
7,500.00	5,823.00	7,554.91	5,823.00	32.33	33.57	90.00	-1,732.02	-959.52	1,197.12	1,132.89	64.23	18.639		
7,600.00	5,823.00	7,654.88	5,823.00	33.53	34.71	90.00	-1,831.98	-961.50	1,199.23	1,132.60	66.63	17.998		
7,700.00	5,823.00	7,754.86	5,823.00	34.74	35.88	90.00	-1,931.94	-963.48	1,201.33	1,132.26	69.07	17.392		
7,800.00	5,823.00	7,854.84	5,823.00	35.98	37.08	90.00	-2,031.90	-965.46	1,203.44	1,131.88	71.55	16.819		
7,900.00	5,823.00	7,954.82	5,823.00	37.23	38.29	90.00	-2,131.86	-967.44	1,205.54	1,131.47	74.07	16.276		
8,000.00	5,823.00	8,054.79	5,823.00	38.50	39.52	90.00	-2,231.81	-969.42	1,207.65	1,131.03	76.61	15.763		
8,100.00	5,823.00	8,154.77	5,823.00	39.79	40.76	90.00	-2,331.77	-971.40	1,209.75	1,130.57	79.19	15.277		
8,200.00	5,823.00	8,254.75	5,823.00	41.08	42.02	90.00	-2,431.73	-973.38	1,211.86	1,130.08	81.78	14.818		
8,300.00	5,823.00	8,354.73	5,823.00	42.39	43.30	90.00	-2,531.69	-975.36	1,213.97	1,129.56	84.40	14.383		
8,400.00	5,823.00	8,454.71	5,823.00	43.71	44.58	90.00	-2,631.65	-977.34	1,216.07	1,129.03	87.04	13.971		
8,500.00	5,823.00	8,554.68	5,823.00	45.03	45.88	90.00	-2,731.61	-979.32	1,218.18	1,128.48	89.70	13.581		
8,600.00	5,823.00	8,654.66	5,823.00	46.37	47.19	90.00	-2,831.56	-981.30	1,220.28	1,127.91	92.38	13.210		
8,700.00	5,823.00	8,754.64	5,823.00	47.71	48.50	90.00	-2,931.52	-983.28	1,222.39	1,127.32	95.07	12.858		
8,800.00	5,823.00	8,854.62	5,823.00	49.07	49.83	90.00	-3,031.48	-985.26	1,224.49	1,126.72	97.77	12.524		
8,900.00	5,823.00	8,954.59	5,823.00	50.42	51.16	90.00	-3,131.44	-987.24	1,226.60	1,126.11	100.49	12.206		
9,000.00	5,823.00	9,054.57	5,823.00	51.79	52.50	90.00	-3,231.40	-989.22	1,228.70	1,125.48	103.22	11.904		
9,100.00	5,823.00	9,154.55	5,823.00	53.16	53.85	90.00	-3,331.35	-991.20	1,230.81	1,124.85	105.96	11.616		
9,200.00	5,823.00	9,254.53	5,823.00	54.53	55.20	90.00	-3,431.31	-993.18	1,232.92	1,124.20	108.71	11.341		
9,300.00	5,823.00	9,354.51	5,823.00	55.91	56.56	90.00	-3,531.27	-995.16	1,235.02	1,123.55	111.48	11.079		
9,400.00	5,823.00	9,454.48	5,823.00	57.30	57.92	90.00	-3,631.23	-997.14	1,237.13	1,122.88	114.25	10.829		
9,500.00	5,823.00	9,554.46	5,823.00	58.69	59.29	90.00	-3,731.19	-999.12	1,239.23	1,122.21	117.02	10.589		
9,600.00	5,823.00	9,654.44	5,823.00	60.08	60.66	90.00	-3,831.15	-1,001.10	1,241.34	1,121.53	119.81	10.361		
9,700.00	5,823.00	9,754.42	5,823.00	61.48	62.04	90.00	-3,931.10	-1,003.08	1,243.44	1,120.84	122.60	10.142		
9,800.00	5,823.00	9,854.40	5,823.00	62.88	63.42	90.00	-4,031.06	-1,005.06	1,245.55	1,120.14	125.40	9.932		
9,900.00	5,823.00	9,954.37	5,823.00	64.28	64.81	90.00	-4,131.02	-1,007.04	1,247.66	1,119.44	128.21	9.731		
10,000.00	5,823.00	10,054.35	5,823.00	65.69	66.19	90.00	-4,230.98	-1,009.02	1,249.76	1,118.74	131.02	9.538		
10,100.00	5,823.00	10,154.33	5,823.00	67.10	67.59	90.00	-4,330.94	-1,011.00	1,251.87	1,118.03	133.84	9.353		
10,200.00	5,823.00	10,254.31	5,823.00	68.51	68.98	90.00	-4,430.90	-1,012.98	1,253.97	1,117.31	136.66	9.176		
10,300.00	5,823.00	10,354.28	5,823.00	69.93	70.38	90.00	-4,530.85	-1,014.96	1,256.08	1,116.59	139.49	9.005		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
10,400.00	5,823.00	10,454.26	5,823.00	71.34	71.78	90.00	-4,630.81	-1,016.94	1,258.18	1,115.86	142.32	8.840		
10,500.00	5,823.00	10,554.24	5,823.00	72.76	73.19	90.00	-4,730.77	-1,018.92	1,260.29	1,115.13	145.16	8.682		
10,600.00	5,823.00	10,654.22	5,823.00	74.18	74.59	90.00	-4,830.73	-1,020.90	1,262.39	1,114.39	148.00	8.530		
10,700.00	5,823.00	10,754.20	5,823.00	75.60	76.00	90.00	-4,930.69	-1,022.88	1,264.50	1,113.66	150.84	8.383		
10,800.00	5,823.00	10,854.17	5,823.00	77.03	77.41	90.00	-5,030.64	-1,024.86	1,266.61	1,112.91	153.69	8.241		
10,900.00	5,823.00	10,954.15	5,823.00	78.46	78.82	90.00	-5,130.60	-1,026.84	1,268.71	1,112.17	156.54	8.105		
11,000.00	5,823.00	11,054.13	5,823.00	79.88	80.24	90.00	-5,230.56	-1,028.82	1,270.82	1,111.42	159.40	7.973		
11,100.00	5,823.00	11,154.11	5,823.00	81.31	81.66	90.00	-5,330.52	-1,030.80	1,272.92	1,110.67	162.25	7.845		
11,200.00	5,823.00	11,254.08	5,823.00	82.75	83.07	90.00	-5,430.48	-1,032.78	1,275.03	1,109.91	165.11	7.722		
11,300.00	5,823.00	11,354.06	5,823.00	84.18	84.49	90.00	-5,530.44	-1,034.76	1,277.13	1,109.16	167.98	7.603		
11,400.00	5,823.00	11,454.04	5,823.00	85.61	85.92	90.00	-5,630.39	-1,036.74	1,279.24	1,108.40	170.84	7.488		
11,500.00	5,823.00	11,554.02	5,823.00	87.05	87.34	90.00	-5,730.35	-1,038.72	1,281.35	1,107.63	173.71	7.376		
11,600.00	5,823.00	11,654.00	5,823.00	88.48	88.76	90.00	-5,830.31	-1,040.70	1,283.45	1,106.87	176.58	7.268		
11,700.00	5,823.00	11,753.97	5,823.00	89.92	90.19	90.00	-5,930.27	-1,042.68	1,285.56	1,106.10	179.45	7.164		
11,800.00	5,823.00	11,853.95	5,823.00	91.36	91.62	90.00	-6,030.23	-1,044.66	1,287.66	1,105.33	182.33	7.062		
11,900.00	5,823.00	11,953.93	5,823.00	92.80	93.05	90.00	-6,130.19	-1,046.64	1,289.77	1,104.56	185.21	6.964		
12,000.00	5,823.00	12,053.91	5,823.00	94.24	94.48	90.00	-6,230.14	-1,048.62	1,291.87	1,103.79	188.08	6.869		
12,100.00	5,823.00	12,153.89	5,823.00	95.68	95.91	90.00	-6,330.10	-1,050.60	1,293.98	1,103.01	190.96	6.776		
12,200.00	5,823.00	12,253.86	5,823.00	97.12	97.34	90.00	-6,430.06	-1,052.58	1,296.08	1,102.24	193.85	6.686		
12,300.00	5,823.00	12,353.84	5,823.00	98.57	98.77	90.00	-6,530.02	-1,054.56	1,298.19	1,101.46	196.73	6.599		
12,400.00	5,823.00	12,453.82	5,823.00	100.01	100.21	90.00	-6,629.98	-1,056.54	1,300.30	1,100.68	199.62	6.514		
12,500.00	5,823.00	12,553.80	5,823.00	101.46	101.64	90.00	-6,729.93	-1,058.52	1,302.40	1,099.90	202.50	6.432		
12,600.00	5,823.00	12,653.77	5,823.00	102.90	103.08	90.00	-6,829.89	-1,060.50	1,304.51	1,099.12	205.39	6.351		
12,700.00	5,823.00	12,753.75	5,823.00	104.35	104.51	90.00	-6,929.85	-1,062.48	1,306.61	1,098.33	208.28	6.273		
12,800.00	5,823.00	12,853.73	5,823.00	105.80	105.95	90.00	-7,029.81	-1,064.46	1,308.72	1,097.55	211.17	6.197		
12,900.00	5,823.00	12,953.71	5,823.00	107.25	107.39	90.00	-7,129.77	-1,066.44	1,310.82	1,096.76	214.07	6.123		
13,000.00	5,823.00	13,053.69	5,823.00	108.69	108.83	90.00	-7,229.73	-1,068.42	1,312.93	1,095.97	216.96	6.052		
13,100.00	5,823.00	13,153.66	5,823.00	110.14	110.27	90.00	-7,329.68	-1,070.40	1,315.04	1,095.18	219.85	5.981		
13,200.00	5,823.00	13,253.64	5,823.00	111.59	111.71	90.00	-7,429.64	-1,072.38	1,317.14	1,094.39	222.75	5.913		
13,300.00	5,823.00	13,353.62	5,823.00	113.04	113.15	90.00	-7,529.60	-1,074.36	1,319.25	1,093.60	225.65	5.846		
13,400.00	5,823.00	13,453.60	5,823.00	114.49	114.59	90.00	-7,629.56	-1,076.34	1,321.35	1,092.81	228.55	5.782		
13,500.00	5,823.00	13,553.58	5,823.00	115.95	116.04	90.00	-7,729.52	-1,078.32	1,323.46	1,092.01	231.45	5.718		
13,600.00	5,823.00	13,653.55	5,823.00	117.40	117.48	90.00	-7,829.47	-1,080.30	1,325.56	1,091.22	234.35	5.656		
13,700.00	5,823.00	13,753.53	5,823.00	118.85	118.92	90.00	-7,929.43	-1,082.28	1,327.67	1,090.42	237.25	5.596		
13,800.00	5,823.00	13,853.51	5,823.00	120.30	120.37	90.00	-8,029.39	-1,084.26	1,329.77	1,089.62	240.15	5.537		
13,899.97	5,823.00	13,953.46	5,823.00	121.76	121.81	90.00	-8,129.32	-1,086.24	1,331.88	1,088.83	243.05	5.480		
13,903.39	5,823.00	13,956.88	5,823.00	121.81	121.86	90.00	-8,132.74	-1,086.31	1,331.95	1,088.80	243.15	5.478 SF		



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-149.95	149.95					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-149.95	149.95	149.68	0.27	562.971		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-149.95	149.95	149.01	0.94	159.408		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-149.95	149.95	148.33	1.61	92.849 CC, ES		
400.00	399.98	395.07	395.05	1.14	1.12	-149.90	0.38	-151.48	153.06	150.75	2.31	66.202		
500.00	499.85	489.60	489.47	1.48	1.43	-150.29	1.51	-156.03	162.25	159.18	3.07	52.837		
600.00	599.68	583.41	582.94	1.81	1.75	-150.54	3.38	-163.54	175.30	171.49	3.82	45.940		
700.00	699.51	676.34	675.26	2.14	2.08	-150.52	5.96	-173.90	191.47	186.91	4.56	41.998		
800.00	799.33	773.78	771.80	2.48	2.43	-150.36	9.14	-186.71	209.61	204.44	5.17	40.556		
900.00	899.16	872.12	869.23	2.82	2.79	-150.22	12.37	-199.67	227.78	222.01	5.77	39.467		
1,000.00	998.99	970.45	966.65	3.16	3.16	-150.10	15.59	-212.62	245.96	239.57	6.39	38.503		
1,100.00	1,098.82	1,068.78	1,064.07	3.50	3.54	-150.00	18.81	-225.58	264.14	257.12	7.01	37.665		
1,200.00	1,198.65	1,167.12	1,161.49	3.85	3.91	-149.91	22.03	-238.54	282.31	274.67	7.65	36.922		
1,300.00	1,298.47	1,265.45	1,258.92	4.19	4.29	-149.83	25.26	-251.50	300.49	292.21	8.29	36.266		
1,400.00	1,398.30	1,363.78	1,356.34	4.53	4.66	-149.76	28.48	-264.45	318.67	309.74	8.93	35.687		
1,500.00	1,498.13	1,462.11	1,453.76	4.88	5.04	-149.70	31.70	-277.41	336.85	327.27	9.58	35.174		
1,600.00	1,597.96	1,560.45	1,551.18	5.22	5.42	-149.65	34.92	-290.37	355.03	344.80	10.23	34.715		
1,700.00	1,697.79	1,658.78	1,648.60	5.56	5.80	-149.60	38.15	-303.33	373.21	362.33	10.88	34.304		
1,800.00	1,797.61	1,757.11	1,746.03	5.91	6.18	-149.55	41.37	-316.28	391.39	379.85	11.53	33.934		
1,900.00	1,897.44	1,855.45	1,843.45	6.25	6.56	-149.51	44.59	-329.24	409.57	397.38	12.19	33.599		
2,000.00	1,997.27	1,953.78	1,940.87	6.59	6.94	-149.47	47.81	-342.20	427.75	414.90	12.85	33.295		
2,100.00	2,097.10	2,052.11	2,038.29	6.94	7.32	-149.44	51.04	-355.16	445.93	432.42	13.51	33.017		
2,200.00	2,196.93	2,150.45	2,135.72	7.28	7.70	-149.41	54.26	-368.11	464.11	449.94	14.17	32.763		
2,300.00	2,296.76	2,248.78	2,233.14	7.63	8.08	-149.38	57.48	-381.07	482.29	467.46	14.83	32.529		
2,400.00	2,396.58	2,347.11	2,330.56	7.97	8.46	-149.35	60.70	-394.03	500.47	484.98	15.49	32.314		
2,500.00	2,496.41	2,445.45	2,427.98	8.32	8.84	-149.32	63.93	-406.99	518.65	502.50	16.15	32.115		
2,600.00	2,596.24	2,543.78	2,525.41	8.66	9.22	-149.30	67.15	-419.94	536.83	520.02	16.81	31.931		
2,700.00	2,696.07	2,642.11	2,622.83	9.00	9.61	-149.28	70.37	-432.90	555.01	537.53	17.48	31.760		
2,800.00	2,795.90	2,740.45	2,720.25	9.35	9.99	-149.26	73.59	-445.86	573.19	555.05	18.14	31.600		
2,900.00	2,895.72	2,838.78	2,817.67	9.69	10.37	-149.24	76.82	-458.82	591.37	572.57	18.80	31.451		
3,000.00	2,995.55	2,937.11	2,915.10	10.04	10.75	-149.22	80.04	-471.77	609.55	590.08	19.47	31.312		
3,100.00	3,095.38	3,035.45	3,012.52	10.38	11.13	-149.20	83.26	-484.73	627.73	607.60	20.13	31.181		
3,200.00	3,195.21	3,133.78	3,109.94	10.72	11.51	-149.18	86.48	-497.69	645.91	625.12	20.80	31.058		
3,300.00	3,295.04	3,232.11	3,207.36	11.07	11.90	-149.17	89.71	-510.65	664.09	642.63	21.46	30.942		
3,400.00	3,394.87	3,330.45	3,304.79	11.41	12.28	-149.15	92.93	-523.60	682.27	660.15	22.13	30.833		
3,500.00	3,494.69	3,428.78	3,402.21	11.76	12.66	-149.14	96.15	-536.56	700.46	677.66	22.79	30.730		
3,600.00	3,594.52	3,527.11	3,499.63	12.10	13.04	-149.13	99.37	-549.52	718.64	695.18	23.46	30.632		
3,700.00	3,694.35	3,625.45	3,597.05	12.45	13.42	-149.11	102.60	-562.48	736.82	712.69	24.13	30.540		
3,800.00	3,794.18	3,723.78	3,694.48	12.79	13.81	-149.10	105.82	-575.43	755.00	730.21	24.79	30.452		
3,900.00	3,894.01	3,822.11	3,791.90	13.13	14.19	-149.09	109.04	-588.39	773.18	747.72	25.46	30.369		
4,000.00	3,993.83	3,920.44	3,889.32	13.48	14.57	-149.08	112.27	-601.35	791.36	765.24	26.13	30.290		
4,100.00	4,093.66	4,018.78	3,986.74	13.82	14.95	-149.07	115.49	-614.31	809.54	782.75	26.79	30.214		
4,200.00	4,193.49	4,117.11	4,084.17	14.17	15.33	-149.06	118.71	-627.26	827.73	800.26	27.46	30.142		
4,300.00	4,293.32	4,215.44	4,181.59	14.51	15.72	-149.05	121.93	-640.22	845.91	817.78	28.13	30.074		
4,400.00	4,393.15	4,313.78	4,279.01	14.86	16.10	-149.04	125.16	-653.18	864.09	835.29	28.80	30.008		
4,500.00	4,492.98	4,412.11	4,376.43	15.20	16.48	-149.03	128.38	-666.14	882.27	852.81	29.46	29.945		
4,600.00	4,592.80	4,510.44	4,473.86	15.55	16.86	-149.02	131.60	-679.09	900.45	870.32	30.13	29.885		
4,700.00	4,692.63	4,608.78	4,571.28	15.89	17.25	-149.02	134.82	-692.05	918.63	887.83	30.80	29.827		
4,800.00	4,792.46	4,727.68	4,689.17	16.23	17.65	-149.02	138.55	-707.02	936.33	904.77	31.56	29.670		
4,900.00	4,892.29	4,873.44	4,834.35	16.58	18.04	-149.10	141.64	-719.47	949.90	917.55	32.35	29.359		
5,000.00	4,992.15	5,020.82	4,981.62	16.90	18.40	-149.31	142.96	-724.77	958.03	924.97	33.06	28.982		
5,099.99	5,092.11	5,131.32	5,092.11	17.16	18.70	-149.40	143.00	-724.95	959.95	926.32	33.63	28.542		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,231.33	5,192.12	17.44	18.98	-89.64	143.00	-724.95	959.96	925.73	34.23	28.044		
5,268.96	5,261.08	5,300.35	5,261.08	17.66	19.17	-89.77	140.87	-724.95	959.96	925.31	34.65	27.704		
5,299.99	5,292.11	5,331.05	5,291.56	17.76	19.25	-89.99	137.20	-724.97	959.97	925.14	34.83	27.562		
5,400.00	5,391.67	5,427.51	5,385.07	18.04	19.48	89.11	114.12	-725.06	960.21	924.87	35.35	27.166		
5,500.00	5,487.93	5,521.27	5,470.39	18.31	19.70	88.18	75.55	-725.22	960.80	925.01	35.79	26.846		
5,600.00	5,577.36	5,612.75	5,545.68	18.57	19.90	87.32	23.79	-725.43	961.67	925.47	36.19	26.569		
5,700.00	5,656.67	5,700.00	5,608.01	18.82	20.09	86.56	-37.12	-725.67	962.71	926.12	36.59	26.312		
5,800.00	5,722.96	5,790.43	5,660.96	19.07	20.29	85.90	-110.29	-725.97	963.81	926.77	37.03	26.025		
5,900.00	5,773.79	5,877.38	5,699.22	19.33	20.49	85.38	-188.25	-726.28	964.88	927.33	37.55	25.696		
6,000.00	5,807.29	5,963.53	5,723.83	19.63	20.73	85.01	-270.71	-726.61	965.82	927.65	38.17	25.302		
6,100.00	5,822.23	6,050.00	5,734.55	20.00	21.02	84.80	-356.41	-726.96	966.56	927.65	38.91	24.841		
6,200.00	5,823.00	6,145.45	5,735.00	20.43	21.41	84.78	-451.85	-727.35	967.11	927.28	39.83	24.282		
6,300.00	5,823.00	6,245.45	5,735.00	20.96	21.90	84.78	-551.85	-727.75	967.63	926.69	40.95	23.632		
6,400.00	5,823.00	6,345.45	5,735.00	21.58	22.49	84.78	-651.84	-728.15	968.16	925.92	42.24	22.922		
6,500.00	5,823.00	6,445.44	5,735.00	22.28	23.16	84.79	-751.84	-728.56	968.69	925.00	43.69	22.173		
6,600.00	5,823.00	6,545.44	5,735.00	23.06	23.91	84.79	-851.84	-728.96	969.21	923.93	45.28	21.404		
6,700.00	5,823.00	6,645.44	5,735.00	23.90	24.72	84.79	-951.84	-729.36	969.74	922.73	47.01	20.630		
6,800.00	5,823.00	6,745.44	5,735.00	24.81	25.59	84.80	-1,051.84	-729.77	970.26	921.42	48.84	19.864		
6,900.00	5,823.00	6,845.44	5,735.00	25.76	26.52	84.80	-1,151.83	-730.17	970.79	920.00	50.79	19.115		
7,000.00	5,823.00	6,945.44	5,735.00	26.77	27.50	84.80	-1,251.83	-730.57	971.32	918.50	52.82	18.389		
7,100.00	5,823.00	7,045.44	5,735.00	27.81	28.52	84.80	-1,351.83	-730.98	971.84	916.91	54.93	17.691		
7,200.00	5,823.00	7,145.43	5,735.00	28.89	29.58	84.81	-1,451.83	-731.38	972.37	915.25	57.12	17.023		
7,300.00	5,823.00	7,245.43	5,735.00	30.01	30.68	84.81	-1,551.82	-731.78	972.90	913.52	59.37	16.387		
7,400.00	5,823.00	7,345.43	5,735.00	31.16	31.80	84.81	-1,651.82	-732.19	973.42	911.74	61.68	15.782		
7,500.00	5,823.00	7,445.43	5,735.00	32.33	32.96	84.82	-1,751.82	-732.59	973.95	909.91	64.04	15.209		
7,600.00	5,823.00	7,545.43	5,735.00	33.53	34.13	84.82	-1,851.82	-732.99	974.48	908.03	66.44	14.666		
7,700.00	5,823.00	7,645.43	5,735.00	34.74	35.33	84.82	-1,951.82	-733.40	975.00	906.11	68.89	14.153		
7,800.00	5,823.00	7,745.43	5,735.00	35.98	36.55	84.82	-2,051.81	-733.80	975.53	904.16	71.37	13.668		
7,900.00	5,823.00	7,845.42	5,735.00	37.23	37.79	84.83	-2,151.81	-734.20	976.05	902.17	73.89	13.210		
8,000.00	5,823.00	7,945.42	5,735.00	38.50	39.05	84.83	-2,251.81	-734.61	976.58	900.15	76.43	12.777		
8,100.00	5,823.00	8,045.42	5,735.00	39.79	40.32	84.83	-2,351.81	-735.01	977.11	898.10	79.01	12.368		
8,200.00	5,823.00	8,145.42	5,735.00	41.08	41.60	84.84	-2,451.80	-735.41	977.63	896.03	81.60	11.981		
8,300.00	5,823.00	8,245.42	5,735.00	42.39	42.89	84.84	-2,551.80	-735.82	978.16	893.94	84.22	11.614		
8,400.00	5,823.00	8,345.42	5,735.00	43.71	44.20	84.84	-2,651.80	-736.22	978.69	891.83	86.86	11.268		
8,500.00	5,823.00	8,445.42	5,735.00	45.03	45.51	84.84	-2,751.80	-736.62	979.21	889.70	89.52	10.939		
8,600.00	5,823.00	8,545.41	5,735.00	46.37	46.84	84.85	-2,851.80	-737.03	979.74	887.55	92.19	10.627		
8,700.00	5,823.00	8,645.41	5,735.00	47.71	48.17	84.85	-2,951.79	-737.43	980.27	885.39	94.88	10.332		
8,800.00	5,823.00	8,745.41	5,735.00	49.07	49.51	84.85	-3,051.79	-737.83	980.79	883.21	97.58	10.051		
8,900.00	5,823.00	8,845.41	5,735.00	50.42	50.86	84.86	-3,151.79	-738.24	981.32	881.02	100.30	9.784		
9,000.00	5,823.00	8,945.41	5,735.00	51.79	52.22	84.86	-3,251.79	-738.64	981.84	878.82	103.02	9.530		
9,100.00	5,823.00	9,045.41	5,735.00	53.16	53.58	84.86	-3,351.78	-739.04	982.37	876.61	105.76	9.288		
9,200.00	5,823.00	9,145.41	5,735.00	54.53	54.95	84.86	-3,451.78	-739.45	982.90	874.39	108.51	9.058		
9,300.00	5,823.00	9,245.41	5,735.00	55.91	56.32	84.87	-3,551.78	-739.85	983.42	872.15	111.27	8.838		
9,400.00	5,823.00	9,345.40	5,735.00	57.30	57.69	84.87	-3,651.78	-740.25	983.95	869.91	114.04	8.628		
9,500.00	5,823.00	9,445.40	5,735.00	58.69	59.08	84.87	-3,751.78	-740.66	984.48	867.66	116.81	8.428		
9,600.00	5,823.00	9,545.40	5,735.00	60.08	60.46	84.87	-3,851.77	-741.06	985.00	865.41	119.59	8.236		
9,700.00	5,823.00	9,645.40	5,735.00	61.48	61.85	84.88	-3,951.77	-741.46	985.53	863.15	122.38	8.053		
9,800.00	5,823.00	9,745.40	5,735.00	62.88	63.25	84.88	-4,051.77	-741.87	986.06	860.88	125.18	7.877		
9,900.00	5,823.00	9,845.40	5,735.00	64.28	64.64	84.88	-4,151.77	-742.27	986.58	858.60	127.98	7.709		
10,000.00	5,823.00	9,945.40	5,735.00	65.69	66.04	84.89	-4,251.76	-742.67	987.11	856.32	130.79	7.547		
10,100.00	5,823.00	10,045.39	5,735.00	67.10	67.45	84.89	-4,351.76	-743.08	987.63	854.03	133.60	7.392		
10,200.00	5,823.00	10,145.39	5,735.00	68.51	68.85	84.89	-4,451.76	-743.48	988.16	851.74	136.42	7.243		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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
10,300.00	5,823.00	10,245.39	5,735.00	69.93	70.26	84.89	-4,551.76	-743.88	988.69	849.44	139.24	7.100	
10,400.00	5,823.00	10,345.39	5,735.00	71.34	71.67	84.90	-4,651.76	-744.29	989.21	847.14	142.07	6.963	
10,500.00	5,823.00	10,445.39	5,735.00	72.76	73.08	84.90	-4,751.75	-744.69	989.74	844.84	144.90	6.830	
10,600.00	5,823.00	10,545.39	5,735.00	74.18	74.50	84.90	-4,851.75	-745.09	990.27	842.53	147.74	6.703	
10,700.00	5,823.00	10,645.39	5,735.00	75.60	75.92	84.90	-4,951.75	-745.50	990.79	840.21	150.58	6.580	
10,800.00	5,823.00	10,745.38	5,735.00	77.03	77.34	84.91	-5,051.75	-745.90	991.32	837.90	153.42	6.461	
10,900.00	5,823.00	10,845.38	5,735.00	78.46	78.76	84.91	-5,151.74	-746.31	991.85	835.58	156.27	6.347	
11,000.00	5,823.00	10,945.38	5,735.00	79.88	80.18	84.91	-5,251.74	-746.71	992.37	833.25	159.12	6.237	
11,100.00	5,823.00	11,045.38	5,735.00	81.31	81.61	84.92	-5,351.74	-747.11	992.90	830.93	161.97	6.130	
11,200.00	5,823.00	11,145.38	5,735.00	82.75	83.03	84.92	-5,451.74	-747.52	993.43	828.60	164.83	6.027	
11,300.00	5,823.00	11,245.38	5,735.00	84.18	84.46	84.92	-5,551.74	-747.92	993.95	826.27	167.68	5.928	
11,400.00	5,823.00	11,345.38	5,735.00	85.61	85.89	84.92	-5,651.73	-748.32	994.48	823.93	170.54	5.831	
11,500.00	5,823.00	11,445.37	5,735.00	87.05	87.32	84.93	-5,751.73	-748.73	995.00	821.60	173.41	5.738	
11,600.00	5,823.00	11,545.37	5,735.00	88.48	88.76	84.93	-5,851.73	-749.13	995.53	819.26	176.27	5.648	
11,700.00	5,823.00	11,645.37	5,735.00	89.92	90.19	84.93	-5,951.73	-749.53	996.06	816.92	179.14	5.560	
11,800.00	5,823.00	11,745.37	5,735.00	91.36	91.62	84.93	-6,051.73	-749.94	996.58	814.57	182.01	5.475	
11,900.00	5,823.00	11,845.37	5,735.00	92.80	93.06	84.94	-6,151.72	-750.34	997.11	812.23	184.88	5.393	
12,000.00	5,823.00	11,945.37	5,735.00	94.24	94.50	84.94	-6,251.72	-750.74	997.64	809.88	187.75	5.314	
12,100.00	5,823.00	12,045.37	5,735.00	95.68	95.93	84.94	-6,351.72	-751.15	998.16	807.53	190.63	5.236	
12,200.00	5,823.00	12,145.36	5,735.00	97.12	97.37	84.94	-6,451.72	-751.55	998.69	805.18	193.51	5.161	
12,300.00	5,823.00	12,245.36	5,735.00	98.57	98.81	84.95	-6,551.71	-751.95	999.22	802.83	196.39	5.088	
12,400.00	5,823.00	12,345.36	5,735.00	100.01	100.25	84.95	-6,651.71	-752.36	999.74	800.48	199.27	5.017	
12,500.00	5,823.00	12,445.36	5,735.00	101.46	101.70	84.95	-6,751.71	-752.76	1,000.27	798.12	202.15	4.948	
12,600.00	5,823.00	12,545.36	5,735.00	102.90	103.14	84.96	-6,851.71	-753.16	1,000.80	795.76	205.03	4.881	
12,700.00	5,823.00	12,645.36	5,735.00	104.35	104.58	84.96	-6,951.71	-753.57	1,001.32	793.41	207.92	4.816	
12,800.00	5,823.00	12,745.36	5,735.00	105.80	106.03	84.96	-7,051.70	-753.97	1,001.85	791.05	210.80	4.753	
12,900.00	5,823.00	12,845.35	5,735.00	107.25	107.47	84.96	-7,151.70	-754.37	1,002.37	788.69	213.69	4.691	
13,000.00	5,823.00	12,945.35	5,735.00	108.69	108.92	84.97	-7,251.70	-754.78	1,002.90	786.32	216.58	4.631	
13,100.00	5,823.00	13,045.35	5,735.00	110.14	110.36	84.97	-7,351.70	-755.18	1,003.43	783.96	219.47	4.572	
13,200.00	5,823.00	13,145.35	5,735.00	111.59	111.81	84.97	-7,451.69	-755.58	1,003.95	781.60	222.36	4.515	
13,300.00	5,823.00	13,245.35	5,735.00	113.04	113.26	84.97	-7,551.69	-755.99	1,004.48	779.23	225.25	4.459	
13,400.00	5,823.00	13,345.35	5,735.00	114.49	114.70	84.98	-7,651.69	-756.39	1,005.01	776.86	228.14	4.405	
13,500.00	5,823.00	13,445.35	5,735.00	115.95	116.15	84.98	-7,751.69	-756.79	1,005.53	774.49	231.04	4.352	
13,600.00	5,823.00	13,545.35	5,735.00	117.40	117.60	84.98	-7,851.69	-757.20	1,006.06	772.13	233.93	4.301	
13,700.00	5,823.00	13,645.34	5,735.00	118.85	119.05	84.98	-7,951.68	-757.60	1,006.59	769.76	236.83	4.250	
13,800.00	5,823.00	13,745.34	5,735.00	120.30	120.50	84.99	-8,051.68	-758.00	1,007.11	767.39	239.73	4.201	
13,899.97	5,823.00	13,845.31	5,735.00	121.76	121.95	84.99	-8,151.65	-758.41	1,007.64	765.02	242.62	4.153	
13,903.39	5,823.00	13,848.73	5,735.00	121.81	122.00	84.99	-8,155.07	-758.42	1,007.66	764.93	242.72	4.151 SF	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-119.96	119.96					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-119.96	119.96	119.69	0.27	450.377		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-119.96	119.96	119.02	0.94	127.526		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-119.96	119.96	118.34	1.61	74.279 CC, ES		
400.00	399.98	396.27	396.25	1.14	1.12	-149.80	0.70	-121.42	122.98	120.67	2.31	53.182		
500.00	499.85	492.04	491.89	1.48	1.45	-149.90	2.78	-125.76	131.88	128.81	3.07	43.003		
600.00	599.68	590.71	590.31	1.81	1.78	-149.82	5.84	-132.18	143.42	139.72	3.70	38.776		
700.00	699.51	690.04	689.38	2.14	2.11	-149.75	8.94	-138.67	155.00	150.67	4.33	35.819		
800.00	799.33	789.37	788.44	2.48	2.46	-149.69	12.04	-145.16	166.58	161.61	4.97	33.537		
900.00	899.16	888.69	887.51	2.82	2.80	-149.63	15.14	-151.66	178.16	172.55	5.61	31.734		
1,000.00	998.99	988.02	986.58	3.16	3.14	-149.59	18.24	-158.15	189.74	183.48	6.27	30.278		
1,100.00	1,098.82	1,087.35	1,085.64	3.50	3.49	-149.55	21.34	-164.64	201.33	194.40	6.92	29.084		
1,200.00	1,198.65	1,186.67	1,184.71	3.85	3.84	-149.51	24.44	-171.14	212.91	205.33	7.58	28.084		
1,300.00	1,298.47	1,286.00	1,283.77	4.19	4.18	-149.48	27.54	-177.63	224.49	216.25	8.24	27.237		
1,400.00	1,398.30	1,385.33	1,382.84	4.53	4.53	-149.45	30.64	-184.13	236.07	227.17	8.90	26.512		
1,500.00	1,498.13	1,484.66	1,481.91	4.88	4.88	-149.42	33.74	-190.62	247.65	238.08	9.57	25.883		
1,600.00	1,597.96	1,583.98	1,580.97	5.22	5.23	-149.39	36.84	-197.11	259.23	249.00	10.23	25.334		
1,700.00	1,697.79	1,683.31	1,680.04	5.56	5.57	-149.37	39.94	-203.61	270.82	259.92	10.90	24.849		
1,800.00	1,797.61	1,782.64	1,779.10	5.91	5.92	-149.35	43.04	-210.10	282.40	270.83	11.56	24.419		
1,900.00	1,897.44	1,881.96	1,878.17	6.25	6.27	-149.33	46.13	-216.59	293.98	281.75	12.23	24.035		
2,000.00	1,997.27	1,981.29	1,977.24	6.59	6.62	-149.31	49.23	-223.09	305.56	292.66	12.90	23.689		
2,100.00	2,097.10	2,080.62	2,076.30	6.94	6.97	-149.30	52.33	-229.58	317.14	303.58	13.57	23.377		
2,200.00	2,196.93	2,179.94	2,175.37	7.28	7.31	-149.28	55.43	-236.08	328.73	314.49	14.23	23.094		
2,300.00	2,296.76	2,279.27	2,274.43	7.63	7.66	-149.27	58.53	-242.57	340.31	325.41	14.90	22.835		
2,400.00	2,396.58	2,378.60	2,373.50	7.97	8.01	-149.25	61.63	-249.06	351.89	336.32	15.57	22.598		
2,500.00	2,496.41	2,477.93	2,472.57	8.32	8.36	-149.24	64.73	-255.56	363.47	347.23	16.24	22.381		
2,600.00	2,596.24	2,577.25	2,571.63	8.66	8.71	-149.23	67.83	-262.05	375.05	358.14	16.91	22.180		
2,700.00	2,696.07	2,676.58	2,670.70	9.00	9.06	-149.22	70.93	-268.54	386.64	369.06	17.58	21.994		
2,800.00	2,795.90	2,775.91	2,769.76	9.35	9.40	-149.21	74.03	-275.04	398.22	379.97	18.25	21.822		
2,900.00	2,895.72	2,875.23	2,868.83	9.69	9.75	-149.20	77.13	-281.53	409.80	390.88	18.92	21.662		
3,000.00	2,995.55	2,974.56	2,967.90	10.04	10.10	-149.19	80.23	-288.03	421.38	401.80	19.59	21.513		
3,100.00	3,095.38	3,073.89	3,066.96	10.38	10.45	-149.18	83.33	-294.52	432.96	412.71	20.26	21.373		
3,200.00	3,195.21	3,173.21	3,166.03	10.72	10.80	-149.17	86.43	-301.01	444.55	423.62	20.93	21.242		
3,300.00	3,295.04	3,272.54	3,265.09	11.07	11.15	-149.17	89.53	-307.51	456.13	434.53	21.60	21.120		
3,400.00	3,394.87	3,371.87	3,364.16	11.41	11.50	-149.16	92.63	-314.00	467.71	445.44	22.27	21.004		
3,500.00	3,494.69	3,471.20	3,463.23	11.76	11.84	-149.15	95.73	-320.49	479.29	456.36	22.94	20.895		
3,600.00	3,594.52	3,570.52	3,562.29	12.10	12.19	-149.14	98.83	-326.99	490.88	467.27	23.61	20.793		
3,700.00	3,694.35	3,669.85	3,661.36	12.45	12.54	-149.14	101.93	-333.48	502.46	478.18	24.28	20.696		
3,800.00	3,794.18	3,769.18	3,760.42	12.79	12.89	-149.13	105.03	-339.98	514.04	489.09	24.95	20.604		
3,900.00	3,894.01	3,868.50	3,859.49	13.13	13.24	-149.13	108.13	-346.47	525.62	500.00	25.62	20.517		
4,000.00	3,993.83	3,967.83	3,958.56	13.48	13.59	-149.12	111.23	-352.96	537.20	510.91	26.29	20.434		
4,100.00	4,093.66	4,067.16	4,057.62	13.82	13.94	-149.11	114.33	-359.46	548.79	521.83	26.96	20.355		
4,200.00	4,193.49	4,166.48	4,156.69	14.17	14.29	-149.11	117.43	-365.95	560.37	532.74	27.63	20.280		
4,300.00	4,293.32	4,265.81	4,255.75	14.51	14.63	-149.10	120.53	-372.44	571.95	543.65	28.30	20.209		
4,400.00	4,393.15	4,365.14	4,354.82	14.86	14.98	-149.10	123.63	-378.94	583.53	554.56	28.97	20.141		
4,500.00	4,492.98	4,464.47	4,453.89	15.20	15.33	-149.09	126.73	-385.43	595.12	565.47	29.64	20.076		
4,600.00	4,592.80	4,563.79	4,552.95	15.55	15.68	-149.09	129.83	-391.93	606.70	576.38	30.31	20.014		
4,700.00	4,692.63	4,663.12	4,652.02	15.89	16.03	-149.09	132.93	-398.42	618.28	587.29	30.99	19.954		
4,800.00	4,792.46	4,762.45	4,751.08	16.23	16.38	-149.08	136.03	-404.91	629.86	598.21	31.66	19.897		
4,900.00	4,892.29	4,872.93	4,861.31	16.58	16.74	-149.10	139.25	-411.66	641.06	608.69	32.37	19.804		
5,000.00	4,992.15	4,998.20	4,986.51	16.90	17.07	-149.29	140.95	-415.22	648.44	615.40	33.05	19.623		
5,099.99	5,092.11	5,103.80	5,092.11	17.16	17.36	-149.40	141.01	-415.34	650.33	616.72	33.62	19.346		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,203.81	5,192.12	17.44	17.67	-89.65	141.01	-415.34	650.35	616.13	34.22	19.004		
5,286.76	5,278.88	5,290.74	5,278.88	17.72	17.92	-90.00	136.95	-415.34	650.34	615.59	34.74	18.719		
5,299.99	5,292.11	5,303.82	5,291.84	17.76	17.95	-90.16	135.16	-415.34	650.34	615.52	34.82	18.678		
5,400.00	5,391.67	5,400.00	5,385.08	18.04	18.20	88.49	112.12	-415.33	650.60	615.29	35.32	18.422		
5,500.00	5,487.93	5,494.64	5,471.17	18.31	18.44	87.11	73.11	-415.33	651.26	615.52	35.74	18.224		
5,600.00	5,577.36	5,586.36	5,546.54	18.57	18.66	85.85	21.08	-415.33	652.22	616.11	36.11	18.063		
5,700.00	5,656.67	5,676.14	5,610.39	18.82	18.87	84.74	-41.89	-415.32	653.34	616.87	36.46	17.917		
5,800.00	5,722.96	5,764.37	5,661.71	19.07	19.08	83.81	-113.53	-415.32	654.48	617.63	36.85	17.762		
5,900.00	5,773.79	5,850.00	5,699.27	19.33	19.29	83.10	-190.38	-415.31	655.51	618.22	37.29	17.577		
6,000.00	5,807.29	5,937.64	5,724.17	19.63	19.55	82.59	-274.30	-415.30	656.31	618.44	37.87	17.331		
6,100.00	5,822.23	6,023.36	5,734.59	20.00	19.86	82.33	-359.28	-415.30	656.80	618.23	38.56	17.031		
6,200.00	5,823.00	6,119.86	5,735.00	20.43	20.28	82.30	-455.78	-415.29	656.95	617.49	39.46	16.647		
6,300.00	5,823.00	6,219.86	5,735.00	20.96	20.81	82.30	-555.78	-415.28	657.07	616.50	40.57	16.195		
6,400.00	5,823.00	6,319.86	5,735.00	21.58	21.43	82.30	-655.78	-415.27	657.18	615.33	41.85	15.702		
6,500.00	5,823.00	6,419.86	5,735.00	22.28	22.14	82.31	-755.78	-415.27	657.30	614.01	43.29	15.182		
6,600.00	5,823.00	6,519.86	5,735.00	23.06	22.92	82.31	-855.78	-415.26	657.42	612.54	44.88	14.648		
6,700.00	5,823.00	6,619.86	5,735.00	23.90	23.77	82.31	-955.78	-415.25	657.53	610.94	46.59	14.112		
6,800.00	5,823.00	6,719.86	5,735.00	24.81	24.68	82.31	-1,055.78	-415.24	657.65	609.23	48.42	13.581		
6,900.00	5,823.00	6,819.86	5,735.00	25.76	25.64	82.31	-1,155.78	-415.24	657.77	607.41	50.36	13.062		
7,000.00	5,823.00	6,919.86	5,735.00	26.77	26.64	82.31	-1,255.78	-415.23	657.88	605.50	52.38	12.560		
7,100.00	5,823.00	7,019.86	5,735.00	27.81	27.69	82.31	-1,355.78	-415.22	658.00	603.51	54.49	12.076		
7,200.00	5,823.00	7,119.86	5,735.00	28.89	28.78	82.32	-1,455.78	-415.21	658.12	601.45	56.66	11.614		
7,300.00	5,823.00	7,219.86	5,735.00	30.01	29.90	82.32	-1,555.78	-415.21	658.23	599.32	58.91	11.174		
7,400.00	5,823.00	7,319.86	5,735.00	31.16	31.05	82.32	-1,655.78	-415.20	658.35	597.14	61.21	10.756		
7,500.00	5,823.00	7,419.86	5,735.00	32.33	32.23	82.32	-1,755.78	-415.19	658.46	594.91	63.56	10.360		
7,600.00	5,823.00	7,519.86	5,735.00	33.53	33.43	82.32	-1,855.78	-415.18	658.58	592.63	65.95	9.986		
7,700.00	5,823.00	7,619.86	5,735.00	34.74	34.65	82.32	-1,955.78	-415.17	658.70	590.31	68.39	9.631		
7,800.00	5,823.00	7,719.86	5,735.00	35.98	35.89	82.32	-2,055.78	-415.17	658.81	587.95	70.86	9.297		
7,900.00	5,823.00	7,819.86	5,735.00	37.23	37.14	82.33	-2,155.78	-415.16	658.93	585.56	73.37	8.981		
8,000.00	5,823.00	7,919.86	5,735.00	38.50	38.42	82.33	-2,255.78	-415.15	659.05	583.14	75.91	8.682		
8,100.00	5,823.00	8,019.86	5,735.00	39.79	39.70	82.33	-2,355.78	-415.14	659.16	580.69	78.47	8.400		
8,200.00	5,823.00	8,119.86	5,735.00	41.08	41.00	82.33	-2,455.78	-415.14	659.28	578.22	81.05	8.134		
8,300.00	5,823.00	8,219.86	5,735.00	42.39	42.31	82.33	-2,555.78	-415.13	659.40	575.73	83.66	7.881		
8,400.00	5,823.00	8,319.86	5,735.00	43.71	43.63	82.33	-2,655.78	-415.12	659.51	573.22	86.29	7.643		
8,500.00	5,823.00	8,419.86	5,735.00	45.03	44.96	82.33	-2,755.78	-415.11	659.63	570.69	88.94	7.417		
8,600.00	5,823.00	8,519.86	5,735.00	46.37	46.30	82.33	-2,855.78	-415.10	659.74	568.14	91.60	7.202		
8,700.00	5,823.00	8,619.86	5,735.00	47.71	47.65	82.34	-2,955.78	-415.10	659.86	565.58	94.28	6.999		
8,800.00	5,823.00	8,719.86	5,735.00	49.07	49.00	82.34	-3,055.78	-415.09	659.98	563.00	96.97	6.806		
8,900.00	5,823.00	8,819.86	5,735.00	50.42	50.36	82.34	-3,155.78	-415.08	660.09	560.41	99.68	6.622		
9,000.00	5,823.00	8,919.86	5,735.00	51.79	51.72	82.34	-3,255.78	-415.07	660.21	557.81	102.40	6.448		
9,100.00	5,823.00	9,019.86	5,735.00	53.16	53.10	82.34	-3,355.78	-415.07	660.33	555.20	105.13	6.281		
9,200.00	5,823.00	9,119.86	5,735.00	54.53	54.47	82.34	-3,455.78	-415.06	660.44	552.58	107.86	6.123		
9,300.00	5,823.00	9,219.86	5,735.00	55.91	55.86	82.34	-3,555.78	-415.05	660.56	549.95	110.61	5.972		
9,400.00	5,823.00	9,319.86	5,735.00	57.30	57.24	82.35	-3,655.78	-415.04	660.67	547.31	113.37	5.828		
9,500.00	5,823.00	9,419.86	5,735.00	58.69	58.63	82.35	-3,755.78	-415.04	660.79	544.66	116.13	5.690		
9,600.00	5,823.00	9,519.86	5,735.00	60.08	60.03	82.35	-3,855.78	-415.03	660.91	542.00	118.90	5.558		
9,700.00	5,823.00	9,619.86	5,735.00	61.48	61.42	82.35	-3,955.78	-415.02	661.02	539.34	121.68	5.432		
9,800.00	5,823.00	9,719.86	5,735.00	62.88	62.83	82.35	-4,055.78	-415.01	661.14	536.67	124.47	5.312		
9,900.00	5,823.00	9,819.86	5,735.00	64.28	64.23	82.35	-4,155.78	-415.00	661.26	534.00	127.26	5.196		
10,000.00	5,823.00	9,919.86	5,735.00	65.69	65.64	82.35	-4,255.78	-415.00	661.37	531.32	130.06	5.085		
10,100.00	5,823.00	10,019.86	5,735.00	67.10	67.05	82.36	-4,355.78	-414.99	661.49	528.63	132.86	4.979		
10,200.00	5,823.00	10,119.86	5,735.00	68.51	68.46	82.36	-4,455.78	-414.98	661.61	525.94	135.67	4.877		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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 #30G-3141 Dropped - Hz - APD		Offset Site Error:		0.00 usft	
Survey Program: 0-MWD+IFR1+MS+sag														Offset Well Error:		0.00 usft	
Reference		Offset		Semi Major Axis			Distance										
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	Warning				
10,300.00	5,823.00	10,219.86	5,735.00	69.93	69.88	82.36	-4,555.78	-414.97	661.72	523.24	138.48	4.779					
10,400.00	5,823.00	10,319.86	5,735.00	71.34	71.29	82.36	-4,655.78	-414.97	661.84	520.54	141.30	4.684					
10,500.00	5,823.00	10,419.86	5,735.00	72.76	72.71	82.36	-4,755.78	-414.96	661.95	517.84	144.12	4.593					
10,600.00	5,823.00	10,519.86	5,735.00	74.18	74.13	82.36	-4,855.78	-414.95	662.07	515.13	146.94	4.506					
10,700.00	5,823.00	10,619.86	5,735.00	75.60	75.56	82.36	-4,955.78	-414.94	662.19	512.42	149.77	4.421					
10,800.00	5,823.00	10,719.86	5,735.00	77.03	76.98	82.36	-5,055.78	-414.94	662.30	509.70	152.60	4.340					
10,900.00	5,823.00	10,819.86	5,735.00	78.46	78.41	82.37	-5,155.78	-414.93	662.42	506.98	155.44	4.262					
11,000.00	5,823.00	10,919.86	5,735.00	79.88	79.84	82.37	-5,255.78	-414.92	662.54	504.26	158.27	4.186					
11,100.00	5,823.00	11,019.86	5,735.00	81.31	81.27	82.37	-5,355.78	-414.91	662.65	501.54	161.11	4.113					
11,200.00	5,823.00	11,119.86	5,735.00	82.75	82.70	82.37	-5,455.78	-414.90	662.77	498.81	163.96	4.042					
11,300.00	5,823.00	11,219.86	5,735.00	84.18	84.13	82.37	-5,555.78	-414.90	662.88	496.08	166.81	3.974					
11,400.00	5,823.00	11,319.86	5,735.00	85.61	85.57	82.37	-5,655.78	-414.89	663.00	493.35	169.65	3.908					
11,500.00	5,823.00	11,419.86	5,735.00	87.05	87.00	82.37	-5,755.78	-414.88	663.12	490.61	172.51	3.844					
11,600.00	5,823.00	11,519.86	5,735.00	88.48	88.44	82.38	-5,855.78	-414.87	663.23	487.87	175.36	3.782					
11,700.00	5,823.00	11,619.86	5,735.00	89.92	89.88	82.38	-5,955.78	-414.87	663.35	485.13	178.22	3.722					
11,800.00	5,823.00	11,719.86	5,735.00	91.36	91.32	82.38	-6,055.78	-414.86	663.47	482.39	181.07	3.664					
11,900.00	5,823.00	11,819.86	5,735.00	92.80	92.76	82.38	-6,155.78	-414.85	663.58	479.65	183.93	3.608					
12,000.00	5,823.00	11,919.86	5,735.00	94.24	94.20	82.38	-6,255.78	-414.84	663.70	476.90	186.80	3.553					
12,100.00	5,823.00	12,019.86	5,735.00	95.68	95.64	82.38	-6,355.78	-414.83	663.82	474.16	189.66	3.500					
12,200.00	5,823.00	12,119.86	5,735.00	97.12	97.08	82.38	-6,455.78	-414.83	663.93	471.41	192.52	3.449					
12,300.00	5,823.00	12,219.86	5,735.00	98.57	98.53	82.38	-6,555.78	-414.82	664.05	468.66	195.39	3.399					
12,400.00	5,823.00	12,319.86	5,735.00	100.01	99.97	82.39	-6,655.78	-414.81	664.16	465.90	198.26	3.350					
12,500.00	5,823.00	12,419.86	5,735.00	101.46	101.42	82.39	-6,755.78	-414.80	664.28	463.15	201.13	3.303					
12,600.00	5,823.00	12,519.86	5,735.00	102.90	102.86	82.39	-6,855.78	-414.80	664.40	460.39	204.00	3.257					
12,700.00	5,823.00	12,619.86	5,735.00	104.35	104.31	82.39	-6,955.78	-414.79	664.51	457.64	206.88	3.212					
12,800.00	5,823.00	12,719.86	5,735.00	105.80	105.76	82.39	-7,055.78	-414.78	664.63	454.88	209.75	3.169					
12,900.00	5,823.00	12,819.86	5,735.00	107.25	107.21	82.39	-7,155.78	-414.77	664.75	452.12	212.63	3.126					
13,000.00	5,823.00	12,919.86	5,735.00	108.69	108.66	82.39	-7,255.78	-414.77	664.86	449.36	215.50	3.085					
13,100.00	5,823.00	13,019.86	5,735.00	110.14	110.11	82.40	-7,355.78	-414.76	664.98	446.60	218.38	3.045					
13,200.00	5,823.00	13,119.86	5,735.00	111.59	111.56	82.40	-7,455.78	-414.75	665.10	443.84	221.26	3.006					
13,300.00	5,823.00	13,219.86	5,735.00	113.04	113.01	82.40	-7,555.78	-414.74	665.21	441.07	224.14	2.968					
13,400.00	5,823.00	13,319.86	5,735.00	114.49	114.46	82.40	-7,655.78	-414.73	665.33	438.31	227.02	2.931					
13,500.00	5,823.00	13,419.86	5,735.00	115.95	115.91	82.40	-7,755.78	-414.73	665.44	435.54	229.90	2.894					
13,600.00	5,823.00	13,519.86	5,735.00	117.40	117.36	82.40	-7,855.78	-414.72	665.56	432.77	232.79	2.859					
13,700.00	5,823.00	13,619.86	5,735.00	118.85	118.81	82.40	-7,955.78	-414.71	665.68	430.00	235.67	2.825					
13,800.00	5,823.00	13,719.86	5,735.00	120.30	120.27	82.40	-8,055.78	-414.70	665.79	427.24	238.56	2.791					
13,899.97	5,823.00	13,819.83	5,735.00	121.76	121.72	82.41	-8,155.75	-414.70	665.91	424.47	241.44	2.758					
13,903.39	5,823.00	13,822.22	5,735.00	121.81	121.75	82.41	-8,158.14	-414.70	665.91	424.39	241.53	2.757	SF				



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	-59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	-90.00	0.00	-59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	-90.00	0.00	-59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	-90.00	0.00	-59.98	59.98	58.36	1.61	37.140 CC, ES		
400.00	399.98	399.12	399.10	1.14	1.14	-149.08	1.58	-60.66	62.18	59.89	2.29	27.169		
500.00	499.85	498.86	498.77	1.48	1.48	-148.34	5.02	-62.15	68.05	65.09	2.96	23.002		
600.00	599.68	598.65	598.49	1.81	1.82	-148.07	8.48	-63.64	74.61	71.00	3.61	20.645		
700.00	699.51	698.43	698.20	2.14	2.15	-147.84	11.94	-65.13	81.18	76.91	4.28	18.989		
800.00	799.33	798.22	797.91	2.48	2.49	-147.64	15.40	-66.63	87.75	82.82	4.94	17.764		
900.00	899.16	898.00	897.62	2.82	2.83	-147.48	18.86	-68.12	94.33	88.72	5.61	16.824		
1,000.00	998.99	997.78	997.34	3.16	3.16	-147.33	22.32	-69.61	100.90	94.62	6.27	16.080		
1,100.00	1,098.82	1,097.57	1,097.05	3.50	3.50	-147.20	25.78	-71.11	107.47	100.53	6.94	15.477		
1,200.00	1,198.65	1,197.35	1,196.76	3.85	3.84	-147.09	29.24	-72.60	114.04	106.43	7.61	14.979		
1,300.00	1,298.47	1,297.13	1,296.47	4.19	4.18	-146.99	32.70	-74.09	120.62	112.33	8.28	14.560		
1,400.00	1,398.30	1,396.92	1,396.19	4.53	4.51	-146.90	36.16	-75.59	127.19	118.24	8.96	14.203		
1,500.00	1,498.13	1,496.70	1,495.90	4.88	4.85	-146.82	39.62	-77.08	133.77	124.14	9.63	13.896		
1,600.00	1,597.96	1,596.48	1,595.61	5.22	5.19	-146.74	43.08	-78.57	140.34	130.04	10.30	13.628		
1,700.00	1,697.79	1,696.27	1,695.32	5.56	5.53	-146.68	46.54	-80.07	146.91	135.95	10.97	13.393		
1,800.00	1,797.61	1,796.05	1,795.03	5.91	5.86	-146.62	50.00	-81.56	153.49	141.85	11.64	13.185		
1,900.00	1,897.44	1,895.83	1,894.75	6.25	6.20	-146.56	53.46	-83.05	160.06	147.75	12.31	12.999		
2,000.00	1,997.27	1,995.62	1,994.46	6.59	6.54	-146.51	56.92	-84.55	166.64	153.65	12.99	12.832		
2,100.00	2,097.10	2,095.40	2,094.17	6.94	6.88	-146.46	60.38	-86.04	173.22	159.56	13.66	12.682		
2,200.00	2,196.93	2,195.18	2,193.88	7.28	7.22	-146.41	63.84	-87.54	179.79	165.46	14.33	12.546		
2,300.00	2,296.76	2,294.97	2,293.60	7.63	7.55	-146.37	67.30	-89.03	186.37	171.36	15.00	12.422		
2,400.00	2,396.58	2,394.75	2,393.31	7.97	7.89	-146.33	70.76	-90.52	192.94	177.27	15.68	12.308		
2,500.00	2,496.41	2,494.53	2,493.02	8.32	8.23	-146.30	74.22	-92.02	199.52	183.17	16.35	12.204		
2,600.00	2,596.24	2,594.32	2,592.73	8.66	8.57	-146.26	77.68	-93.51	206.09	189.07	17.02	12.108		
2,700.00	2,696.07	2,694.10	2,692.45	9.00	8.90	-146.23	81.14	-95.00	212.67	194.97	17.69	12.019		
2,800.00	2,795.90	2,793.89	2,792.16	9.35	9.24	-146.20	84.60	-96.50	219.24	200.88	18.37	11.937		
2,900.00	2,895.72	2,893.67	2,891.87	9.69	9.58	-146.18	88.06	-97.99	225.82	206.78	19.04	11.860		
3,000.00	2,995.55	2,993.45	2,991.58	10.04	9.92	-146.15	91.52	-99.48	232.40	212.68	19.71	11.789		
3,100.00	3,095.38	3,093.24	3,091.29	10.38	10.26	-146.12	94.98	-100.98	238.97	218.59	20.39	11.722		
3,200.00	3,195.21	3,193.02	3,191.01	10.72	10.59	-146.10	98.44	-102.47	245.55	224.49	21.06	11.660		
3,300.00	3,295.04	3,292.80	3,290.72	11.07	10.93	-146.08	101.90	-103.96	252.12	230.39	21.73	11.601		
3,400.00	3,394.87	3,392.59	3,390.43	11.41	11.27	-146.06	105.36	-105.46	258.70	236.30	22.41	11.546		
3,500.00	3,494.69	3,492.37	3,490.14	11.76	11.61	-146.04	108.82	-106.95	265.28	242.20	23.08	11.495		
3,600.00	3,594.52	3,592.15	3,589.86	12.10	11.95	-146.02	112.28	-108.44	271.85	248.10	23.75	11.446		
3,700.00	3,694.35	3,691.94	3,689.57	12.45	12.28	-146.00	115.74	-109.94	278.43	254.00	24.42	11.400		
3,800.00	3,794.18	3,791.72	3,789.28	12.79	12.62	-145.98	119.20	-111.43	285.00	259.91	25.10	11.356		
3,900.00	3,894.01	3,891.50	3,888.99	13.13	12.96	-145.96	122.66	-112.92	291.58	265.81	25.77	11.314		
4,000.00	3,993.83	3,991.29	3,988.71	13.48	13.30	-145.95	126.12	-114.42	298.16	271.71	26.44	11.275		
4,100.00	4,093.66	4,091.07	4,088.42	13.82	13.64	-145.93	129.58	-115.91	304.73	277.62	27.12	11.238		
4,200.00	4,193.49	4,190.85	4,188.13	14.17	13.97	-145.92	133.04	-117.41	311.31	283.52	27.79	11.202		
4,300.00	4,293.32	4,290.64	4,287.84	14.51	14.31	-145.91	136.50	-118.90	317.89	289.42	28.46	11.168		
4,400.00	4,393.15	4,390.45	4,387.62	14.86	14.63	-145.90	139.93	-119.94	323.90	294.78	29.13	11.121		
4,500.00	4,492.98	4,490.19	4,487.29	15.20	14.92	-145.88	143.36	-120.98	329.91	299.07	29.75	11.051		
4,600.00	4,592.80	4,589.91	4,586.91	15.55	15.25	-145.87	146.78	-122.02	335.92	303.31	30.42	10.971		
4,700.00	4,692.63	4,689.63	4,686.53	15.89	15.58	-145.86	150.19	-123.06	341.93	307.59	31.09	10.894		
4,800.00	4,792.46	4,789.36	4,786.16	16.23	15.91	-145.85	153.60	-124.09	347.94	311.90	31.75	10.822		
4,900.00	4,892.29	4,889.09	4,885.79	16.58	16.24	-145.84	157.00	-125.12	353.95	316.23	32.42	10.753		
5,000.00	4,992.15	4,988.85	4,985.35	16.90	16.58	-145.83	160.40	-126.15	359.96	320.10	33.07	10.680		
5,099.99	5,092.11	5,088.71	5,085.11	17.16	16.91	-145.82	163.79	-127.18	365.97	323.30	33.67	10.544		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Offset Design													Offset Site Error:	0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
5,200.00	5,192.12	5,194.95	5,192.12	17.44	17.24	-89.68	139.00	-119.98	354.98	320.69	34.29	10.352		
5,282.32	5,274.44	5,277.41	5,274.44	17.70	17.48	-90.24	135.49	-119.96	354.97	320.18	34.78	10.205		
5,299.99	5,292.11	5,294.88	5,291.76	17.76	17.53	-90.62	133.17	-119.95	354.97	320.09	34.88	10.177		
5,400.00	5,391.67	5,391.58	5,385.49	18.04	17.78	86.84	109.97	-119.85	355.44	320.10	35.34	10.058		
5,500.00	5,487.93	5,485.54	5,470.95	18.31	18.01	84.36	71.24	-119.69	356.53	320.84	35.69	9.990		
5,600.00	5,577.36	5,577.19	5,546.30	18.57	18.22	82.11	19.28	-119.47	358.06	322.10	35.95	9.960		
5,700.00	5,656.67	5,666.92	5,610.15	18.82	18.40	80.15	-43.61	-119.20	359.79	323.64	36.14	9.954		
5,800.00	5,722.96	5,755.11	5,661.50	19.07	18.55	78.53	-115.18	-118.89	361.48	325.15	36.32	9.952		
5,900.00	5,773.79	5,842.13	5,699.63	19.33	18.68	77.29	-193.29	-118.56	362.89	326.33	36.56	9.927		
6,000.00	5,807.29	5,928.33	5,724.07	19.63	18.88	76.46	-275.85	-118.21	363.85	326.93	36.92	9.854		
6,100.00	5,822.23	6,014.04	5,734.57	20.00	19.18	76.05	-360.82	-117.85	364.21	326.74	37.47	9.721		
6,200.00	5,823.00	6,110.47	5,735.00	20.43	19.59	76.01	-457.24	-117.44	363.98	325.67	38.31	9.502		
6,300.00	5,823.00	6,210.47	5,735.00	20.96	20.13	76.00	-557.24	-117.01	363.69	324.32	39.37	9.237		
6,400.00	5,823.00	6,310.47	5,735.00	21.58	20.76	75.99	-657.24	-116.58	363.40	322.78	40.61	8.948		
6,500.00	5,823.00	6,410.47	5,735.00	22.28	21.47	75.97	-757.24	-116.16	363.10	321.09	42.01	8.643		
6,600.00	5,823.00	6,510.47	5,735.00	23.06	22.26	75.96	-857.23	-115.73	362.81	319.26	43.55	8.331		
6,700.00	5,823.00	6,610.47	5,735.00	23.90	23.11	75.95	-957.23	-115.31	362.52	317.30	45.22	8.016		
6,800.00	5,823.00	6,710.47	5,735.00	24.81	24.02	75.94	-1,057.23	-114.88	362.23	315.22	47.01	7.705		
6,900.00	5,823.00	6,810.46	5,735.00	25.76	24.99	75.93	-1,157.23	-114.45	361.93	313.04	48.90	7.402		
7,000.00	5,823.00	6,910.46	5,735.00	26.77	26.01	75.92	-1,257.23	-114.03	361.64	310.76	50.88	7.108		
7,100.00	5,823.00	7,010.46	5,735.00	27.81	27.06	75.90	-1,357.23	-113.60	361.35	308.41	52.94	6.826		
7,200.00	5,823.00	7,110.46	5,735.00	28.89	28.16	75.89	-1,457.23	-113.17	361.06	305.99	55.07	6.556		
7,300.00	5,823.00	7,210.46	5,735.00	30.01	29.28	75.88	-1,557.22	-112.75	360.77	303.50	57.27	6.299		
7,400.00	5,823.00	7,310.46	5,735.00	31.16	30.44	75.87	-1,657.22	-112.32	360.47	300.95	59.52	6.056		
7,500.00	5,823.00	7,410.46	5,735.00	32.33	31.62	75.86	-1,757.22	-111.90	360.18	298.36	61.83	5.826		
7,600.00	5,823.00	7,510.46	5,735.00	33.53	32.83	75.85	-1,857.22	-111.47	359.89	295.72	64.17	5.608		
7,700.00	5,823.00	7,610.46	5,735.00	34.74	34.06	75.83	-1,957.22	-111.04	359.60	293.04	66.56	5.402		
7,800.00	5,823.00	7,710.46	5,735.00	35.98	35.31	75.82	-2,057.22	-110.62	359.31	290.32	68.99	5.208		
7,900.00	5,823.00	7,810.46	5,735.00	37.23	36.57	75.81	-2,157.22	-110.19	359.01	287.57	71.44	5.025		
8,000.00	5,823.00	7,910.46	5,735.00	38.50	37.85	75.80	-2,257.21	-109.76	358.72	284.79	73.93	4.852		
8,100.00	5,823.00	8,010.46	5,735.00	39.79	39.14	75.79	-2,357.21	-109.34	358.43	281.99	76.44	4.689		
8,200.00	5,823.00	8,110.46	5,735.00	41.08	40.44	75.78	-2,457.21	-108.91	358.14	279.16	78.98	4.535		
8,300.00	5,823.00	8,210.46	5,735.00	42.39	41.76	75.76	-2,557.21	-108.49	357.85	276.31	81.53	4.389		
8,400.00	5,823.00	8,310.46	5,735.00	43.71	43.09	75.75	-2,657.21	-108.06	357.55	273.45	84.11	4.251		
8,500.00	5,823.00	8,410.46	5,735.00	45.03	44.42	75.74	-2,757.21	-107.63	357.26	270.56	86.70	4.121		
8,600.00	5,823.00	8,510.46	5,735.00	46.37	45.76	75.73	-2,857.21	-107.21	356.97	267.66	89.31	3.997		
8,700.00	5,823.00	8,610.46	5,735.00	47.71	47.11	75.72	-2,957.21	-106.78	356.68	264.74	91.94	3.880		
8,800.00	5,823.00	8,710.46	5,735.00	49.07	48.47	75.70	-3,057.20	-106.35	356.39	261.81	94.57	3.768		
8,900.00	5,823.00	8,810.46	5,735.00	50.42	49.84	75.69	-3,157.20	-105.93	356.10	258.87	97.22	3.663		
9,000.00	5,823.00	8,910.46	5,735.00	51.79	51.21	75.68	-3,257.20	-105.50	355.80	255.92	99.89	3.562		
9,100.00	5,823.00	9,010.46	5,735.00	53.16	52.58	75.67	-3,357.20	-105.08	355.51	252.95	102.56	3.466		
9,200.00	5,823.00	9,110.45	5,735.00	54.53	53.97	75.66	-3,457.20	-104.65	355.22	249.98	105.24	3.375		
9,300.00	5,823.00	9,210.45	5,735.00	55.91	55.35	75.64	-3,557.20	-104.22	354.93	247.00	107.93	3.289		
9,400.00	5,823.00	9,310.45	5,735.00	57.30	56.74	75.63	-3,657.20	-103.80	354.64	244.01	110.63	3.206		
9,500.00	5,823.00	9,410.45	5,735.00	58.69	58.14	75.62	-3,757.19	-103.37	354.35	241.01	113.33	3.127		
9,600.00	5,823.00	9,510.45	5,735.00	60.08	59.53	75.61	-3,857.19	-102.95	354.05	238.01	116.05	3.051		
9,700.00	5,823.00	9,610.45	5,735.00	61.48	60.94	75.60	-3,957.19	-102.52	353.76	235.00	118.77	2.979		
9,800.00	5,823.00	9,710.45	5,735.00	62.88	62.34	75.58	-4,057.19	-102.09	353.47	231.98	121.49	2.909		
9,900.00	5,823.00	9,810.45	5,735.00	64.28	63.75	75.57	-4,157.19	-101.67	353.18	228.95	124.22	2.843		
10,000.00	5,823.00	9,910.45	5,735.00	65.69	65.16	75.56	-4,257.19	-101.24	352.89	225.93	126.96	2.780		
10,100.00	5,823.00	10,010.45	5,735.00	67.10	66.57	75.55	-4,357.19	-100.81	352.60	222.89	129.70	2.719		
10,200.00	5,823.00	10,110.45	5,735.00	68.51	67.99	75.54	-4,457.18	-100.39	352.30	219.86	132.45	2.660		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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 #30G-3142 - Hz - APD		Offset Site Error:		0.00 usft
Survey Program: 0-MWD+IFR1+MS+sag													Offset Well Error:		0.00 usft		
Reference		Offset		Semi Major Axis			Distance							Warning			
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor					
10,300.00	5,823.00	10,210.45	5,735.00	69.93	69.41	75.52	-4,557.18	-99.96	352.01	216.81	135.20	2.604					
10,400.00	5,823.00	10,310.45	5,735.00	71.34	70.83	75.51	-4,657.18	-99.54	351.72	213.77	137.95	2.550					
10,500.00	5,823.00	10,410.45	5,735.00	72.76	72.25	75.50	-4,757.18	-99.11	351.43	210.72	140.71	2.498					
10,600.00	5,823.00	10,510.45	5,735.00	74.18	73.68	75.49	-4,857.18	-98.68	351.14	207.67	143.47	2.447					
10,700.00	5,823.00	10,610.45	5,735.00	75.60	75.10	75.47	-4,957.18	-98.26	350.85	204.61	146.24	2.399					
10,800.00	5,823.00	10,710.45	5,735.00	77.03	76.53	75.46	-5,057.18	-97.83	350.55	201.55	149.00	2.353					
10,900.00	5,823.00	10,810.45	5,735.00	78.46	77.96	75.45	-5,157.18	-97.40	350.26	198.49	151.78	2.308					
11,000.00	5,823.00	10,910.45	5,735.00	79.88	79.39	75.44	-5,257.17	-96.98	349.97	195.42	154.55	2.264					
11,100.00	5,823.00	11,010.45	5,735.00	81.31	80.83	75.42	-5,357.17	-96.55	349.68	192.35	157.33	2.223					
11,200.00	5,823.00	11,110.45	5,735.00	82.75	82.26	75.41	-5,457.17	-96.13	349.39	189.28	160.10	2.182					
11,300.00	5,823.00	11,210.45	5,735.00	84.18	83.70	75.40	-5,557.17	-95.70	349.10	186.21	162.88	2.143					
11,400.00	5,823.00	11,310.44	5,735.00	85.61	85.13	75.39	-5,657.17	-95.27	348.81	183.14	165.67	2.105					
11,500.00	5,823.00	11,410.44	5,735.00	87.05	86.57	75.37	-5,757.17	-94.85	348.51	180.06	168.45	2.069					
11,600.00	5,823.00	11,510.44	5,735.00	88.48	88.01	75.36	-5,857.17	-94.42	348.22	176.98	171.24	2.034					
11,700.00	5,823.00	11,610.44	5,735.00	89.92	89.45	75.35	-5,957.16	-93.99	347.93	173.90	174.03	1.999					
11,800.00	5,823.00	11,710.44	5,735.00	91.36	90.89	75.34	-6,057.16	-93.57	347.64	170.82	176.82	1.966					
11,900.00	5,823.00	11,810.44	5,735.00	92.80	92.33	75.32	-6,157.16	-93.14	347.35	167.74	179.61	1.934					
12,000.00	5,823.00	11,910.44	5,735.00	94.24	93.78	75.31	-6,257.16	-92.72	347.06	164.65	182.41	1.903					
12,100.00	5,823.00	12,010.44	5,735.00	95.68	95.22	75.30	-6,357.16	-92.29	346.77	161.57	185.20	1.872					
12,200.00	5,823.00	12,110.44	5,735.00	97.12	96.67	75.29	-6,457.16	-91.86	346.48	158.48	188.00	1.843					
12,300.00	5,823.00	12,210.44	5,735.00	98.57	98.11	75.27	-6,557.16	-91.44	346.18	155.39	190.79	1.814					
12,400.00	5,823.00	12,310.44	5,735.00	100.01	99.56	75.26	-6,657.16	-91.01	345.89	152.30	193.59	1.787					
12,500.00	5,823.00	12,410.44	5,735.00	101.46	101.01	75.25	-6,757.15	-90.58	345.60	149.21	196.39	1.760					
12,600.00	5,823.00	12,510.44	5,735.00	102.90	102.45	75.24	-6,857.15	-90.16	345.31	146.12	199.19	1.734					
12,700.00	5,823.00	12,610.44	5,735.00	104.35	103.90	75.22	-6,957.15	-89.73	345.02	143.02	202.00	1.708					
12,800.00	5,823.00	12,710.44	5,735.00	105.80	105.35	75.21	-7,057.15	-89.31	344.73	139.93	204.80	1.683					
12,900.00	5,823.00	12,810.44	5,735.00	107.25	106.80	75.20	-7,157.15	-88.88	344.44	136.83	207.60	1.659					
13,000.00	5,823.00	12,910.44	5,735.00	108.69	108.25	75.18	-7,257.15	-88.45	344.15	133.74	210.41	1.636					
13,100.00	5,823.00	13,010.44	5,735.00	110.14	109.70	75.17	-7,357.15	-88.03	343.85	130.64	213.21	1.613					
13,200.00	5,823.00	13,110.44	5,735.00	111.59	111.16	75.16	-7,457.14	-87.60	343.56	127.54	216.02	1.590					
13,300.00	5,823.00	13,210.44	5,735.00	113.04	112.61	75.15	-7,557.14	-87.17	343.27	124.44	218.83	1.569					
13,400.00	5,823.00	13,310.44	5,735.00	114.49	114.06	75.13	-7,657.14	-86.75	342.98	121.34	221.64	1.547					
13,500.00	5,823.00	13,410.44	5,735.00	115.95	115.52	75.12	-7,757.14	-86.32	342.69	118.25	224.44	1.527					
13,600.00	5,823.00	13,510.43	5,735.00	117.40	116.97	75.11	-7,857.14	-85.90	342.40	115.15	227.25	1.507					
13,700.00	5,823.00	13,610.43	5,735.00	118.85	118.42	75.09	-7,957.14	-85.47	342.11	112.04	230.06	1.487 Level 3					
13,800.00	5,823.00	13,710.43	5,735.00	120.30	119.88	75.08	-8,057.14	-85.04	341.82	108.94	232.87	1.468 Level 3					
13,899.97	5,823.00	13,810.41	5,735.00	121.76	121.33	75.07	-8,157.11	-84.62	341.53	105.84	235.68	1.449 Level 3					
13,901.97	5,823.00	13,811.41	5,735.00	121.79	121.35	75.07	-8,158.11	-84.61	341.52	105.80	235.72	1.449 Level 3					
13,903.39	5,823.00	13,811.41	5,735.00	121.81	121.35	75.07	-8,158.11	-84.61	341.52	105.80	235.73	1.449 Level 3, SF					



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	59.98	59.98					
100.00	100.00	100.00	100.00	0.13	0.13	90.00	0.00	59.98	59.98	59.71	0.27	225.188		
200.00	200.00	200.00	200.00	0.47	0.47	90.00	0.00	59.98	59.98	59.04	0.94	63.763		
300.00	300.00	300.00	300.00	0.81	0.81	90.00	0.00	59.98	59.98	58.36	1.61	37.140 CC		
400.00	399.98	398.02	398.00	1.14	1.13	30.63	0.45	61.59	60.12	57.80	2.32	25.966		
500.00	499.85	496.03	495.88	1.48	1.45	31.70	1.81	66.44	60.71	57.66	3.05	19.875 ES		
600.00	599.68	593.95	593.44	1.81	1.79	32.20	4.06	74.49	63.90	60.08	3.82	16.735		
700.00	699.51	693.05	691.91	2.14	2.13	31.97	7.06	85.20	69.66	65.17	4.48	15.536		
800.00	799.33	792.87	791.07	2.48	2.48	31.73	10.13	96.19	75.61	70.51	5.11	14.808		
900.00	899.16	892.69	890.24	2.82	2.84	31.52	13.21	107.18	81.57	75.83	5.74	14.208		
1,000.00	998.99	992.51	989.41	3.16	3.20	31.34	16.28	118.17	87.53	81.15	6.39	13.709		
1,100.00	1,098.82	1,092.34	1,088.58	3.50	3.57	31.19	19.36	129.16	93.49	86.46	7.03	13.291		
1,200.00	1,198.65	1,192.16	1,187.74	3.85	3.93	31.05	22.44	140.15	99.45	91.76	7.69	12.934		
1,300.00	1,298.47	1,291.98	1,286.91	4.19	4.30	30.93	25.51	151.14	105.41	97.07	8.35	12.629		
1,400.00	1,398.30	1,391.80	1,386.08	4.53	4.66	30.82	28.59	162.13	111.38	102.37	9.01	12.364		
1,500.00	1,498.13	1,491.62	1,485.25	4.88	5.03	30.72	31.66	173.12	117.34	107.67	9.67	12.133		
1,600.00	1,597.96	1,591.45	1,584.41	5.22	5.40	30.63	34.74	184.11	123.30	112.97	10.34	11.930		
1,700.00	1,697.79	1,691.27	1,683.58	5.56	5.77	30.55	37.81	195.10	129.26	118.26	11.00	11.749		
1,800.00	1,797.61	1,791.09	1,782.75	5.91	6.14	30.48	40.89	206.09	135.23	123.56	11.67	11.588		
1,900.00	1,897.44	1,890.91	1,881.92	6.25	6.51	30.41	43.96	217.08	141.19	128.85	12.34	11.444		
2,000.00	1,997.27	1,990.73	1,981.08	6.59	6.87	30.35	47.04	228.07	147.15	134.15	13.01	11.313		
2,100.00	2,097.10	2,090.56	2,080.25	6.94	7.24	30.30	50.11	239.06	153.12	139.44	13.68	11.195		
2,200.00	2,196.93	2,190.38	2,179.42	7.28	7.61	30.24	53.19	250.05	159.08	144.73	14.35	11.087		
2,300.00	2,296.76	2,290.20	2,278.58	7.63	7.98	30.20	56.27	261.04	165.05	150.03	15.02	10.989		
2,400.00	2,396.58	2,390.02	2,377.75	7.97	8.35	30.15	59.34	272.03	171.01	155.32	15.69	10.898		
2,500.00	2,496.41	2,489.84	2,476.92	8.32	8.72	30.11	62.42	283.02	176.97	160.61	16.36	10.815		
2,600.00	2,596.24	2,589.67	2,576.09	8.66	9.09	30.07	65.49	294.01	182.94	165.90	17.04	10.738		
2,700.00	2,696.07	2,689.49	2,675.25	9.00	9.46	30.03	68.57	305.00	188.90	171.19	17.71	10.667		
2,800.00	2,795.90	2,789.31	2,774.42	9.35	9.83	30.00	71.64	315.99	194.87	176.48	18.38	10.601		
2,900.00	2,895.72	2,889.13	2,873.59	9.69	10.20	29.97	74.72	326.98	200.83	181.78	19.06	10.539		
3,000.00	2,995.55	2,988.95	2,972.76	10.04	10.57	29.93	77.79	337.97	206.79	187.07	19.73	10.482		
3,100.00	3,095.38	3,088.77	3,071.92	10.38	10.94	29.91	80.87	348.96	212.76	192.36	20.40	10.428		
3,200.00	3,195.21	3,188.60	3,171.09	10.72	11.31	29.88	83.94	359.95	218.72	197.65	21.08	10.378		
3,300.00	3,295.04	3,288.42	3,270.26	11.07	11.68	29.85	87.02	370.94	224.69	202.94	21.75	10.330		
3,400.00	3,394.87	3,388.24	3,369.43	11.41	12.05	29.83	90.09	381.93	230.65	208.23	22.43	10.285		
3,500.00	3,494.69	3,488.06	3,468.59	11.76	12.42	29.80	93.17	392.92	236.62	213.52	23.10	10.243		
3,600.00	3,594.52	3,587.88	3,567.76	12.10	12.79	29.78	96.25	403.91	242.58	218.81	23.77	10.204		
3,700.00	3,694.35	3,687.71	3,666.93	12.45	13.16	29.76	99.32	414.90	248.55	224.10	24.45	10.166		
3,800.00	3,794.18	3,787.53	3,766.10	12.79	13.53	29.74	102.40	425.89	254.51	229.39	25.12	10.130		
3,900.00	3,894.01	3,887.35	3,865.26	13.13	13.90	29.72	105.47	436.88	260.48	234.68	25.80	10.096		
4,000.00	3,993.83	3,987.17	3,964.43	13.48	14.27	29.70	108.55	447.87	266.44	239.97	26.47	10.064		
4,100.00	4,093.66	4,086.99	4,063.60	13.82	14.64	29.69	111.62	458.86	272.41	245.26	27.15	10.034		
4,200.00	4,193.49	4,186.82	4,162.77	14.17	15.01	29.67	114.70	469.85	278.37	250.55	27.82	10.005		
4,300.00	4,293.32	4,286.64	4,261.93	14.51	15.38	29.65	117.77	480.84	284.34	255.84	28.50	9.977		
4,400.00	4,393.15	4,386.46	4,361.10	14.86	15.75	29.64	120.85	491.83	290.30	261.13	29.18	9.950		
4,500.00	4,492.98	4,486.28	4,460.27	15.20	16.12	29.62	123.92	502.82	296.27	266.42	29.85	9.925		
4,600.00	4,592.80	4,586.10	4,559.44	15.55	16.49	29.61	127.00	513.81	302.23	271.70	30.53	9.901		
4,700.00	4,692.63	4,685.93	4,658.60	15.89	16.87	29.60	130.07	524.80	308.20	276.99	31.20	9.878		
4,800.00	4,792.46	4,794.23	4,766.31	16.23	17.23	29.63	133.11	535.65	313.19	281.30	31.89	9.820		
4,900.00	4,892.29	4,906.04	4,877.87	16.58	17.52	29.87	135.13	542.86	314.57	282.05	32.52	9.674		
5,000.00	4,992.15	5,017.80	4,989.58	16.90	17.80	30.24	135.97	545.88	312.71	279.64	33.07	9.455		
5,099.99	5,092.11	5,120.33	5,092.11	17.16	18.08	30.42	136.00	545.98	310.99	277.37	33.62	9.250		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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		
5,187.40	5,179.51	5,207.74	5,179.51	17.41	18.34	30.44	136.00	545.98	310.85	276.70	34.14	9.104		
5,200.00	5,192.12	5,220.34	5,192.12	17.44	18.38	90.18	136.00	545.98	310.98	276.76	34.22	9.088		
5,203.56	5,195.68	5,223.90	5,195.68	17.46	18.39	90.18	136.00	545.98	310.98	276.74	34.24	9.082		
5,299.99	5,292.11	5,319.44	5,290.94	17.76	18.64	91.24	130.29	546.00	311.07	276.24	34.83	8.932		
5,400.00	5,391.67	5,415.19	5,383.81	18.04	18.89	-85.76	107.55	546.08	311.93	276.53	35.40	8.813		
5,500.00	5,487.93	5,508.34	5,468.69	18.31	19.12	-82.99	69.50	546.22	313.53	277.67	35.86	8.742		
5,600.00	5,577.36	5,600.00	5,544.31	18.57	19.34	-80.50	17.91	546.41	315.65	279.43	36.22	8.714		
5,700.00	5,656.67	5,688.49	5,607.66	18.82	19.55	-78.40	-43.72	546.63	317.99	281.51	36.49	8.716		
5,800.00	5,722.96	5,776.25	5,659.31	19.07	19.77	-76.68	-114.55	546.89	320.26	283.53	36.74	8.718		
5,900.00	5,773.79	5,862.97	5,697.96	19.33	20.01	-75.41	-192.06	547.17	322.20	285.13	37.07	8.692		
6,000.00	5,807.29	5,950.00	5,723.30	19.63	20.28	-74.59	-275.22	547.47	323.60	286.02	37.58	8.611		
6,100.00	5,822.23	6,034.61	5,734.35	20.00	20.60	-74.26	-359.00	547.78	324.31	285.98	38.33	8.461		
6,200.00	5,823.00	6,130.21	5,735.00	20.43	21.02	-74.27	-454.60	548.13	324.54	285.27	39.27	8.264		
6,300.00	5,823.00	6,230.21	5,735.00	20.96	21.55	-74.28	-554.60	548.49	324.77	284.40	40.37	8.044		
6,400.00	5,823.00	6,330.21	5,735.00	21.58	22.16	-74.29	-654.60	548.85	325.00	283.36	41.64	7.805		
6,500.00	5,823.00	6,430.21	5,735.00	22.28	22.86	-74.30	-754.60	549.22	325.23	282.17	43.06	7.553		
6,600.00	5,823.00	6,530.21	5,735.00	23.06	23.63	-74.31	-854.59	549.58	325.46	280.84	44.62	7.294		
6,700.00	5,823.00	6,630.21	5,735.00	23.90	24.46	-74.32	-954.59	549.94	325.69	279.39	46.30	7.034		
6,800.00	5,823.00	6,730.21	5,735.00	24.81	25.35	-74.34	-1,054.59	550.31	325.92	277.83	48.09	6.777		
6,900.00	5,823.00	6,830.21	5,735.00	25.76	26.30	-74.35	-1,154.59	550.67	326.15	276.17	49.99	6.525		
7,000.00	5,823.00	6,930.21	5,735.00	26.77	27.29	-74.36	-1,254.59	551.03	326.38	274.42	51.96	6.281		
7,100.00	5,823.00	7,030.21	5,735.00	27.81	28.33	-74.37	-1,354.59	551.40	326.61	272.59	54.02	6.046		
7,200.00	5,823.00	7,130.21	5,735.00	28.89	29.40	-74.38	-1,454.59	551.76	326.84	270.69	56.15	5.821		
7,300.00	5,823.00	7,230.21	5,735.00	30.01	30.51	-74.39	-1,554.59	552.12	327.07	268.73	58.34	5.606		
7,400.00	5,823.00	7,330.21	5,735.00	31.16	31.64	-74.40	-1,654.59	552.49	327.30	266.71	60.58	5.402		
7,500.00	5,823.00	7,430.21	5,735.00	32.33	32.81	-74.41	-1,754.59	552.85	327.53	264.65	62.88	5.209		
7,600.00	5,823.00	7,530.21	5,735.00	33.53	34.00	-74.43	-1,854.59	553.21	327.76	262.54	65.22	5.026		
7,700.00	5,823.00	7,630.21	5,735.00	34.74	35.21	-74.44	-1,954.58	553.58	327.99	260.39	67.60	4.852		
7,800.00	5,823.00	7,730.21	5,735.00	35.98	36.43	-74.45	-2,054.58	553.94	328.22	258.20	70.01	4.688		
7,900.00	5,823.00	7,830.21	5,735.00	37.23	37.68	-74.46	-2,154.58	554.31	328.45	255.99	72.46	4.533		
8,000.00	5,823.00	7,930.21	5,735.00	38.50	38.94	-74.47	-2,254.58	554.67	328.68	253.74	74.94	4.386		
8,100.00	5,823.00	8,030.21	5,735.00	39.79	40.22	-74.48	-2,354.58	555.03	328.91	251.47	77.44	4.247		
8,200.00	5,823.00	8,130.21	5,735.00	41.08	41.51	-74.49	-2,454.58	555.40	329.14	249.17	79.97	4.116		
8,300.00	5,823.00	8,230.21	5,735.00	42.39	42.81	-74.50	-2,554.58	555.76	329.37	246.85	82.51	3.992		
8,400.00	5,823.00	8,330.21	5,735.00	43.71	44.12	-74.51	-2,654.58	556.12	329.60	244.51	85.08	3.874		
8,500.00	5,823.00	8,430.21	5,735.00	45.03	45.45	-74.53	-2,754.58	556.49	329.83	242.16	87.67	3.762		
8,600.00	5,823.00	8,530.21	5,735.00	46.37	46.78	-74.54	-2,854.58	556.85	330.06	239.78	90.27	3.656		
8,700.00	5,823.00	8,630.21	5,735.00	47.71	48.12	-74.55	-2,954.57	557.21	330.29	237.40	92.89	3.556		
8,800.00	5,823.00	8,730.21	5,735.00	49.07	49.46	-74.56	-3,054.57	557.58	330.52	234.99	95.52	3.460		
8,900.00	5,823.00	8,830.20	5,735.00	50.42	50.82	-74.57	-3,154.57	557.94	330.75	232.58	98.17	3.369		
9,000.00	5,823.00	8,930.20	5,735.00	51.79	52.18	-74.58	-3,254.57	558.30	330.98	230.15	100.82	3.283		
9,100.00	5,823.00	9,030.20	5,735.00	53.16	53.54	-74.59	-3,354.57	558.67	331.21	227.71	103.49	3.200		
9,200.00	5,823.00	9,130.20	5,735.00	54.53	54.92	-74.60	-3,454.57	559.03	331.44	225.27	106.17	3.122		
9,300.00	5,823.00	9,230.20	5,735.00	55.91	56.29	-74.61	-3,554.57	559.40	331.67	222.81	108.86	3.047		
9,400.00	5,823.00	9,330.20	5,735.00	57.30	57.67	-74.62	-3,654.57	559.76	331.90	220.34	111.55	2.975		
9,500.00	5,823.00	9,430.20	5,735.00	58.69	59.06	-74.64	-3,754.57	560.12	332.13	217.87	114.26	2.907		
9,600.00	5,823.00	9,530.20	5,735.00	60.08	60.45	-74.65	-3,854.57	560.49	332.36	215.39	116.97	2.841		
9,700.00	5,823.00	9,630.20	5,735.00	61.48	61.84	-74.66	-3,954.57	560.85	332.58	212.90	119.69	2.779		
9,800.00	5,823.00	9,730.20	5,735.00	62.88	63.24	-74.67	-4,054.56	561.21	332.81	210.40	122.41	2.719		
9,900.00	5,823.00	9,830.20	5,735.00	64.28	64.64	-74.68	-4,154.56	561.58	333.04	207.90	125.15	2.661		
10,000.00	5,823.00	9,930.20	5,735.00	65.69	66.05	-74.69	-4,254.56	561.94	333.27	205.39	127.88	2.606		
10,100.00	5,823.00	10,030.20	5,735.00	67.10	67.45	-74.70	-4,354.56	562.30	333.50	202.88	130.63	2.553		

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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	5,823.00	10,130.20	5,735.00	68.51	68.86	-74.71	-4,454.56	562.67	333.73	200.36	133.38	2.502		
10,300.00	5,823.00	10,230.20	5,735.00	69.93	70.28	-74.72	-4,554.56	563.03	333.96	197.84	136.13	2.453		
10,400.00	5,823.00	10,330.20	5,735.00	71.34	71.69	-74.73	-4,654.56	563.39	334.19	195.31	138.89	2.406		
10,500.00	5,823.00	10,430.20	5,735.00	72.76	73.11	-74.74	-4,754.56	563.76	334.42	192.78	141.65	2.361		
10,600.00	5,823.00	10,530.20	5,735.00	74.18	74.53	-74.75	-4,854.56	564.12	334.66	190.24	144.42	2.317		
10,700.00	5,823.00	10,630.20	5,735.00	75.60	75.95	-74.77	-4,954.56	564.48	334.89	187.70	147.19	2.275		
10,800.00	5,823.00	10,730.20	5,735.00	77.03	77.37	-74.78	-5,054.55	564.85	335.12	185.16	149.96	2.235		
10,900.00	5,823.00	10,830.20	5,735.00	78.46	78.80	-74.79	-5,154.55	565.21	335.35	182.61	152.74	2.196		
11,000.00	5,823.00	10,930.20	5,735.00	79.88	80.22	-74.80	-5,254.55	565.58	335.58	180.06	155.52	2.158		
11,100.00	5,823.00	11,030.20	5,735.00	81.31	81.65	-74.81	-5,354.55	565.94	335.81	177.50	158.30	2.121		
11,200.00	5,823.00	11,130.20	5,735.00	82.75	83.08	-74.82	-5,454.55	566.30	336.04	174.95	161.09	2.086		
11,300.00	5,823.00	11,230.20	5,735.00	84.18	84.51	-74.83	-5,554.55	566.67	336.27	172.39	163.88	2.052		
11,400.00	5,823.00	11,330.20	5,735.00	85.61	85.94	-74.84	-5,654.55	567.03	336.50	169.82	166.67	2.019		
11,500.00	5,823.00	11,430.20	5,735.00	87.05	87.38	-74.85	-5,754.55	567.39	336.73	167.26	169.47	1.987		
11,600.00	5,823.00	11,530.20	5,735.00	88.48	88.81	-74.86	-5,854.55	567.76	336.96	164.69	172.26	1.956		
11,700.00	5,823.00	11,630.20	5,735.00	89.92	90.25	-74.87	-5,954.55	568.12	337.19	162.12	175.06	1.926		
11,800.00	5,823.00	11,730.20	5,735.00	91.36	91.69	-74.88	-6,054.55	568.48	337.42	159.55	177.87	1.897		
11,900.00	5,823.00	11,830.20	5,735.00	92.80	93.13	-74.89	-6,154.54	568.85	337.65	156.98	180.67	1.869		
12,000.00	5,823.00	11,930.20	5,735.00	94.24	94.57	-74.90	-6,254.54	569.21	337.88	154.40	183.48	1.842		
12,100.00	5,823.00	12,030.20	5,735.00	95.68	96.01	-74.91	-6,354.54	569.57	338.11	151.82	186.29	1.815		
12,200.00	5,823.00	12,130.20	5,735.00	97.12	97.45	-74.92	-6,454.54	569.94	338.34	149.24	189.10	1.789		
12,300.00	5,823.00	12,230.20	5,735.00	98.57	98.89	-74.93	-6,554.54	570.30	338.57	146.66	191.91	1.764		
12,400.00	5,823.00	12,330.19	5,735.00	100.01	100.33	-74.95	-6,654.54	570.67	338.80	144.07	194.72	1.740		
12,500.00	5,823.00	12,430.19	5,735.00	101.46	101.78	-74.96	-6,754.54	571.03	339.03	141.49	197.54	1.716		
12,600.00	5,823.00	12,530.19	5,735.00	102.90	103.22	-74.97	-6,854.54	571.39	339.26	138.90	200.36	1.693		
12,700.00	5,823.00	12,630.19	5,735.00	104.35	104.67	-74.98	-6,954.54	571.76	339.49	136.31	203.18	1.671		
12,800.00	5,823.00	12,730.19	5,735.00	105.80	106.12	-74.99	-7,054.54	572.12	339.72	133.72	206.00	1.649		
12,900.00	5,823.00	12,830.19	5,735.00	107.25	107.56	-75.00	-7,154.54	572.48	339.95	131.13	208.82	1.628		
13,000.00	5,823.00	12,930.19	5,735.00	108.69	109.01	-75.01	-7,254.53	572.85	340.18	128.54	211.64	1.607		
13,100.00	5,823.00	13,030.19	5,735.00	110.14	110.46	-75.02	-7,354.53	573.21	340.41	125.94	214.47	1.587		
13,200.00	5,823.00	13,130.19	5,735.00	111.59	111.91	-75.03	-7,454.53	573.57	340.64	123.35	217.29	1.568		
13,300.00	5,823.00	13,230.19	5,735.00	113.04	113.36	-75.04	-7,554.53	573.94	340.87	120.75	220.12	1.549		
13,400.00	5,823.00	13,330.19	5,735.00	114.49	114.81	-75.05	-7,654.53	574.30	341.10	118.15	222.95	1.530		
13,500.00	5,823.00	13,430.19	5,735.00	115.95	116.26	-75.06	-7,754.53	574.66	341.33	115.55	225.78	1.512		
13,600.00	5,823.00	13,530.19	5,735.00	117.40	117.71	-75.07	-7,854.53	575.03	341.56	112.95	228.61	1.494	Level 3	
13,700.00	5,823.00	13,630.19	5,735.00	118.85	119.16	-75.08	-7,954.53	575.39	341.79	110.35	231.45	1.477	Level 3	
13,800.00	5,823.00	13,730.19	5,735.00	120.30	120.62	-75.09	-8,054.53	575.75	342.02	107.74	234.28	1.460	Level 3	
13,899.97	5,823.00	13,830.16	5,735.00	121.76	122.07	-75.10	-8,154.50	576.12	342.25	105.14	237.11	1.443	Level 3	
13,903.39	5,823.00	13,833.58	5,735.00	121.81	122.12	-75.10	-8,157.92	576.13	342.26	105.05	237.21	1.443	Level 3, SF	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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: 6420-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis		Distance							Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,600.00	5,823.00	5,768.10	5,768.10	102.90	9.69	90.00	-7,599.24	-1,109.95	1,544.44	1,442.20	102.24	15.105	
12,700.00	5,823.00	5,768.10	5,768.10	104.35	9.69	90.00	-7,599.24	-1,109.95	1,498.98	1,393.03	105.95	14.148	
12,800.00	5,823.00	5,768.10	5,768.10	105.80	9.69	90.00	-7,599.24	-1,109.95	1,458.96	1,349.42	109.54	13.319	
12,900.00	5,823.00	5,768.10	5,768.10	107.25	9.69	90.00	-7,599.24	-1,109.95	1,424.85	1,311.93	112.93	12.617	
13,000.00	5,823.00	5,768.10	5,768.10	108.69	9.69	90.00	-7,599.24	-1,109.95	1,397.08	1,281.05	116.03	12.041	
13,100.00	5,823.00	5,768.10	5,768.10	110.14	9.69	90.00	-7,599.24	-1,109.95	1,376.04	1,257.29	118.75	11.588	
13,200.00	5,823.00	5,768.10	5,768.10	111.59	9.69	90.00	-7,599.24	-1,109.95	1,362.03	1,241.02	121.01	11.256	
13,300.00	5,823.00	5,768.10	5,768.10	113.04	9.69	90.00	-7,599.24	-1,109.95	1,355.27	1,232.53	122.74	11.042	
13,341.82	5,823.00	5,768.10	5,768.10	113.65	9.69	90.00	-7,599.24	-1,109.95	1,354.62	1,231.33	123.29	10.987 CC, ES	
13,400.00	5,823.00	5,768.10	5,768.10	114.49	9.69	90.00	-7,599.24	-1,109.95	1,355.87	1,231.98	123.89	10.944 SF	
13,500.00	5,823.00	5,768.10	5,768.10	115.95	9.69	90.00	-7,599.24	-1,109.95	1,363.83	1,239.38	124.45	10.959	
13,600.00	5,823.00	5,768.10	5,768.10	117.40	9.69	90.00	-7,599.24	-1,109.95	1,379.01	1,254.58	124.43	11.083	
13,700.00	5,823.00	5,768.10	5,768.10	118.85	9.69	90.00	-7,599.24	-1,109.95	1,401.18	1,277.31	123.87	11.312	
13,800.00	5,823.00	5,768.10	5,768.10	120.30	9.69	90.00	-7,599.24	-1,109.95	1,430.01	1,307.19	122.82	11.643	
13,899.97	5,823.00	5,768.10	5,768.10	121.76	9.69	90.00	-7,599.24	-1,109.95	1,465.11	1,343.74	121.36	12.072	
13,903.39	5,823.00	5,768.10	5,768.10	121.81	9.69	90.00	-7,599.24	-1,109.95	1,466.41	1,345.11	121.31	12.088	



WOG

Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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: 6430-MWD												Offset Well Error:	0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor	
12,500.00	5,823.00	5,782.10	5,782.10	101.46	9.72	-90.00	-7,601.03	1,536.20	1,544.44	1,450.76	93.68	16.486	
12,600.00	5,823.00	5,782.10	5,782.10	102.90	9.72	-90.00	-7,601.03	1,536.20	1,491.95	1,394.07	97.88	15.243	
12,700.00	5,823.00	5,782.10	5,782.10	104.35	9.72	-90.00	-7,601.03	1,536.20	1,444.48	1,342.40	102.09	14.150	
12,800.00	5,823.00	5,782.10	5,782.10	105.80	9.72	-90.00	-7,601.03	1,536.20	1,402.55	1,296.32	106.23	13.203	
12,900.00	5,823.00	5,782.10	5,782.10	107.25	9.72	-90.00	-7,601.03	1,536.20	1,366.66	1,256.44	110.22	12.399	
13,000.00	5,823.00	5,782.10	5,782.10	108.69	9.72	-90.00	-7,601.03	1,536.20	1,337.30	1,223.35	113.95	11.736	
13,100.00	5,823.00	5,782.10	5,782.10	110.14	9.72	-90.00	-7,601.03	1,536.20	1,314.91	1,197.60	117.31	11.209	
13,200.00	5,823.00	5,782.10	5,782.10	111.59	9.72	-90.00	-7,601.03	1,536.20	1,299.85	1,179.66	120.19	10.815	
13,300.00	5,823.00	5,782.10	5,782.10	113.04	9.72	-90.00	-7,601.03	1,536.20	1,292.37	1,169.86	122.51	10.549	
13,346.92	5,823.00	5,782.10	5,782.10	113.72	9.72	-90.00	-7,601.03	1,536.20	1,291.52	1,168.13	123.39	10.467 CC, ES	
13,400.00	5,823.00	5,782.10	5,782.10	114.49	9.72	-90.00	-7,601.03	1,536.20	1,292.61	1,168.40	124.21	10.407	
13,500.00	5,823.00	5,782.10	5,782.10	115.95	9.72	-90.00	-7,601.03	1,536.20	1,300.56	1,175.32	125.24	10.384 SF	
13,600.00	5,823.00	5,782.10	5,782.10	117.40	9.72	-90.00	-7,601.03	1,536.20	1,316.08	1,190.45	125.63	10.476	
13,700.00	5,823.00	5,782.10	5,782.10	118.85	9.72	-90.00	-7,601.03	1,536.20	1,338.91	1,213.51	125.40	10.677	
13,800.00	5,823.00	5,782.10	5,782.10	120.30	9.72	-90.00	-7,601.03	1,536.20	1,368.69	1,244.06	124.63	10.982	
13,899.97	5,823.00	5,782.10	5,782.10	121.76	9.72	-90.00	-7,601.03	1,536.20	1,404.95	1,281.56	123.39	11.386	
13,903.39	5,823.00	5,782.10	5,782.10	121.81	9.72	-90.00	-7,601.03	1,536.20	1,406.30	1,282.96	123.34	11.402	

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 #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	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: 6500-MWD												Offset Well Error:		0.00 usft
Reference		Offset		Semi Major Axis			Distance						Warning	
Measured Depth (usft)	Vertical Depth (usft)	Measured Depth (usft)	Vertical Depth (usft)	Reference (usft)	Offset (usft)	Highside Toolface (°)	Offset Wellbore Centre +N/-S (usft)	+E/-W (usft)	Between Centres (usft)	Between Ellipses (usft)	Minimum Separation (usft)	Separation Factor		
12,400.00	5,823.00	5,772.10	5,772.10	100.01	9.70	90.00	-7,296.84	-1,135.68	1,520.91	1,418.56	102.35	14.860		
12,500.00	5,823.00	5,772.10	5,772.10	101.46	9.70	90.00	-7,296.84	-1,135.68	1,481.65	1,375.88	105.77	14.009		
12,600.00	5,823.00	5,772.10	5,772.10	102.90	9.70	90.00	-7,296.84	-1,135.68	1,448.24	1,339.25	108.99	13.288		
12,700.00	5,823.00	5,772.10	5,772.10	104.35	9.70	90.00	-7,296.84	-1,135.68	1,421.10	1,309.16	111.95	12.695		
12,800.00	5,823.00	5,772.10	5,772.10	105.80	9.70	90.00	-7,296.84	-1,135.68	1,400.59	1,286.05	114.55	12.227		
12,900.00	5,823.00	5,772.10	5,772.10	107.25	9.70	90.00	-7,296.84	-1,135.68	1,387.00	1,270.29	116.72	11.884		
13,000.00	5,823.00	5,772.10	5,772.10	108.69	9.70	90.00	-7,296.84	-1,135.68	1,380.54	1,262.15	118.39	11.661		
13,039.39	5,823.00	5,772.10	5,772.10	109.26	9.70	90.00	-7,296.84	-1,135.68	1,379.98	1,261.07	118.91	11.605 CC, ES		
13,100.00	5,823.00	5,772.10	5,772.10	110.14	9.70	90.00	-7,296.84	-1,135.68	1,381.31	1,261.77	119.54	11.555 SF		
13,200.00	5,823.00	5,772.10	5,772.10	111.59	9.70	90.00	-7,296.84	-1,135.68	1,389.30	1,269.16	120.14	11.564		
13,300.00	5,823.00	5,772.10	5,772.10	113.04	9.70	90.00	-7,296.84	-1,135.68	1,404.38	1,284.18	120.20	11.684		
13,400.00	5,823.00	5,772.10	5,772.10	114.49	9.70	90.00	-7,296.84	-1,135.68	1,426.32	1,306.57	119.75	11.911		
13,500.00	5,823.00	5,772.10	5,772.10	115.95	9.70	90.00	-7,296.84	-1,135.68	1,454.82	1,335.97	118.85	12.241		
13,600.00	5,823.00	5,772.10	5,772.10	117.40	9.70	90.00	-7,296.84	-1,135.68	1,489.51	1,371.94	117.57	12.670		
13,700.00	5,823.00	5,772.10	5,772.10	118.85	9.70	90.00	-7,296.84	-1,135.68	1,529.95	1,413.99	115.96	13.193		



WOG

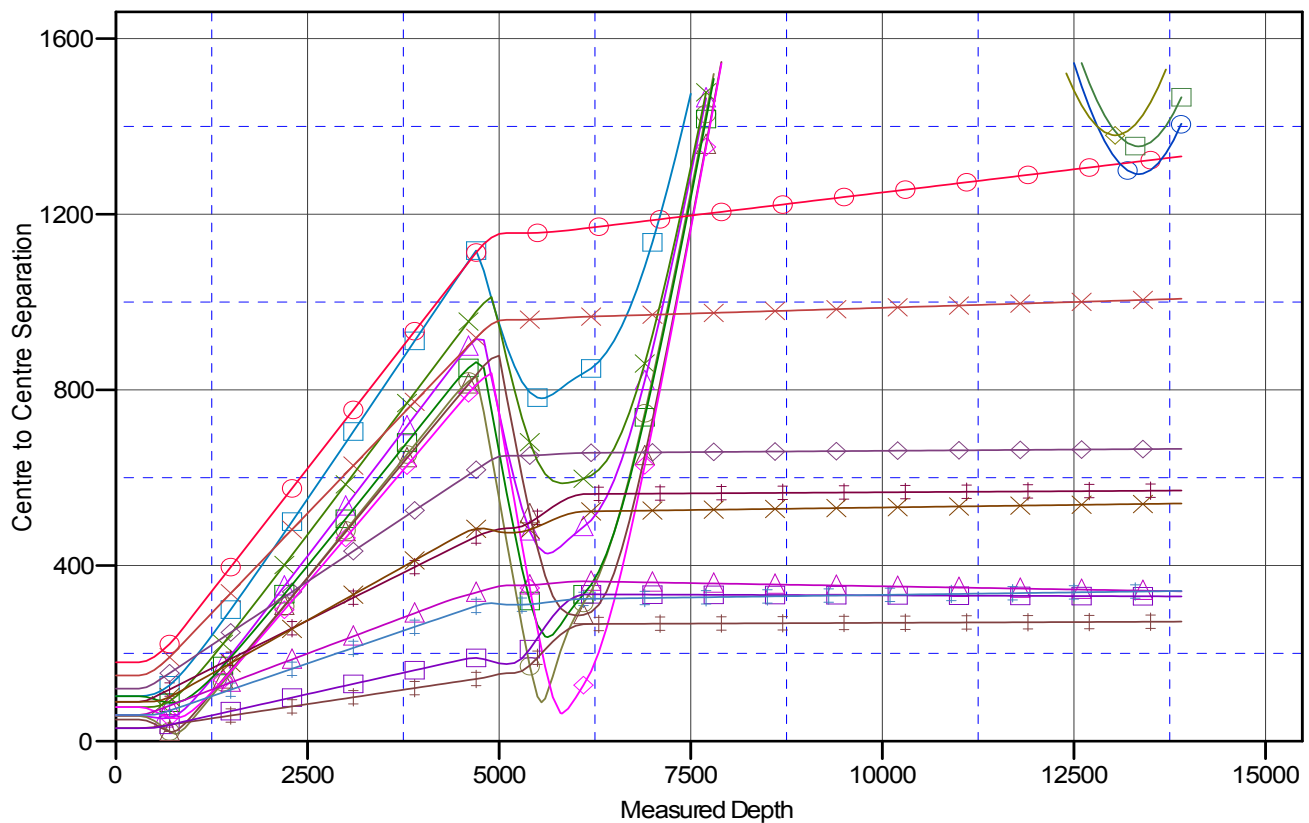
Anticollision Report

Company:	Whiting Petroleum Corp.	Local Co-ordinate Reference:	Well Horsetail #30G-3143
Project:	Weld County, CO	TVD Reference:	KBE @ 4758.90usft (Original Well Elev)
Reference Site:	Sec 30-T10N-R57W	MD Reference:	KBE @ 4758.90usft (Original Well Elev)
Site Error:	0.00 usft	North Reference:	True
Reference Well:	Horsetail #30G-3143	Survey Calculation Method:	Minimum Curvature
Well Error:	0.00 usft	Output errors are at	3.00 sigma
Reference Wellbore	HZ	Database:	LandmarkEDM
Reference Design:	APD	Offset TVD Reference:	Offset Datum

Reference Depths are relative to KBE @ 4758.90usft (Original Well Ele
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30G-3143
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Ladder Plot



LEGEND

Horsetail #30G-1909, Hz, APDV0	Horsetail #30G-3109, Hz, APDV0	Horsetail #30G-3142, Hz, APDV0
Horsetail #30G-1910, Hz, APDV0	Horsetail #30G-3110, Hz, APDV0	Horsetail #30G-3144, Hz, APDV0
Horsetail #30G-1911, Hz, APDV0	Horsetail #30G-3111, Hz, APDV0	Maddy #1, Wellbore #1, Wellbore #1 V0
Horsetail #30G-1912, Hz, APDV0	Horsetail #30G-3112, Hz, APDV0	Maddy #1-31, Wellbore #1, Wellbore #1 V0
Horsetail #30G-1942, Hz, APDV0	Horsetail #30G-3139, Hz, APDV0	Maddy #2, Wellbore #1, Wellbore #1 V0
Horsetail #30G-1943, Hz, APDV0	Horsetail #30G-3140, Hz, APDV0	
Horsetail #30G-1944, Hz, APDV0	Horsetail #30G-3141 Dropped, Hz, APDV0	



WOG

Anticollision Report

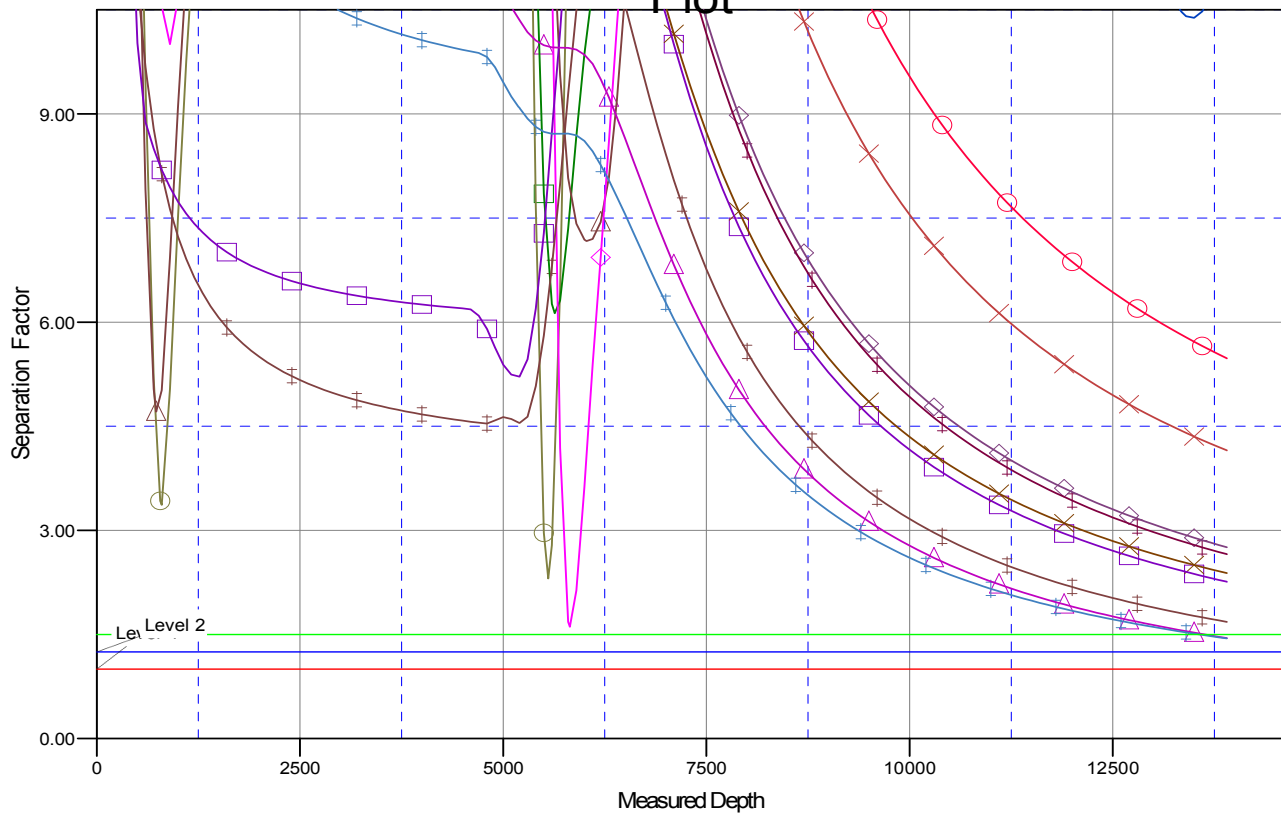
Company: Whiting Petroleum Corp.
Project: Weld County, CO
Reference Site: Sec 30-T10N-R57W
Site Error: 0.00 usft
Reference Well: Horsetail #30G-3143
Well Error: 0.00 usft
Reference Wellbore: Hz
Reference Design: APD

Local Co-ordinate Reference: Well Horsetail #30G-3143
TVD Reference: KBE @ 4758.90usft (Original Well Elev)
MD Reference: KBE @ 4758.90usft (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 @ 4758.90usft (Original Well Ele)
Offset Depths are relative to Offset Datum
Central Meridian is 105° 30' 0.000 W

Coordinates are relative to: Horsetail #30G-3143
Coordinate System is US State Plane 1983, Colorado Northern Zone
Grid Convergence at Surface is: 1.10°

Separation Factor Plot



LEGEND

- | | | |
|--------------------------------|--|--|
| Horsetail #30G-1909, Hz, APDV0 | Horsetail #30G-3109, Hz, APDV0 | Horsetail #30G-3142, Hz, APDV0 |
| Horsetail #30G-1910, Hz, APDV0 | Horsetail #30G-3110, Hz, APDV0 | Horsetail #30G-3144, Hz, APDV0 |
| Horsetail #30G-1911, Hz, APDV0 | Horsetail #30G-3111, Hz, APDV0 | Maddy #1, Wellbore #1, Wellbore #1 V0 |
| Horsetail #30G-1912, Hz, APDV0 | Horsetail #30G-3112, Hz, APDV0 | Maddy #1-31, Wellbore #1, Wellbore #1 V0 |
| Horsetail #30G-1942, Hz, APDV0 | Horsetail #30G-3139, Hz, APDV0 | Maddy #2, Wellbore #1, Wellbore #1 V0 |
| Horsetail #30G-1943, Hz, APDV0 | Horsetail #30G-3140, Hz, APDV0 | |
| Horsetail #30G-1944, Hz, APDV0 | Horsetail #30G-3141 Dropped, Hz, APDV0 | |